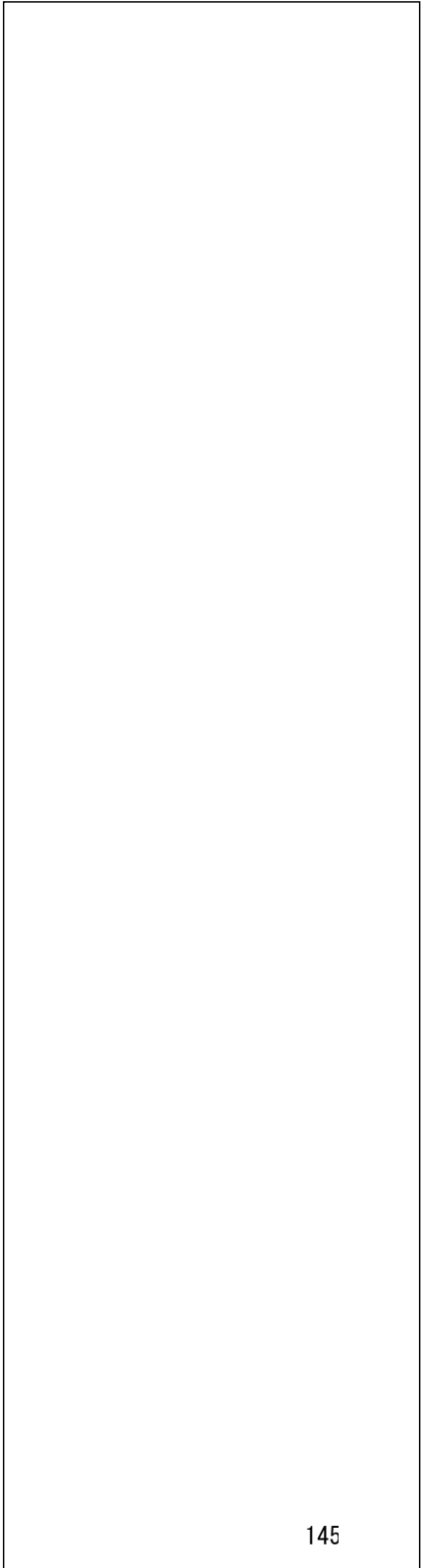




Optical Semiconductor Devices

Visible LEDs	● 147
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Visible LEDs

Dual-Color LED Lamps

Part Number	Source Color	Optical Characteristics (Ta = 25°C)					Absolute Maximum DC Forward Current Rating If (mA) @Ta = 25°C	Typical Applications	
		Intensity (mcd) If = 20 mA		Viewing Angle 2θ1/2 (°)	Typical Emitting Wavelength				Lens Color
		Min	Typ.		λd (nm)	λp (nm)			
TLRMHGH48T(F)	Red	476	1100	30	626	636	Transparent (Lens diameter: φ5 mm)	Message boards	
	Green	272	500		571	574			
TLRMHGH48M(F)	Red	272	450	40	626	636	Milky white diffused (Lens diameter: φ5 mm)		
	Green	153	220		571	574			

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

High-Brightness LED Lamps (φ5)

Part Number	Source Color	Optical Characteristics (Ta = 25°C)					Absolute Maximum DC Forward Current Rating If (mA) @Ta = 25°C	Typical Applications	
		Intensity (mcd) If = 20 mA		Viewing Angle 2θ1/2 (°)	Typical Emitting Wavelength				Lens Color
		Min	Typ.		λd (nm)	λp (nm)			
TLRME20CP(F)	Red	4760	12000	7	626	636	Red transparent	50	Pilot lamps (narrow range)
TLSH20TP(F)		4760	11000		613	623	Transparent	50	
TLRMH20TP(F)		2720	9000		626	636	Transparent	50	
TLSE20TP(F)		2720	9000		613	623	Transparent	50	
TLRME20TP(F)		2720	8000		626	636	Transparent	50	
TLRE20TP(F)		2720	7000		630	644	Transparent	50	
TLSH38TP(F)		2720	6500	12	613	623	Transparent	50	
TLRMH38TP(F)		1530	4800		626	636	Transparent	50	
TLSH17TP(F)		1530	4500	20	613	623	Transparent	50	
TLRMH17TP(F)		850	3200		626	636	Transparent	50	
TLRH17TP(F)		850	2000		630	644	Transparent	50	
TLSE17TP(F)		850	3000		613	623	Transparent	50	
TLRME17TP(F)		850	2400		626	636	Transparent	50	
TLRE17TP(F)		476	1500		630	644	Transparent	50	
TLRMK16TP(F)		1530	5700	23	626	636	Transparent	50	
TLSH16TP(F)		850	1900	25	613	623	Transparent	50	
TLSH16CP(F)		476	1500		613	623	Red transparent	50	
TLRMH16TP(F)		476	1500		626	636	Transparent	50	
TLRMH16CP(F)		476	1300		626	636	Red transparent	50	
TLSE16TP(F)		476	1500		613	623	Transparent	50	
TLSE16CP(F)		476	1000		613	623	Red transparent	50	
TLRME16TP(F)		272	1200		626	636	Transparent	50	
TLRE16TP(F)		272	800		630	644	Transparent	50	
TLRME16CP(F)		272	800		626	636	Red transparent	50	
TLRE16CP(F)		153	600		630	644	Red transparent	50	
TLRME17DP(F)		153	500		626	636	Red diffused	50	
TLRMK31TP(F)		850	3000		30	626	636	Transparent	50
TLSE30TP(F)		272	1000	613		623	Transparent	50	
TLRE30TP(F)		153	600	630		644	Transparent	50	
TLSH30TP(F)		476	1300	33	613	623	Transparent	50	
TLRMH30TP(F)	476	950	626		636	Transparent	50		
TLRH30TP(F)	272	680	630		644	Transparent	50		
TLRMH30MP(F)	272	600	40	626	636	Milky white diffused	50		
TLRE25TP(F)	47.6	150	75	630	644	Transparent	50	Backlighting (wide range)	
TLRE11TP(F)	8.5	20	130	630	644	Transparent	50		
TLOH20TP(F)	Orange	4760	15000	7	605	612	Transparent	50	Pilot lamps (narrow range)
TLOE20TP(F)		4760	10000		605	612	Transparent	50	
TLOH38TP(F)		2720	7500	12	605	612	Transparent	50	
TLOH17TP(F)		1530	5000	20	605	612	Transparent	50	
TLOE17TP(F)		1530	4500		605	612	Transparent	50	
TLOE17CP(F)		1530	3500	605	612	Orange transparent	50		
TLOH16TP(F)		850	2300	25	605	612	Transparent	50	
TLOH16CP(F)		850	2100		605	612	Orange transparent	50	
TLOE16TP(F)		850	2000		605	612	Transparent	50	
TLOE16CP(F)		476	1600	605	612	Orange transparent	50		
TLOE30TP(F)		476	1400	30	605	612	Transparent	50	
TLOH30TP(F)		476	1600	33	605	612	Transparent	50	
TLOE25TP(F)		153	350	75	605	612	Transparent	50	Backlighting (wide range)
TLOE11TP(F)		27.2	65	130	605	612	Transparent	50	

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Part Number	Source Color	Optical Characteristics (Ta = 25°C)					Absolute Maximum DC Forward Current Rating If (mA) @Ta = 25°C	Typical Applications	
		Intensity (mcd) If = 20 mA		Viewing Angle 2θ1/2 (°)	Typical Emitting Wavelength				Lens Color
		Min	Typ.		λd (nm)	λp (nm)			
TLYH20TP(F)	Yellow	4760	13000	7	587	590	Transparent	50	Pilot lamps (narrow range)
TLYE20TP(F)		2720	9500		587	590	Transparent	50	
TLYH38TP(F)		2720	7000	12	587	590	Transparent	50	
TLYH17TP(F)		1530	4800		587	590	Transparent	50	
TLYE17TP(F)		850	3000	20	587	590	Transparent	50	
TLYE17CP(F)		850	3000		587	590	Yellow transparent	50	
TLYK16TP(F)		2720	6800	23	587	590	Transparent	50	
TLYH16TP(F)		850	2200		587	590	Transparent	50	
TLYH16CP(F)		850	2000	25	587	590	Yellow transparent	50	Message boards Backlighting
TLYE16TP(F)		476	1500		587	590	Transparent	50	
TLYE16CP(F)		476	1200		587	590	Yellow transparent	50	
TLYE30TP(F)		476	1300		587	590	Transparent	50	
TLYK31TP(F)		1530	4000	30	587	590	Transparent	50	
TLYH30TP(F)		476	1350		587	590	Transparent	50	
TLYE25TP(F)		85	300	75	587	590	Transparent	50	Backlighting (wide range)
TLYE11TP(F)		15.3	45		130	587	590	Transparent	
TLPYE23TP(F)	Pure yellow	2720	8000	5	580	583	Transparent	50	Pilot lamps (narrow range)
TLPYE19TP(F)		476	2000	18	580	583	Transparent	50	
TLPYE18TP(F)		272	750	30	580	583	Transparent	50	Message boards Backlighting
TLGE23TP(F)	Green	2720	7000	5	571	574	Transparent	50	Pilot lamps (narrow range)
TLGU23TP(F)		1530	4000		571	574	Transparent	30	
TLGE19TP(F)		476	1300	18	571	574	Transparent	50	
TLGE19CP(F)		476	1100		571	574	Green transparent	50	
TLGE18TP(F)		272	700	30	571	574	Transparent	50	Message boards Backlighting
TLGE18CP(F)		153	500		571	574	Green transparent	50	
TLGU18TP(F)		85	200		571	574	Transparent	30	
TLGU18CP(F)		47.6	180		571	574	Green transparent	30	
TLGU13CP(F)		47.6	120	45	571	574	Green transparent	30	
TLGU13DP(F)		27.2	70		55	571	574	Green diffused	30
TLGE25TP(F)		27.2	90	75	571	574	Transparent	50	Backlighting (wide range)
TLGE11TP(F)		8.5	20		130	571	574	Transparent	
TLFGE23TP(F)		Fresh green	1530	5000	5	565	568	Transparent	50
TLFGE19TP(F)	272		800	18		565	568	Transparent	50
TLFGE19CP(F)	272		800		565	568	Green transparent	50	
TLFGE18TP(F)	85		300	30	565	568	Transparent	50	Message boards Backlighting
TLPGE23TP(F)	Pure green	850	3000	5	558	562	Transparent	50	Pilot lamps (narrow range)
TLPGU23TP(F)		476	1600		558	562	Transparent	30	
TLPGE19TP(F)		153	500	18	558	562	Transparent	50	
TLPGE18TP(F)		85	200		30	558	562	Transparent	50
TLPGU18TP(F)		27.2	90	558		562	Transparent	30	Message boards Backlighting
TLPGU13CP(F)		27.2	80	45	558	562	Green transparent	30	
TLPGU13DP(F)		15.3	35		55	558	562	Green diffused	30
TLPGE11TP(F)	2.72	8	130	558	562	Transparent	50	Backlighting (wide range)	
TLGTC16TP(F)	Bluish green	1530		6000	18	505	496	Transparent	30
TLGTC30TP(F)		850	3200	25	505	496	Transparent	30	Message boards Backlighting
TLGTC32TP(F)		850	2500		33	505	496	Transparent	

• Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

High-Brightness LED Lamps (φ3)

Part Number	Source Color	Optical Characteristics (Ta = 25°C)					Absolute Maximum DC Forward Current Rating If (mA) @Ta = 25°C	Typical Applications			
		Intensity (mcd) If = 20 mA		Viewing Angle 2θ1/2 (°)	Typical Emitting Wavelength				Lens Color		
		Min	Typ.		λd (nm)	λp (nm)					
TLSH50T(F)	Red	2720	4700	16	613	623	Transparent	50	Pilot lamps		
TLRH50T(F)		850	2000		630	644	Transparent				
TLSE50T(F)		1530	3500		613	623	Transparent				
TLRME50C(F)		1530	3500		626	636	Red transparent				
TLRME50T(F)		850	2200		626	636	Transparent				
TLRE50T(F)		850	1800		630	644	Transparent				
TLSE53T(F)		272	800	45	613	623	Transparent	50			
TLRME53T(F)		272	600		626	636	Transparent				
TLRE53T(F)		153	400		630	644	Transparent				
TLRME68TG(F) Δ		85	330	80	626	636	Transparent	50	Backlighting (wide range)		
TLRME68CG(F) Δ		85	260		626	636	Red transparent				
TLSE62T(F)		85	200		613	623	Transparent				
TLRH62T(F)		47.6	180		630	644	Transparent				
TLRME62T(F)		47.6	180		626	636	Transparent				
TLRE62T(F)		47.6	120		630	644	Transparent				
TLRME68DG(F) Δ	47.6	140	100	626	636	Red diffused	50				
TLRE60T(F)	15.3	45	120	630	644	Transparent	50				
TLOE50C(F)	Orange	2720	7000	16	605	612	Orange transparent	50	Pilot lamps		
TLOH50T(F)		1530	5800		605	612	Transparent				
TLOE50T(F)		1530	4500		605	612	Transparent				
TLOE53T(F)		272	1000	80	605	612	Transparent	50	Backlighting (wide range)		
TLOH62T(F)		153	550		605	612	Transparent				
TLOE62T(F)		153	350		605	612	Transparent				
TLOE60T(F)	27.2	100	120	605	612	Transparent	50				
TLYH50T(F)	1530	4400	16	587	590	Transparent	50	Pilot lamps			
TLYE50T(F)	1530	3500		587	590	Transparent					
TLYE50C(F)	1530	3500		587	590	Yellow transparent					
TLYE53T(F)	272	800		80	587	590			Transparent	50	Backlighting (wide range)
TLYH68TG(F)	272	520			587	590			Transparent		
TLYH62T(F)	153	400			587	590			Transparent		
TLYE68TG(F) Δ	85	340	100	587	590	Transparent	50	Backlighting (wide range)			
TLYE68CG(F) Δ	85	300		587	590	Yellow transparent					
TLYE62T(F)	85	250		587	590	Transparent					
TLYE68DG(F) Δ	47.6	150	100	587	590	Yellow diffused	50				
TLYE60T(F)	27.2	85	120	587	590	Transparent	50				
TLPYE50T(F)	Pure yellow	850	2500	16	580	583	Transparent	50	Pilot lamps		
TLPYE53T(F)		153	450	45	580	583	Transparent	50			
TLPYE62T(F)		47.6	150	80	580	583	Transparent	50	Backlighting (wide range)		
TLGU50T(F)	Green	476	1200	10	571	574	Transparent	30	Pilot lamps		
TLGE50T(F)		476	1500	16	571	574	Transparent	50			
TLGU53T(F)		47.6	170	40	571	574	Transparent	30			
TLGU53C(F)		47.6	150		571	574	Green transparent	30			
TLGE53T(F)		153	400		571	574	Transparent	50			
TLGU53D(F)		27.2	80	80	571	574	Green diffused	30	Backlighting (wide range)		
TLGU62T(F)		27.2	70		571	574	Transparent	30			
TLGE68TG(F) Δ		47.6	155		571	574	Transparent	50			
TLGE68CG(F) Δ		47.6	110	100	571	574	Green transparent	50	Backlighting (wide range)		
TLGE62T(F)		47.6	110		571	574	Transparent	50			
TLGE68DG(F) Δ		15.3	45		571	574	Green diffused	50			
TLGE60T(F)		15.3	50	120	571	574	Transparent	50			
TLFGE50T(F)	Fresh green	272	1000	16	565	568	Transparent	50	Pilot lamps		
TLFGE50C(F)		272	1000		565	568	Green transparent				
TLFGE53T(F)		85	200		80	565	568			Transparent	50
TLFGE68CG(F) Δ		27.2	70	565		568	Green transparent				
TLFGE62T(F)		27.2	70	565		568	Transparent				
TLFGE68DG(F) Δ		15.3	30	100	565	568	Green diffused	50	Backlighting (wide range)		
TLPGU50T(F)	Pure green	153	450	10	558	562	Transparent	30	Pilot lamps		
TLPGE50T(F)		153	600	16	558	562	Transparent	50			
TLPGU53T(F)		27.2	80	40	558	562	Transparent	30			
TLPGU53C(F)		27.2	70		558	562	Green transparent	30			
TLPGE53T(F)		47.6	130		558	562	Transparent	50			
TLPGU53D(F)		15.3	40	80	558	562	Green diffused	30	Backlighting (wide range)		
TLPGE62T(F)		15.3	45		558	562	Transparent	50			
TLPGU62T(F)		8.5	25		558	562	Transparent	30			

Δ: Mount flush with PCB

• Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

High-Brightness LED Lamps (Other)

Part Number	Source Color	Package Size (mm)	Optical Characteristics (Ta = 25°C)					Absolute Maximum DC Forward Current Rating If (mA) @Ta = 25°C	Typical Applications		
			Intensity (mcd) If = 20 mA		Viewing Angle 2θ1/2 (°)	Typical Emitting Wavelength				Lens Color	
			Min	Typ.		λd (nm)	λp (nm)				
TLSE27C(F)	Red	Oval 5 x 5.8	272	750	30/50	613	623	Red transparent	50	Message boards	
TLRH27T(F)			153	450	40/70	630	644	Transparent	50		
TLRME27C(F)			153	400	30/50	626	636	Red transparent	50		
TLRE27C(F)			85	300		630	644	Red transparent	50		
TLOE27C(F)	Orange		272	800	30/50	605	612	Orange transparent	50		
TLYH27T(F)	Yellow		272	900	40/70	587	590	Transparent	50		
TYLE27C(F)			272	650	30/50	587	590	Yellow transparent	50		
TLGE27C(F)	Green		85	250	30/50	571	574	Green transparent	50		
TLGU27C(F)			47.6	180		571	574	Green transparent	30		
TLRE28C(F)			Red	85	200	80/50	630	644	Red transparent		50
TLRME28C(F)	85	200		626	636		Red transparent	50			
TLSE28C(F)	85	300		613	623		Red transparent	50			
TLYH28C(F)	Yellow	272		750	70/50		587	590	Yellow transparent		50
TYLE28C(F)		153	350	80/50	587	590	Yellow transparent	50			
TLOE28C(F)	Orange	153	500	70/50	605	612	Orange transparent	50			
TLGH28C(F)	Green	47.6	170		571	574	Green transparent	50			
TLGE28C(F)		47.6	150	80/50	571	574	Green transparent	50			
TLOE33CP(F)	Orange	Arched 5 x 2.5	1530	4000	10	605	612	Orange transparent	50		Backlighting
TYLE33CP(F)	Yellow		1530	3500		587	590	Yellow transparent	50		
TLPYE33CP(F)	Pure yellow		476	1400		580	583	Yellow transparent	50		
TLFGE33CP(F)	Fresh green		153	400		565	568	Green transparent	50		
TLGE33CP(F)	Green		272	800		571	574	Green transparent	50		
TLGE33TP(F)			476	1300		571	574	Transparent	50		

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Surface-Mount LED Lamps (1608)

Part Number	Source Color	Package Size (mm)	Optical Characteristics (Ta = 25°C)				Viewing Angle 2θ1/2 (°)	If (mA)	Packaging Specification
			Intensity Iv (mcd)		Typical Emitting Wavelength				
			Min	Typ.	λd (nm)	λp (nm)			
TLRE1008A(T04)/(T05) ☆	Red	1.6(L) x 0.8(W) x 0.6(H) (PCB type)	27.2	70	630	644	100 to 140	20	Embossed tape Tape No.: T04 4-mm pitch 4000 pcs/reel
TLSE1008A(T04)/(T05) ☆	Red		47.6	140	613	623			
TLOE1008A(T04)/(T05) ☆	Orange		47.6	180	605	612			
TLYE1008A(T04)/(T05) ☆	Yellow		27.2	105	587	590			
TLPYE1008A(T04)/(T05) ☆	Pure yellow		27.2	70	580	583			
TLGE1008A(T04)/(T05) ☆	Green		27.2	70	571	574			
TLFGE1008A(T04)/(T05) ☆	Fresh green		8.5	25	565	568			
TLPGE1008A(T04)/(T05) ☆	Pure green		4.76	18	558	562			
TLSU1008A(T04)/(T05) ☆	Red		27.2	60	623	636			
TLOU1008A(T04)/(T05) ☆	Orange		27.2	78	605	612			
TLAU1008A(T04)/(T05) ☆	Amber		8.5	30	592	596			
TLYU1008A(T04)/(T05) ☆	Yellow		8.5	30	587	590			
TLGU1008A(T04)/(T05) ☆	Green	8.5	30	571	574				
TLPGU1008A(T04)/(T05) ☆	Pure green	1.53	6	558	562				
TLRV1022(T14,F)/(T15,F) ☆	Red	1.6(L) x 0.8(W) x 0.45(H) (ESC type)	4.76	15	630	644	140	5	Embossed tape Tape No.: T14 4-mm pitch 4000 pcs/reel
TLRMV1022(T14,F)/(T15,F) ☆	Red		4.76	15	626	636			
TLSV1022(T14,F)/(T15,F) ☆	Red		8.5	30	613	623			
TLOV1022(T14,F)/(T15,F) ☆	Orange		8.5	38	605	612			
TLVY1022(T14,F)/(T15,F) ☆	Yellow		8.5	25	587	590			
TLGV1022(T14,F)/(T15,F) ☆	Green		4.76	14	571	574			
TLPV1022(T14,F)/(T15,F) ☆	Pure green		1.53	3.5	558	561	20	Tape No.: T15 2-mm pitch 8000 pcs/reel	
TLRH1032(T14,F)/(T15,F) ☆	Red		25	56	630	644			
TLRMH1032(T14,F)/(T15,F) ☆	Red		40	85	626	636			
TLSH1032(T14,F)/(T15,F) ☆	Red		63	160	613	623			
TLOH1032(T14,F)/(T15,F) ☆	Orange		100	200	605	612			
TLYH1032(T14,F)/(T15,F) ☆	Yellow		40	100	587	590			
TLGH1032(T14,F)/(T15,F) ☆	Green		25	60	571	574	10		
TLFGH1032(T14,F)/(T15,F) ☆	Fresh green		10	25	565	568			

☆: Dry-packed

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Surface-Mount LED Lamps (2125)

Part Number	Source Color	Package Size (mm)	Optical Characteristics (Ta = 25°C)				Viewing Angle 2θ1/2 (°)	If (mA)	Packaging Specification
			Intensity Iv (mcd)		Typical Emitting Wavelength				
			Min	Typ.	λd (nm)	λp (nm)			
TLRE1002A(T02) ☆	Red	2.0(L) x 1.25(W) x 1.1(H)	27.2	70	630	644	120 to 140	20	Embossed tape Tape No.: T02 4-mm pitch 3000 pcs/reel
TLSE1002A(T02) ☆	Red		47.6	140	613	623			
TLOE1002A(T02) ☆	Orange		47.6	180	605	612			
TLYE1002A(T02) ☆	Yellow		27.2	105	587	590			
TLPYE1002A(T02) ☆	Pure yellow		27.2	70	580	583			
TLGE1002A(T02) ☆	Green		27.2	70	571	574			
TLFGE1002A(T02) ☆	Fresh green		8.5	25	565	568			
TLPGE1002A(T02) ☆	Pure green		4.76	18	558	562			
TLRU1002A(T02) ☆	Red		4.76	45	630	644			
TLSU1002A(T02) ☆	Red		27.2	60	623	636			
TLOU1002A(T02) ☆	Orange		27.2	78	605	612			
TLAU1002A(T02) ☆	Amber		8.5	30	592	596			
TLYU1002A(T02) ☆	Yellow		8.5	30	587	590			
TLGU1002A(T02) ☆	Green		8.5	30	571	574			
TLPGU1002A(T02) ☆	Pure green		1.53	6	558	562			
TLEGC1002(T02) ☆	Green		40	120	535	520	10		
TLBC1002(T02) ☆	Blue		16	45	472	470			

☆: Dry-packed

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Surface-Mount LED Lamps (ϕ 3.6 Lens-Top)

Part Number	Source Color	Package Size (mm)	Optical Characteristics (Ta = 25°C)				Viewing Angle 2 θ 1/2 (°)	If (mA)	Packaging Specification
			Intensity Iv (mcd)		Typical Emitting Wavelength				
			Min	Typ.	λ_d (nm)	λ_p (nm)			
TLRMH1050(T20) ☆	Red	5.2(L) x 5.2(W) x 4.0(H) with ϕ 3.6 lens	272	700	626	636	30	20	Embossed tape Tape No.: T20 8-mm pitch 400 pcs/reel
TLSH1050(T20) ☆	Red		476	1400	613	623			
TLOH1050(T20) ☆	Orange		476	1500	605	612			
TLYH1050(T20) ☆	Yellow		476	1000	587	590			
TLGH1050(T20) ☆	Green		272	600	571	574			
TLFGH1050(T20) ☆	Fresh green		85	250	565	568			
TLEGD1050(T20) ☆	Green		476	1300	528	523			
TLBD1050(T20) ☆	Blue		153	400	470	468			
TLRMH1052(T20) * ☆	Red	5.2(L) x 5.2(W) x 4.0(H) with 3.6 x 4.4 Oval lens	153	450	626	636	30/84	20	
TLSH1052(T20) * ☆	Red		272	900	613	623			
TLOH1052(T20) * ☆	Orange		476	1000	605	612			
TLYH1052(T20) * ☆	Yellow		272	750	587	590			
TLGH1052(T20) * ☆	Green		153	400	571	574	30/80		
TLFGH1052(T20) * ☆	Fresh green		85	190	565	568			
TLEGD1052(T20) * ☆	Green		272	850	528	523			
TLBD1052(T20) * ☆	Blue		85	300	470	468			
TLRMF1050(T20) * ☆	Red	5.2(L) x 5.2(W) x 4.0(H) with ϕ 3.6 lens	250	700	626	636	30	20	
TLSF1050(T20) * ☆	Red		630	1400	613	623			
TLOF1050(T20) * ☆	Orange		630	1500	605	612			
TLYF1050(T20) * ☆	Yellow		630	1000	587	590			
TLGF1050(T20) * ☆	Green		400	900	571	574			
TLFGF1050(T20) * ☆	Fresh green		160	370	565	568			
TLPGF1050(T20) * ☆	Pure green		100	180	558	562			
TLRMF1052(T20) * ☆	Red		5.2(L) x 5.2(W) x 4.0(H) with 3.6 x 4.4 Oval lens	160	450	626			
TLSF1052(T20) * ☆	Red	400		900	613	623			
TLOF1052(T20) * ☆	Orange	400		1000	605	612			
TLYF1052(T20) * ☆	Yellow	250		750	587	590			
TLGF1052(T20) * ☆	Green	250		600	571	574			
TLFGF1052(T20) * ☆	Fresh green	100		280	565	568			
TLPGF1052(T20) * ☆	Pure green	63		140	558	562			

☆: Dry-packed

*: New product

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Mini PLCC LED Lamps (Flat-Top)

Part Number	Source Color	Package Size (mm)	Optical Characteristics (Ta = 25°C)				Viewing Angle 2 θ 1/2 (°)	If (mA)	Packaging Specification
			Intensity Iv (mcd)		Typical Emitting Wavelength				
			Min	Typ.	λ_d (nm)	λ_p (nm)			
TLRF1060(T18) ☆	Red	2.2(L) x 1.4(W) x 1.3(H)	40	100	630	644	100	20	Embossed tape Tape No.: T18 4-mm pitch 3000 pcs/reel
TLSF1060(T18) ☆	Red		100	200	613	623			
TLOF1060(T18) ☆	Orange		100	220	605	612			
TLYF1060(T18) ☆	Yellow		63	180	587	590			
TLPYF1060(T18) ☆	Pure yellow		40	100	580	583			
TLGF1060(T18) ☆	Green		40	80	571	574			
TLFGF1060(T18) ☆	Fresh green		25	50	565	568			
TLPGF1060(T18) ☆	Pure green		10	20	558	562			
TLEGD1060(T18) ☆	Green		63	150	528	523			
TLBD1060(T18) ☆	Blue		25	60	470	468			

☆: Dry-packed

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

PLCC SMD LED Lamps (Flat-Top)

Part Number	Source Color	Package Size (mm)	Optical Characteristics (Ta = 25°C)						Packaging Specification		
			Intensity Iv (mcd)		Typical Emitting Wavelength		Viewing Angle 2θ1/2 (°)	If (mA)			
			Min	Typ.	λd (nm)	λp (nm)					
TLRK1100C(T11) ☆	Red	3.2(L) x 2.8(W) x 1.9(H)	100	300	630	644	120	20	Embossed tape Tape No.: T11 4-mm pitch 2000 pcs/reel		
TLRMK1100C(T11) ☆	Red		160	400	626	636					
TLSK1100C(T11) ☆	Red		250	500	613	623					
TLOK1100C(T11) ☆	Orange		250	500	605	612					
TLYK1100C(T11) ☆	Yellow		160	400	590	592					
TLRH1100B(T11) ☆	Red		63	150	630	644					
TLRMH1100B(T11) ☆	Red		63	150	626	636					
TLSH1100B(T11) ☆	Red		160	260	613	623					
TLOH1100B(T11) ☆	Orange		160	270	605	612					
TLYH1100B(T11) ☆	Yellow		100	220	587	590					
TLRE1100B(T11) ☆	Red		40	100	630	644					
TLSE1100B(T11) ☆	Red		63	180	613	623					
TLOE1100B(T11) ☆	Orange		63	180	605	612					
TLYE1100B(T11) ☆	Yellow		63	150	587	590					
TLGE1100B(T11) ☆	Green		40	100	571	574					
TLFGE1100B(T11) ☆	Fresh green		25	45	565	568					
TLPGE1100B(T11) ☆	Pure green		10	25	558	562					
TLEGE1100B(T11) ☆	Green		100	350	528	523					
TLGTE1100B(T11) ☆	Bluish green		160	300	505	496					
TLBE1100B(T11) ☆	Blue		63	100	470	468					
TLEGD1100B(T11) ☆	Green		100	200	528	523					
TLBD1100B(T11) ☆	Blue		40	70	470	468					
TLBA1100B(T11) ☆	Blue		4	7	465	428					
TLWK1100C(T11) * ☆	White		1250	1700	▲0.3/0.3					10	
TLWH1100(T11) ☆	White		250	450	▲0.33/0.32						20
TLWD1100B(T11) * ☆	White		63	180	▲0.32/0.31						
TLRH1106(T11) ☆	Red		160	380	630	644				50	
TLRMH1106(T11) ☆	Red		160	380	626	636					
TLSH1106(T11) ☆	Red		250	500	613	623					
TLOH1106(T11) ☆	Orange		250	600	605	612					
TLYH1106(T11) ☆	Yellow		250	450	587	590					
TLGH1106(T11) ☆	Green		100	200	571	574					

☆: Dry-packed

▲: CIE1931 (chromaticity coordinate) (typ.)

• Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

*: New product

High Luminous Flux LED Lamps

Part Number	Source Color	Package Size (mm)	Optical Characteristics (Ta = 25°C)						Packaging Specification		
			Luminous Flux F (lm)		▲ Typical Chromaticity		Forward Voltage Vf (V)			Viewing Angle 2θ1/2 (°)	If (mA)
			Min	Typ.	Cx	Cy	Typ.	Max			
TL12W01-D(T30) * ☆	White	10.5(L) x 5.0(W) x 2.1(H)	20	40	0.32	0.31	3.4	4.0	120	250	Embossed tape Tape No.: T30 8-mm pitch 500 pcs/reel

☆: Dry-packed

▲: CIE1931 (chromaticity coordinate)

• Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

*: New product

Photosensors

Infrared LEDs and Visible LEDs for Sensor Light Sources

Part Number	Part Number with Rank	Package	Electrical/Optical Characteristics (Ta = 25°C)								Applications
			Radiant Intensity			Radiant Power			Peak Emission Wavelength (nm)	Half-Value Angle (°)	
			Min (mW/sr)	Max (mW/sr)	If (mA)	Min (mW)	Max (mW)	If (mA)			
TLN108(F)	—	TO-18CAN with lens	10	—	50	—	—	—	940	±8	Optoelectronic switches
TLN201(F)	—	TO-18CAN with lens	20	—	50	—	—	—	880	±7	
TLN105B(F)	—	φ5	12	—	50	—	—	—	950	±23.5	Remote controls
TLN110(F)	—	φ5	15	—	50	—	—	—	940	±8	Optoelectronic switches
TLN115A(F)	—	φ5	15	—	50	—	—	—	950	±21	Remote controls
	TLN115A(B,F)		19	—							
TLN231(F)	—	φ5	35	—	50	—	—	—	870	±16	Fiberless optical transmissions, optoelectronic switches
TLN233(F)	—	φ5	46	—	50	—	—	—	870	±13	
TLN227(F)	—	φ5	—	—	—	14	—	50	870	±5	Fiberless optical transmissions
TLN225(F)	—	φ4.9	—	—	—	14	—	50	870	±21	Fiberless optical transmissions
TLN226(F)	—	φ4.9	—	—	—	14	—	50	870	±13	
TLN119(F)	—	φ3	2.5	10	20	—	—	—	945	±30	Optoelectronic switches
	TLN119(B,F)		4.2	10							
TLN238(F)	—	φ3	40	—	50	—	—	—	870	±18	Fiberless optical transmissions, optoelectronic switches
TLN117(F)	—	Small side-view package	2	—	20	—	—	—	940	±15	Optoelectronic switches
	TLN117(B,F)		2	7.5							
	TLN117(C,F)		5	18.7							
TLOH9204 * ☆	—	6-pin SMD	15◆	21◆	20	—	—	—	612	±4	Specifically designed for digital still cameras

☆: Dry-packed

◆: Luminous intensity (cd)

Note: If = forward current

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

☆: New product

Phototransistors

Part Number	Part Number with Rank	Package	Electrical/Optical Characteristics (Ta = 25°C)								Applications
			Light Current			Dark Current		Peak Sensitive Wavelength (nm)	Half-Value Angle (°)	Impermeable to Visible Light	
			Min (μA)	Max (μA)	E (mW/cm ²)	Max (μA)	VCE (V)				
TPS601A(F)	—	TO-18CAN with lens	100	—	0.1	0.2	30	800	±10	—	
	TPS601A(A,F)		100	300							
	TPS601A(B,F)		200	600							
	TPS601A(C,F)		400	1200							
TPS610(F)	—	φ5	100	—	0.1	0.1	24	800	±8	—	
TPS611(F)	—	φ5	30	—	0.1	0.1	24	900	±8	●	
TPS615(F)	—	φ3	20	150	0.1	0.1	24	800	±30	—	
	TPS615(A,F)		20	50							
	TPS615(B,F)		34	85							
	TPS615(C,F)		60	150							
	TPS615(AB,F)		20	85							
	TPS615(BC,F)		34	150							
TPS616(F)	—	φ3	10	75	0.1	0.1	24	900	±30	●	
	TPS616(A,F)		10	25							
	TPS616(B,F)		17	42.5							
	TPS616(C,F)		30	75							
	TPS616(AB,F)		10	42.5							
	TPS616(BC,F)		17	75							
TPS622(F)	—	Small side-view package	27	—	0.1	0.1	24	870	±15	●	
	TPS622(A,F)		27	80							
	TPS622(B,F)		55	165							

Note: E = radiant incidence; VCE = collector-emitter voltage

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Photodiodes

Part Number	Package	Electrical/Optical Characteristics (Ta = 25°C)							Applications
		Short-Circuit Current		Dark Current		Peak Sensitive Wavelength (nm)	Half-Value Angle (°)	Impermeable to Visible Light	
		Min (μA)	E (mW/cm ²)	Max (nA)	V _R (V)				
TPS703(F)	Side-view package	0.9	0.1	30	10	960	±65	●	Remote controls
TPS704(F)		0.5	0.1	30	10	1000	±65	●	

Note: E = radiant incidence; V_R = reverse voltage

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Photo-ICs (Digital Output)

Part Number	Package	Electrical/Optical Characteristics (Ta = 25°C)							Applications	
		Output Type		Threshold Radiant Incidence			Peak Sensitive Wavelength (nm)	Half-Value Angle (°)		Impermeable to Visible Light
		With Resistor	Open-Collector	L → H Max (mW/cm ²)	H → L Max (mW/cm ²)	V _{CC} (V)				
TPS841(F)	Small side-view package	—	●	0.3	—	2.7 to 15	900	±15	●	Optoelectronic switches
TPS842A(F)		—	●	—	0.3	2.7 to 15	900	±15	●	
TPS843(F)		●	—	0.3	—	2.7 to 15	900	±15	●	
TPS844(F)		●	—	—	0.3	2.7 to 15	900	±15	●	
TPS816(F)	Side-view package, optical modulation	●	—	0.08	0.1	5	900	±65	●	

Note: V_{CC} = power supply voltage; L: Transmission range; fo: Carrier frequency

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Photo-ICs (Analog Output)

Part Number	Part Number with Rank	Package	Electrical/Optical Characteristics (Ta = 25°C)								Applications	
			Light Current				Dark Current		Peak Sensitive Wavelength (nm)	Half-Value Angle (°)		Impermeable to Visible Light
			Min (μA)	Max (μA)	Ev (lx)	V _{CC} (V)	Max (μA)	V _{CC} (V)				
TPS820(B,F)	TPS820(B,F)	Small side-view package	1500	6000	E = 0.1 mW/cm ²	5	0.5	5	870	±15	●	Optoelectronic switches
TPS851	☆ —	Chip type	37	74	100	3	0.17	3.3	600	±55	—	Ambient light sensor
	TPS851(A)	SMD: 2.1(L) x 2.0(W) x 0.7(H)	37	62								
TPS852	☆ —	Chip type	27	54	100	3	0.1	3.3	600	±55	—	
	TPS852(A)	SMD: 1.6(L) x 1.6(W) x 0.55(H)	30	50								
TPS853	☆ —	Chip type, with stand by function	37	74	100	3	0.1	3.3	600	±55	—	
	TPS853(A)	SMD: 2.1(L) x 2.0(W) x 0.7(H)	42	70								
TPS856	☆ —	Chip type, with stand by function	40	80	100	3	0.1	3	580	±55	—	
	TPS856(A)	SMD: 1.6(L) x 1.6(W) x 0.55(H)	44.1	73.7								
TPS859	* ☆ —	Chip type	160	320	100	3	0.2	3	580	±55	—	
	TPS859(A)	SMD: 1.6(L) x 1.6(W) x 0.55(H)	180	300								
TPS855(F)	—	Side-view package	210	350	100	5	0.5	5.5	640	±65	—	

☆: Dry-packed

*: New product

Note: V_{CC} = power supply voltage; Ev: Illuminance; E = radiant incidence

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Photointerrupters (Phototransistor Output)

Part Number	Part Number with Rank	Package	Gap (mm)	Slit Width (mm)	Electrical Characteristics (Ta = 25°C)				Absolute Maximum Ratings (Ta = 25°C)	Applications
					Current Transfer Ratio					
					Min (%)	Max (%)	IF (mA)	VCE (V)	Collector-Emitter Voltage (V)	
TLP832(F)	—	PWB direct mounting	5	0.5	5	100	10	2	35	Printers, fax machines, copiers, image scanners, vending machines
TLP833(F)	—		5	0.5	5	100	10	2	35	
TLP831(F)	—		4.2	0.5 (Note 1)	5	100	10	2	35	
TLP830(F)	—		2	0.15	3	20	10	2	35	
TLP848	☆	Surface-mount, ultra-compact package	1.2	0.3	3	24	5	2	15	Cameras, cellular phones
	TLP848(R)		1.2	0.3	4	20	5	2	15	

☆: Dry-packed

Note: PWB = printed wiring board; IF = forward current; VCE = collector-emitter voltage

Note 1: Horizontal slit

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Photointerrupters (Photo-IC Output)

Part Number	Package	Gap (mm)	Slit Width (mm)	Electrical Characteristics (Ta = 25°C)					Applications
				Output Type		Threshold Input Current			
				With Resistor	Open-Collector	L → H Max (mA)	H → L Max (mA)	VCC (V)	
TLP1033A(F)	PWB direct mounting	5	0.5	—	●	—	3	2.7 to 15	Printers, fax machines, copiers, image scanners, vending machines, amusement equipment
TLP1032(F)				—	●	3	—	2.7 to 15	

Note: PWB = printed wiring board; VCC = power supply voltage

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Photointerrupters (with Connector)

Part Number	Package	Gap (mm)	Slit Width (mm)	Electrical Characteristics (Ta = 25°C)			Connector Manufacturer	Applications
				Operating Supply Voltage (V)	Output Type			
					With Resistor	Open-Collector		
TLP1243(C8)	Snap-in mounting	5	0.7	VCE ≤ 35 V	—	Phototransistor output	Tyco Electronics AMP K.K.	Printers, copiers, fax machines, vending machines, FA equipment, amusement equipment
TLP1255(C8,Q)			0.7	2.97 to 5.5	—	●	Tyco Electronics AMP K.K.	

Note: VCE: Collector-emitter voltage

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Photocouplers and Photorelays

Transistor Output

Part Number	Pin Configuration	Features	CTR				V _{CEO} (V)	BV _s 1 Minute (V _{rms})	Safety Standards ⁽¹⁾				
			Rank	Min (%)	Max (%)	@I _F / V _{CE} (mA) (V)			UL	TÜV	VDE	BSI	IEC
TLP124		Mini-flat 6-pin MFSOP Low input drive current	— BV	100 200	1200	1/0.5	80	3750	○				
TLP126		Mini-flat 6-pin MFSOP AC input Low input drive current	—	100	1200	±1/0.5			○				
TLP130		Mini-flat 6-pin MFSOP AC input Internal base connection	— GB	50 100	600	±5/5	80	3750	○				
TLP131		Mini-flat 6-pin MFSOP General-purpose Internal base connection	— GB	50 100	600	5/5			○				
TLP137		Mini-flat 6-pin MFSOP Low input drive current Internal base connection c-UL-approved	— BV	100 200	1200	1/0.5	80	3750	○				
TLP180		Mini-flat 6-pin MFSOP AC input SEMKO-approved c-UL-approval pending	— GB	50 100	600	±5/5			○	○ ⁽²⁾	△	◎ EN 60950 EN 60065	△ 60950 60065
TLP181		Mini-flat 6-pin MFSOP General-purpose High CTR SEMKO-approved c-UL-approval pending	— GB Y GR BL YH GRL GRH	50 100 50 100 200 75 100 150	600 150 300 600 150 200 300	5/5	80	3750	○	△	○ ⁽²⁾	◎ EN 60950 EN 60065	△ 60950 60065
TLP280		4-pin SOP Lead pitch: 1.27 mm AC input SEMKO-approved c-UL-approval pending	— GB	50 100	600	±5/5			80	2500	○	△	○ ⁽²⁾
TLP280-4		16-pin SOP 4-channel version of the TLP280 Lead pitch: 1.27 mm AC input SEMKO-approved c-UL-approval pending	— GB	50 100	600	±5/5	80	2500			○	△	○ ⁽²⁾
TLP281		4-pin SOP Lead pitch: 1.27 mm General-purpose SEMKO-approved c-UL-approval pending	— GB Y GR BL YH GRL GRH BLL	50 100 50 100 200 75 100 150 200	600 150 300 600 150 200 300 400	5/5			80	2500	○	△	○ ⁽²⁾
TLP281-4		16-pin SOP 4-channel version of the TLP281 Lead pitch: 1.27 mm SEMKO-approved c-UL-approval pending	— GB	50 100	600	±5/5	80	2500			○	△	○ ⁽²⁾

Note (1): Legend in the Safety Standards column:

○: Approved ◎: SELV-approved △: Design which meets safety standard, Approval pending (as of 08/07)
TUV and VDE: EN60747-5-2-approved with option V4 or D4.

Note (2): The EN60747-5-2 safety standard for compact packages is different from that for standard DIP packages. Since the mini-flat package is a compact package, please contact your nearest Toshiba sales representative for more details.

- The pin configuration diagrams only show the general configurations of the circuits.
- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Part Number	Pin Configuration	Features	CTR				V _{CEO} (V)	BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
			Rank	Min (%)	Max (%)	@I _F / V _{CE} (mA) (V)			UL	TÜV	VDE	BSI	IEC
TLP283		4-pin SOP Lead pitch: 1.27 mm Low input drive current High-speed switching c-UL-approval pending	—	100	400	1/5	100	2500	○				
TLP285		4-pin SOP Lead pitch: 1.27 mm General-purpose High BVs Creepage distance: 5.0 mm (min) c-UL-approved	—	50	600	5/5	80	3750	○	○ ⁽²⁾	○ ⁽²⁾	◎	△
			GB	100									
			Y	50	150								
			GR	100	300								
			BL	200	600								
			YH	75	150								
			GRL	100	200								
			GRH	150	300								
BLL	200	400											
TLP320		4-pin DIP High input current AC input I _F = 150 mA c-UL-approval pending	—										
TLP320-2		8-pin DIP Dual channel version of the TLP320	—	20	80	±100/1	55	5000	○	△ EN 60747	△ EN 60747	◎ EN 60950 EN 60065	△ 60950 60065
TLP320-4		16-pin DIP 4-channel version of the TLP320	—										
TLP330		6-pin DIP High input current AC input I _F = 150 mA	—	20	80	±100/1	55	5000	○				
TLP331		6-pin DIP Low input drive current Internal base connection	—	100	1200	1/0.5	55	5000	○				
			BV	200									
TLP332		6-pin DIP Low input drive current No internal base connection	—	100	1200	1/0.5	55	5000	○				
			BV	200									
TLP504A		8-pin DIP General-purpose	—	50	600	5/5	55	2500	○				
			GB	100									
TLP521-1		4-pin DIP General-purpose	A	50	600	5/5	55	2500	○				
			GB	100	600								
			Y	50	150								
			GR	100	300								
			BL	200	600								
TLP521-2		8-pin DIP Dual channel version of the TLP521-1	A	50	600	5/5	55	2500	○				
			GB	100									
TLP521-4		16-pin DIP 4-channel version of the TLP521-1	A	50	600	5/5	55	2500	○				
			GB	100									

Note (1): Legend in the Safety Standards column:

○: Approved ◎: SELV-approved △: Design which meets safety standard, Approval pending (as of 08/07)

TUV and VDE: EN60747-5-2-approved with option V4 or D4.

Note (2): The EN60747-5-2 safety standard for compact packages is different from that for standard DIP packages. Since the mini-flat package is a compact package, please contact your nearest Toshiba sales representative for more details.

- The pin configuration diagrams only show the general configurations of the circuits.
- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Transistor Output (Continued)

Part Number	Pin Configuration	Features	CTR				V _{CEO} (V)	BV _s 1 Minute (V _{rms})	Safety Standards ⁽¹⁾					
			Rank	Min (%)	Max (%)	@I _F / V _{CE} (mA) (V)			UL	TÜV	VDE	BSI	IEC	
TLP531 ⁽³⁾		6-pin DIP General-purpose Internal base connection	A	50	600	5/5	55	2500	○					
			GB	100										
			BL	200	300									
			GR	100	150									
			Y	50										
TLP532 ⁽³⁾		6-pin DIP General-purpose High EMI immunity No internal base connection	A	50	600	5/5	55	2500	○					
			GB	100										
			BL	200	300									
			GR	100	150									
			Y	50										
TLP620 TLP620F		4-pin DIP AC input SEMKO-approved c-UL-approval pending	—	50	600	±5/5	55	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950	
			GB	100										
TLP620-2		8-pin DIP Dual channel version of the TLP620 SEMKO-approved c-UL-approval pending	—	50	600	±5/5	55	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950	
			GB	100										
TLP620-4		16-pin DIP 4-channel version of the TLP620 c-UL-approval pending	—	50	600	±5/5	55	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950	
			GB	100										
TLP621 TLP621F		4-pin DIP High isolation voltage UL-approved (double protection) SEMKO-approved c-UL-approval pending	—	50	600	5/5	55	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950	
			GB	100	600									
			Y	50	150									
			GR	100	300									
			BL	200	600									
TLP621-2		8-pin DIP Dual channel version of the TLP621 SEMKO-approved c-UL-approval pending	—	50	600	5/5	55	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950	
			GB	100										
TLP621-4		16-pin DIP 4-channel version of the TLP621 c-UL-approval pending	—	50	600	5/5	55	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950	
			GB	100										
TLP624		4-pin DIP Low input drive current	—	100	1200	1/0.5	55	5000	○	△ EN 60747	△ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950	
			BV	200										
TLP624-2		8-pin DIP Dual channel version of the TLP624	—	100	1200	1/0.5	55	5000	○	△ EN 60747	△ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950	
			BV	200										
TLP624-4		16-pin DIP 4-channel version of the TLP624	—	100	1200	1/0.5	55	5000	○	△ EN 60747	△ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950	
			BV	200										
TLP626		4-pin DIP Low input drive current AC input	—	100	1200	±1/0.5	55	5000	○	△ EN 60747	△ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950	
			BV	200										

Note (1): Legend in the Safety Standards column:

○: Approved ◎: SELV-approved △: Design which meets safety standard, Approval pending (as of 08/07)

TÜV and VDE: EN60747-5-2-approved with option V4 or D4.

Note (3): The products with the ranks Y and BL are limited in production. For details, please contact your nearest Toshiba sales representative.

- The pin configuration diagrams only show the general configurations of the circuits.
- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Part Number	Pin Configuration	Features	CTR				V _{CEO} (V)	BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
			Rank	Min (%)	Max (%)	@I _F / V _{CE} (mA) (V)			UL	TÜV	VDE	BSI	IEC
TLP626-2		8-pin DIP Dual channel version of the TLP626	—	100	1200	±10.5	55	5000	○	△ EN 60747	△ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950
		BV	200										
TLP626-4		16-pin DIP 4-channel version of the TLP626	—	100	1200	±10.5	55	5000	○	△ EN 60747	△ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950
		BV	200										
TLP628		4-pin DIP High V _{CEO} V _{CEO} = 350 V	—	50	600	5/5	350	5000	○	△ EN 60747	△ EN 60747	△ EN 60065 EN 60950	△ 60065 60950
		GB	100										
TLP628-2		8-pin DIP Dual channel version of the TLP628	—	50	600	5/5	350	5000	○	△ EN 60747	△ EN 60747	△ EN 60065 EN 60950	△ 60065 60950
		GB	100										
TLP628-4		16-pin DIP 4-channel version of the TLP628	—	50	600	5/5	350	5000	○	△ EN 60747	△ EN 60747	△ EN 60065 EN 60950	△ 60065 60950
		GB	100										
TLP629		4-pin DIP High input current I _F = 150 mA DC input	—	20	80	100/1	55	5000	○	△ EN 60747	△ EN 60747	△ EN 60065 EN 60950	△ 60065 60950
TLP629-2		8-pin DIP Dual channel version of the TLP629	—	20									
TLP629-4		16-pin DIP 4-channel version of the TLP629	—	20	80	100/1	55	5000	○	△ EN 60747	△ EN 60747	△ EN 60065 EN 60950	△ 60065 60950
		GB	100										
TLP630		6-pin DIP AC input High isolation voltage	—	50	600	±5/5	55	5000	○				
		GB	100										
TLP631		6-pin DIP General-purpose Internal base connection	—	50	600	5/5	55	5000	○				
		GB	100										
TLP632		6-pin DIP General-purpose High EMI immunity No internal base connection	—	50	600	5/5	55	5000	○				
		GB	100										
TLP731		6-pin DIP SEMKO-approved Internal base connection	—	50	600	5/5	55	4000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950
		GB	100										
TLP732		6-pin DIP SEMKO-approved No internal base connection	—	50	600	5/5	55	4000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950
		GB	100										

Note (1): Legend in the Safety Standards column:

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TÜV and VDE: EN60747-5-2-approved with option V4 or D4.

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Transistor Output (Continued)

Part Number	Pin Configuration	Features	CTR				V _{CEO} (V)	BV _s 1 Minute (V _{rms})	Safety Standards ⁽¹⁾				
			Rank	Min (%)	Max (%)	@I _F / V _{CE} (mA) (V)			UL	TÜV	VDE	BSI	IEC
TLP733 TLP733F		6-pin DIP SEMKO-approved Internal base connection	—	50	600	5/5	55	4000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950
			GB	100									
			GR	100	300								
TLP734 TLP734F		6-pin DIP SEMKO-approved No internal base connection	—	50	600	5/5	55	4000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950
			GB	100									
			GR	100	300								
TLP781 ⁽⁵⁾ TLP781F ⁽⁵⁾		4-pin DIP High isolation voltage UL-approved (double protection) SEMKO-approved c-UL-approved	—	50	600	5/5	80	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950
			Y	50	150								
			GR	100	300								
			BL	200	600								
			GB	100									
			YH	75	150								
			GRL	100	200								
			GRH	150	300								
BLL	200	400											

Note (1): Legend in the Safety Standards column:

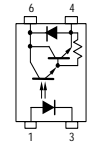
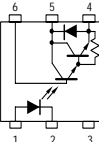
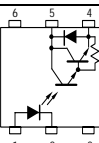
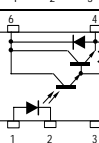
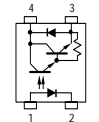
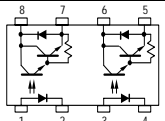
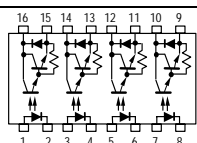
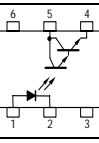
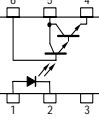
○: Approved ◎: SELV-approved △: Design which meets safety standard, Approval pending (as of 08/07)

TÜV and VDE: EN60747-5-2-approved with option V4 or D4.

Note (5): For details of the TLP781 and TLP781F, please contact your nearest Toshiba sales representative.

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Darlington Transistor Output

Part Number	Pin Configuration	Features	CTR		V _{CE(sat)}		V _{CEO} (V)	BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾										
			Min (%)	@I _F / V _{CE} (mA) (V)	Max (V)	@I _C / I _F (mA)			UL	TÜV	VDE	BSI	IEC						
TLP127		Mini-flat 6-pin MFSOP High V _{CEO} c-UL-approval pending	1000	1/1	1.2	100/10	300	2500	○	○ ⁽²⁾	△	◎ EN 60950 EN 60065	△ 60950 60065						
TLP371		6-pin DIP High V _{CEO} SEMKO-approved							1000	1/1	1.2	100/10	300	5000	○				
TLP372		6-pin DIP High V _{CEO} No internal base connection																	
TLP373		6-pin DIP High V _{CEO} Large emitter-collector distance																	
TLP523		4-pin DIP General-purpose							500	1/1	1.0	50/10	55	2500	○				
TLP523-2		8-pin DIP Dual channel version of the TLP523																	
TLP523-4		16-pin DIP 4-channel version of the TLP523																	
TLP570		6-pin DIP General-purpose High EMI immunity							1000	1/1	1.2	100/10	35	2500	○				
TLP571		6-pin DIP General-purpose Internal base connection																	

Note (1): Legend in the Safety Standards column:

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TUV and VDE: EN60747-5-2-approved with option V4 or D4.

Note (2): The EN60747-5-2 safety standard for compact packages is different from that for standard DIP packages. Since the mini-flat package is a compact package, please contact your nearest Toshiba sales representative for more details.

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Darlington Transistor Output (Continued)

Part Number	Pin Configuration	Features	CTR		VCE(sat)		VCE0 (V)	BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
			Min (%)	@IF / VCE (mA) (V)	Max (V)	@IC / IF (mA)			UL	TÜV	VDE	BSI	IEC
TLP572		6-pin DIP General-purpose Built-in RBE	1000	1/1.2	1.2	100/10	55	2500	○				
TLP627		4-pin DIP High VCE0 SEMKO-approved c-UL-approval pending	1000	1/1	1.2	100/10	300	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950
TLP627-2		8-pin DIP Dual channel version of the TLP627 SEMKO-approved c-UL-approval pending											
TLP627-4		16-pin DIP 4-channel version of the TLP627 c-UL-approval pending											

Note (1): Legend in the Safety Standards column:

○: Approved ◎: SELV-approved △: Design which meets safety standard, Approval pending (as of 08/07)

TÜV and VDE: EN60747-5-2-approved with option V4 or D4.

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- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Diode Output

Part Number	Pin Configuration	Features	CTR		ILEAK		VKA0 (V)	BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
			Min (%)	@IF (mA)	Max (nA)	@VKA (V)			UL	TÜV	VDE	BSI	IEC
TLP722		4-pin DIP General-purpose High-speed response SEMKO-approved	0.1	10	50	10	30	4000	○	○ EN 60747	△ EN 60747	△ EN 60065 EN 60950	△ 60065 60950

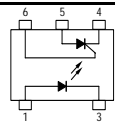
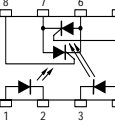
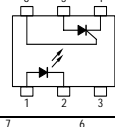
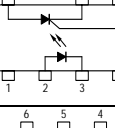
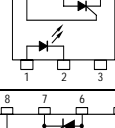
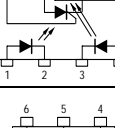
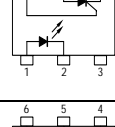
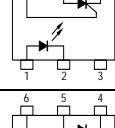
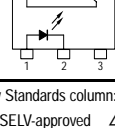
Note (1): Legend in the Safety Standards column:

○: Approved ◎: SELV-approved △: Design which meets safety standard, Approval pending (as of 08/07)

TÜV and VDE: EN60747-5-2-approved with option V4 or D4.

- The pin configuration diagrams only show the general configurations of the circuits.
- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Thyristor Output

Part Number	Pin Configuration	Features	IFT		V _{TM}		V _{DRM} (V)	BVs 1 Minute (V _{rms})	Safety Standards ⁽¹⁾				
			Max (mA)	Max (V)	@ITM (mA)	UL			TÜV	VDE	BSI	IEC	
TLP141G		Mini-flat 6-pin MFSOP General-purpose	10	1.3	100	400	2500	○					
TLP511GA		8-pin DIP Bidirectional thyristor pair Low trigger current	7	1.3	100	400		○					
TLP541G		6-pin DIP General-purpose Low trigger current	7	1.3	100	400		○					
TLP542G		8-pin DIP Large anode-cathode distance (SCR)	7	1.3	100	400		○					
TLP543J			10			600							
TLP545J		6-pin DIP High V _{DRM}	10	1.3	100	600	○						
TLP611J		8-pin DIP Bidirectional thyristor pair High isolation voltage	10	1.3	100	600	5000	○					
TLP641G		6-pin DIP General-purpose High isolation voltage	7	1.3	100	400		○					
TLP641J			10			600							
TLP741G		6-pin DIP SEMKO-approved	10	1.3	100	400		4000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950
TLP741J							600						
TLP747G		6-pin DIP SEMKO-approved	10	1.3	100	400	4000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950 435 ⁽³⁾	
TLP747GF													600
TLP747J													600
TLP747JF													

Note (1): Legend in the Safety Standards column:

○: Approved ◎: SELV-approved △: Design which meets safety standard, Approval pending (as of 08/07)

TUV and VDE: EN60747-5-2-approved with option V4 or D4.

Note (3): Only applied to the TLP747GF and TLP747JF

- The pin configuration diagrams only show the general configurations of the circuits.
- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Triac Output

Part Number	Pin Configuration	Features	IFT		VTM		VDRM (V)	BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
			Rank	Max (mA)	Max (V)	@ITM (mA)			UL	TÜV	VDE	BSI	IEC
TLP160G		Mini-flat 6-pin MFSOP Non-zero cross c-UL-approval pending	—	10	2.8	70	400	2500	○	△	○ ⁽²⁾		
TLP165J			IFT7	7									
TLP160J			IFT5	5									
			—	10									
TLP161G		Mini-flat 6-pin MFSOP Zero cross c-UL-approval pending	—	10	2.8	70	400	2500	○	△	○ ⁽²⁾		
TLP166J			IFT7	7									
TLP161J			IFT5	5									
			—	10									
TLP163J		Mini-flat 6-pin MFSOP Zero cross High impulse noise immunity V _N = 2000 V (typ.) c-UL-approval pending	—	10	2.8	100	600	2500	○	△ EN 60747	△ EN 60747		
TLP168J			—	3									
TLP260J		Mini-flat 6-pin MFSOP Non-zero cross	—	10	2.8	70	600	3000	○	△	○ ⁽²⁾		
TLP360J		4-pin DIP Non-zero cross	—	10	3.0	100	600	5000	○	◎ EN 60747	△		
TLP360JF			IFT7	7									
TLP361J		4-pin DIP Zero cross	—	10	3.0	100	600	5000	○	◎ EN 60747	△		
TLP361JF		IFT7	7										
TLP363J		4-pin DIP Zero cross High impulse noise immunity V _N = 2000 V (typ.)	—	10									
TLP363JF													
TLP525G		4-pin DIP	—	10									
TLP525G-2		8-pin DIP Dual channel version of the TLP525G	—	10	3.0	100	400	2500	○				
TLP525G-4		16-pin DIP 4-channel version of the TLP525G	—	10									
TLP560G		6-pin DIP General-purpose Non zero cross	—	10	3.0	100	400	2500	○				
TLP560J			IFT7	7									
			IFT5	5									
			—	10									
TLP561G		6-pin DIP General-purpose Zero cross	—	10	3.0	100	400	2500	○				
TLP561J			IFT7	7									
			IFT5	5									
			—	10									

Note (1): Legend in the Safety Standards column:

○: Approved ◎: SELV-approved △: Design which meets safety standard, Approval pending (as of 08/07)
TUV and VDE: EN60747-5-2-approved with option V4 or D4.

Note (2): The EN60747-5-2 safety standard for compact packages is different from that for standard DIP packages. Since the mini-flat package is a compact package, please contact your nearest Toshiba sales representative for more details.

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Part Number	Pin Configuration	Features	IFT		VTM		VDRM (V)	BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾													
			Rank	Max (mA)	Max (V)	@ITM (mA)			UL	TÜV	VDE	BSI	IEC									
TLP3022(S) TLP3022F(S)		6-pin DIP SEMKO-approved Non-zero cross	—	10	3.0	100	400	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60950 60065									
—			5																			
TLP3023(S) TLP3023F(S)		6-pin DIP High VDRM SEMKO-approved Non-zero cross	—	10																		
TLP3042(S) TLP3042F(S)		6-pin DIP SEMKO-approved Zero cross	—	10	3.0	100	400	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60950 60065									
TLP3043(S) TLP3043F(S)			—	5																		
TLP3062(S) TLP3062F(S)		6-pin DIP SEMKO-approved High VDRM Zero cross	—	10																		
TLP3063(S) TLP3063F(S)			—	5																		
TLP3064(S) TLP3064F(S)		6-pin DIP SEMKO-approved Zero cross	—	3																		
TLP3065(S) TLP3065F(S)			6-pin DIP Low trigger current Zero cross	—			2															
TLP3082(S) TLP3082F(S)			6-pin DIP Zero cross	—			10							3.0	100	800	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60950 60065
TLP3083(S) TLP3083F(S)			6-pin DIP Zero cross	—			5															
TLP3762(S) TLP3762F(S)			6-pin DIP Zero cross	—			10															
TLP3763(S) TLP3763F(S)			High impulse noise immunity V _N = 2000 V (typ.)	—			5															
TLP3782(S) TLP3782F(S)	6-pin DIP High impulse noise immunity V _N = 1500 V (typ.)		—	10																		
TLP3783(S) TLP3783F(S)			—	5																		
TLP3782(S) TLP3782F(S)			—	10																		
TLP3783(S) TLP3783F(S)	—	5																				
TLP762J TLP762JF		6-pin DIP SEMKO-approved Non-zero cross	—	10	3.0	100	600	4000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60950 60065									
TLP763J TLP763JF		6-pin DIP SEMKO-approved Zero cross	—	10	3.0	100	600	4000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60950 60065									
TLP768J		6-pin DIP Low trigger current Zero cross	—	2	3.0	100	600	5000	△	△ EN 60747	△ EN 60747											

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TÜV and VDE: EN60747-5-2: approved with option V4 or D4.

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IC Output

Part Number	Pin Configuration	Features	Data Rate (Typ. @NRZ)	Output/CTR	@IF(IN) (mA)	BV _s 1 Minute (V _{rms})	Safety Standards ⁽¹⁾				
							UL	TÜV	VDE	BSI	IEC
6N135		8-pin DIP JEDEC-compliant	1 Mbits/s	7% min	16	2500	○				
6N136				19% min							
6N137		8-pin DIP JEDEC-compliant High-speed	10 Mbits/s	700% typ.	5	○					
6N138		8-pin DIP JEDEC-compliant High CTR	300 Kbits/s	300% min	1.6	2500	○				
6N139				400% min							
TLP102		Mini-flat 6-pin MFSOP High CMR c-UL-approval pending	250 ns	Totempole output (Inverter logic)	IFHL = 3 (max)	3750	○	○ ⁽²⁾	△		
TLP105		Mini-flat 6-pin MFSOP c-UL-approval pending	5 Mbits/s	Totempole output (Buffer logic)	IFHL = 1.6 (max)		○				
TLP106		Mini-flat 6-pin MFSOP High CMR c-UL-approval pending	250 ns		IFHL = 3 (max)		○	○ ⁽²⁾	△		
TLP108		Mini-flat 6-pin MFSOP c-UL-approval pending	5 Mbits/s	Totempole output (Inverter logic)	IFHL = 1.6 (max)	○					
TLP112		Mini-flat 6-pin MFSOP High CMR Highly sensitive version of the TLP112	1 Mbits/s	10% min	16	2500	○				
TLP112A				20% min							
TLP113		Mini-flat 6-pin MFSOP High-speed	10 Mbits/s	Open-collector output (Inverter logic)	IFHL = 10 (max)	○					
TLP114A		Mini-flat 6-pin MFSOP High CMR version of the TLP112A c-UL-approval pending	1 Mbits/s	20% min	16	3750	○	○ ⁽²⁾	△		
TLP114A(IGM)			0.45 μs	25% min	10						
TLP115		Mini-flat 6-pin MFSOP High CMR version of the TLP113 c-UL-approval pending Highly sensitive version of the TLP115 c-UL-approval pending	10 Mbits/s	Open-collector output (Inverter logic)	IFHL = 10 (max)	2500	○				
TLP115A					IFHL = 5 (max)						
TLP116		Mini-flat 6-pin MFSOP Ultra-high speed c-UL-approval pending	20 MBd	Totempole output (Inverter logic)	IFHL = 5 (max)	3750	○	○ ⁽²⁾	△		
TLP117			50 MBd	Totempole output	IFHL = 5 (max)						

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TÜV and VDE: EN60747-5-2-approved with option V4 or D4.

Note (2): The EN60747-5-2 safety standard for compact packages is different from that for standard DIP packages. Since the mini-flat package is a compact package, please contact your nearest Toshiba sales representative for more details.

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Part Number	Pin Configuration	Features	Data Rate (Typ. @NRZ)	Output/CTR	@IF(IN) (mA)	BV's 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
							UL	TÜV	VDE	BSI	IEC
TLP250 TLP250F		8-pin DIP Direct drive of a medium-power IGBT/MOSFET	0.15 µs	Peak output current: ±1.5 (max)	IFLH = 5 (max)	2500	○	△ EN 60747	◎ EN 60747		
TLP250(INV) TLP250F(INV)		8-pin DIP Direct drive of a medium-power IGBT/MOSFET For inverter applications	0.15 µs	Peak output current: ±2.0 (max)	IFLH = 5 (max)		○	△ EN 60747	◎ EN 60747		
TLP251 TLP251F		8-pin DIP Direct drive of a small-power IGBT/MOSFET	Propagation delay time 1 µs (max)	Peak output current: ±0.4 (max)	IFLH = 5 (max)		○	△ EN 60747	◎ EN 60747		
TLP350 TLP350F		8-pin DIP Direct drive of a medium-power IGBT/MOSFET Low power dissipation	Propagation delay time 0.5 µs (max)	Peak output current: ±2.5 (max)	IFLH = 5 (max)	3750	○	◎ EN 60747	◎ EN 60747		
TLP351 TLP351F		8-pin DIP Direct drive of a small-power IGBT/MOSFET Low power dissipation	Propagation delay time 0.7 µs (max)	Peak output current: ±0.6 (max)	IFLH = 5 (max)		○	◎ EN 60747	◎ EN 60747		
TLP351A		8-pin DIP Direct drive of a small-power IGBT/MOSFET Low power dissipation UL double protection	Propagation delay time 0.7 µs (max)	Peak output current: ±0.6 (max)	IFLH = 7 (max)	5000	△ (Approval pending)	△ (Approval pending)			
TLP512		6-pin DIP 6-pin package version of the TLP550	1 Mbits/s	20% min	16	2500	○				
TLP513		6-pin DIP 6-pin package version of the TLP552	10 Mbits/s	Open-collector (Inverter logic)	IFHL = 5 (max)		○				
TLP550		8-pin DIP No internal base connection High CMR	1 Mbits/s	10% min (19% (min) for rank O)	16		○				
TLP551		8-pin DIP Internal base connection	1 Mbits/s		16		○				
TLP552		8-pin DIP High-speed	10 Mbits/s	Open-collector (Inverter logic)	IFHL = 5 (max)		○				
TLP553		8-pin DIP Low input drive current	300 Kbits/s	400% min	0.5		○				
TLP554		8-pin DIP High-speed High CMR version of the TLP552 c-UL-approval pending	10 Mbits/s	Open-collector (Inverter logic)	IFHL = 5 (max)		○				

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TÜV and VDE: EN60747-5-2-approved with option V4 or D4.

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IC Output (Continued)

Part Number	Pin Configuration	Features	Data Rate (Typ. @NRZ)	Output/CTR	@IF(N) (mA)	BV's 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
							UL	TÜV	VDE	BSI	IEC
TLP555		8-pin DIP Low input current High Vcc operation	5 Mbits/s	3-state output (Buffer logic)	IFLH = 1.6 (max)	2500	○				
TLP557		8-pin DIP Direct drive of a power transistor	Propagation delay time 5 μs (max)	Constant current output: 0.25 A	IFLH = 5 (max)		○				
TLP558		8-pin DIP Inverted logic version of the TLP555	5 Mbits/s	3-state output (Inverter logic)	IFLH = 1.6 (max)		○				
TLP559		8-pin DIP High CMR version of the TLP550	1 Mbits/s	20% min	16		○				
TLP559(IGM)		No internal base connection	Propagation delay time 0.8 μs (max)	25% min	10						
TLP651		8-pin DIP High isolation voltage Internal base connection High-speed	1 Mbits/s	10% min (19% (min) for rank O)	16	○					
TLP700		6-pin SDIP Direct drive of a medium- power IGBT/MOSFET Low power dissipation SDIP version of the TLP350	Propagation delay time 0.5 μs (max)	Output current: ±2.0 (max)	IFLH = 5 (max)	5000	○	⊙ EN 60747	△		
TLP701 TLP701F		6-pin SDIP Direct drive of a small-power IGBT/MOSFET Low power dissipation SDIP version of the TLP351	Propagation delay time 0.7 μs (max)	Output current: ±0.6 (max)	IFLH = 5 (max)		○	⊙ EN 60747	△ EN 60747		
TLP702 TLP702F		6-pin SDIP Direct drive of an IPM High CMR SDIP version of the TLP102	Propagation delay time 0.6 μs (max)	Totempole output (Inverter logic)	IFLH = 5 (max)		○	⊙ EN 60747	△ EN 60747		
TLP705 TLP705F		6-pin SDIP Direct drive of a small-power IGBT/MOSFET High speed Low power dissipation	Propagation delay time 0.2 μs (max)	Output current: ±0.45 (max)	IFLH = 8 (max)		○	⊙ EN 60747	△ EN 60747		
TLP706 TLP706F		6-pin SDIP Direct drive of an IPM High CMR SDIP version of the TLP106	Propagation delay time 0.6 μs (max)	Totempole output (Buffer logic)	IFLH = 5 (max)		○	⊙ EN 60747	△ EN 60747		
TLP716 TLP716F		6-pin SDIP High-speed SDIP version of the TLP116	15 MB	Totempole output (Inverter logic)	IFLH = 6.5 (max)		○	⊙ EN 60747	△ EN 60747		
TLP719 TLP719F		6-pin SDIP High CMR	1 Mbits/s	20% min	16		○	⊙ EN 60747	△ EN 60747		
TLP750 TLP750F		8-pin DIP High isolation voltage High CMR SEMKO-approved	1 Mbits/s	10% min (19% (min) for rank O)	16		○	△ EN 60747	⊙ EN 60747	⊙ EN 60065	△ 60065 60950

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Part Number	Pin Configuration	Features	Data Rate (Typ. @NRZ)	Output/CTR	@IF(IN) (mA)	BV's 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
							UL	TÜV	VDE	BSI	IEC
TLP751 TLP751F		8-pin DIP High isolation voltage Internal base connection SEMKO-approved	1 Mbits/s	10% min	16	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950
TLP759 TLP759F		8-pin DIP IEC950 design standard version of the TLP559 SEMKO-approved	1 Mbits/s	20% min	16		○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950
TLP759(IGM) TLP759F(IGM)			Propagation delay time 0.8 μs (max)	25% min	10						
TLP2066		Mini-flat 6-pin MFSOP 3.3-V Vcc	20 Mbits/s	Totempole output (Inverter logic)	IFHL = 5 (max)	2500	○	○ ⁽²⁾	△		
TLP2116		8-pin SO Dual channel of the TLP116	15 MBd	Totempole output (Inverter logic)	IFHL = 5 (max)		△ (Approval pending)	△ ⁽²⁾ (Approval pending)	△		
TLP2200		8-pin DIP Low input current High-speed High Vcc operation	5 Mbits/s	3-state output (Buffer logic)	IFHL = 1.6 (max)		○				
TLP2530		8-pin DIP Dual channel of the 6N135 and the TLP550	1 Mbits/s	7% min	16		○				
TLP2531			8-pin DIP Dual channel of the 6N136 and the TLP550	1 Mbits/s	19% min		16	○			
TLP2601		8-pin DIP High CMR High-speed	10 Mbits/s	Open-collector output (Inverter logic)	IFHL = 5 (max)		○				
TLP2630		8-pin DIP Dual channel of the 6N137 and the TLP552	10 Mbits/s	Open-collector output (Inverter logic)	IFHL = 5 (max)		○				
TLP2631		8-pin DIP High CMR Dual channel version of the TLP554	10 Mbits/s	Open-collector output (Inverter logic)	IFHL = 5 (max)		○				

Note (1): Legend in the Safety Standards column:

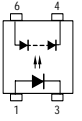
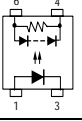
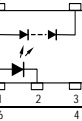
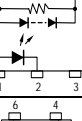
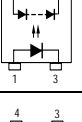
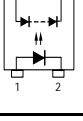
○: Approved ◎: SELV-approved △: Design which meets safety standard, Approval pending (as of 08/07)

TUV and VDE: EN60747-5-2-approved with option V4 or D4.

Note (2): The EN60747-5-2 safety standard for compact packages is different from that for standard DIP packages. Since the mini-flat package is a compact package, please contact your nearest Toshiba sales representative for more details.

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Photovoltaic Output

Part Number	Pin Configuration	Features	Short-Circuit Current (μA)			Open Voltage Voc (V)		BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾																					
			Rank	Min	@IF (mA)	Min	@IF (mA)		UL	TÜV	VDE	BSI	IEC																	
TLP190B		Mini-flat 6-pin MFSOP	—	12	10	7	10	2500	○																					
			C20	20																										
TLP191B		Mini-flat 6-pin MFSOP Built-in shunt regulator	—	24	20	7	20							2500	○															
			C20	20																										
TLP590B		6-pin DIP General-purpose	—	12	10	7	10													2500	○									
			C20	20																										
TLP591B		6-pin DIP Built-in shunt regulator	—	24	20	7	20	2500	○																					
			C40	40																										
TLP3902		Mini-flat 6-pin MFSOP General-purpose	—	5	10	7	10							2500	△															
TLP3904		4-pin SSOP General-purpose	—	5																						10	7	10	1500	○
TLP3914		4-pin SSOP High output	—	20	30	10	1500													○										
TLP3924		4-pin SSOP High output	—	4																					30	10	1500	○		

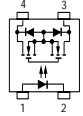
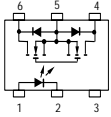
Note (1): Legend in the Safety Standards column:

○: Approved ©: SELV-approved △: Design which meets safety standard, Approval pending (as of 08/07)

TÜV and VDE: EN60747-5-2-approved with option V4 or D4.

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Photorelays (MOSFET Output, 1-Form-A)

Part Number	Pin Configuration	Features	IFT		RON			VOFF (V)	BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
			Rank	Max (mA)	Max (Ω)	@IF (mA)	@ION (A)			UL	TÜV	VDE	BSI	IEC
TLP172A		4-pin SOP Lead pitch: 2.54 mm High output current c-UL-approval pending	—	3	2	5	±0.4	60	1500	○				
TLP172G		4-pin SOP Lead pitch: 2.54 mm General-purpose c-UL-approval pending	—				±0.11	350		○				
TLP174G		4-pin SOP Lead pitch: 2.54 mm	—		35			350		○				
TLP174GA		4-pin SOP Lead pitch: 2.54 mm Current-limiting function Limit current: 150 to 300 mA	—				±0.12	400						
TLP176A		4-pin SOP Lead pitch: 2.54 mm High output current	—		2			60		○	△	○ ⁽²⁾		
TLP176D		4-pin SOP Lead pitch: 2.54 mm Low On-resistance	—		8			200		○	△	○ ⁽²⁾		
TLP176G		4-pin SOP Lead pitch: 2.54 mm General-purpose SEMKO-approved	—		35			350		○	△	○ ⁽²⁾	○ EN 60065 EN 60950	△ 60065 60950
TLP176GA		4-pin SOP Lead pitch: 2.54 mm General-purpose	—				±0.12	400		○			○ EN 60065 EN 60950	△ 60065 60950
TLP179D		4-pin SOP Lead pitch: 2.54 mm Coff: 15 pF (typ.)	—		50			200		○				
TLP192A			6-pin SOP Lead pitch: 2.54 mm High output current		—		3	2		5	±0.4	60	1500	○
TLP192G	6-pin SOP Lead pitch: 2.54 mm General-purpose		—	35		350		○						
TLP197A	6-pin SOP Lead pitch: 2.54 mm High output current		—	2		60		○						
TLP197D	6-pin SOP Lead pitch: 2.54 mm Low On-resistance		—	8		200		○						
TLP197G	6-pin SOP Lead pitch: 2.54 mm General-purpose SEMKO-approved		—	35		350		○	△		○ ⁽²⁾	○ EN 60065 EN 60950		△ 60065 60950
TLP197GA	6-pin SOP Lead pitch: 2.54 mm General-purpose		—		±0.12	400		○				○ EN 60065 EN 60950		△ 60065 60950
TLP199D	6-pin SOP Lead pitch: 2.54 mm Coff: 15 pF (typ.)		—	50		200		○						

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TUV and VDE: EN60747-5-2-approved with option V4 or D4.

Note (2): The EN60747-5-2 safety standard for compact packages is different from that for standard DIP packages. Since the mini-flat package is a compact package, please contact your nearest Toshiba sales representative for more details.

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Photorelays (MOSFET Output, 1-Form-A) (Continued)

Part Number	Pin Configuration	Features	IFT		RON			VOFF (V)	BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
			Rank	Max (mA)	Max (Ω)	@IF (mA)	@ION (A)			UL	TÜV	VDE	BSI	IEC
TLP200D		8-pin SOP Lead pitch: 2.54 mm Dual channel version of the TLP176D	—	3	8	5	±0.2	200	1500	○				
TLP202A		8-pin SOP Lead pitch: 2.54 mm Dual channel version of the TLP172A	—		2		±0.4	60		○				
TLP202G		8-pin SOP Lead pitch: 2.54 mm Dual channel version of the TLP172G	—		50		±0.11	350		○				
TLP206A		8-pin SOP Lead pitch: 2.54 mm Dual channel version of the TLP176A	—		2		±0.4	60		○				
TLP206G		8-pin SOP Lead pitch: 2.54 mm Dual channel version of the TLP176G	—		35		±0.12	350		○	△	○ ⁽²⁾	○ EN 60065 EN 60950	△ 60065 60950
TLP206GA		8-pin SOP Lead pitch: 2.54 mm Dual channel version of the TLP176GA	—		400		○				○ EN 60065 EN 60950	△ 60065 60950		
TLP209D		8-pin SOP Lead pitch: 2.54 mm Dual channel version of the TLP179D	—		50		±0.05	200		○				
TLP222A		4-pin DIP High output current	—	3	2	5	±0.5	60	2500	○				
TLP222A-2		8-pin DIP Dual channel version of the TLP222A	—							○				
TLP222G		4-pin DIP General-purpose SEMKO-approved	—	3	50	5	±0.12	350	2500	○			○ EN 60065 EN 60950	△ 60065 60950
TLP222G-2		8-pin DIP Dual channel version of the TLP222G SEMKO-approved	—							○			○ EN 60065 EN 60950	△ 60065 60950
TLP224G		4-pin DIP Current-limiting function Limit current: 150 to 300 mA SEMKO-approved	—	3	35	5	±0.12	350	2500	○			△ EN 60065 60950	△ 60065 60950
TLP224G-2		8-pin DIP Dual channel version of the TLP224G SEMKO-approved	—							○			○ EN 60065 60950	△ 60065 60950

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TUV and VDE: EN60747-5-2-approved with option V4 or D4.

Note (2): The EN60747-5-2 safety standard for compact packages is different from that for standard DIP packages. Since the mini-flat package is a compact package, please contact your nearest Toshiba sales representative for more details.

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Part Number	Pin Configuration	Features	IFT		RON			VOFF (V)	BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
			Rank	Max (mA)	Max (Ω)	@IF (mA)	@I _{ON} (A)			UL	TÜV	VDE	BSI	IEC
TLP224GA		4-pin DIP For modems Current-limiting function Limit current: 150 to 300 mA	—	3	35	5	±0.12	400	2500	○				
TLP224GA-2		8-pin DIP Dual channel version of the TLP224GA Current-limiting function Limit current: 150 to 300 mA	—							○				
TLP225A		4-pin DIP For DC use only	—	5	1.1	10	0.5	60		○				
TLP227A		4-pin DIP General-purpose SEMKO-approved	—	3	2	5	±0.5	60		○				
TLP227A-2		8-pin DIP Dual channel version of the TLP227A SEMKO-approved	—							○				
TLP227G		4-pin DIP General-purpose SEMKO-approved	—	3	35	5	±0.12	350		○	△ EN 60747	○ EN 60747	○ EN 60065 EN 60950	△ 60065 60950
TLP227G-2		8-pin DIP Dual channel version of the TLP227G SEMKO-approved	—							○	△ EN 60747	○ EN 60747	○ EN 60065 EN 60950	△ 60065 60950
TLP227GA		4-pin DIP General-purpose SEMKO-approved	—	3	35	5	±0.12	400		○				
TLP227GA-2		8-pin DIP Dual channel version of the TLP227GA SEMKO-approved	—							○				
TLP592A		6-pin DIP High output current	—	3	2	5	±0.5	60		○				
TLP592G		6-pin DIP General-purpose	—		50	±0.12	350	○						

Note (1): Legend in the Safety Standards column:

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TUV and VDE: EN60747-5-2-approved with option V4 or D4.

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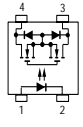
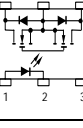
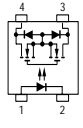
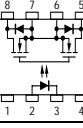
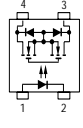
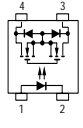
Photorelays (MOSFET Output, 1-Form-A) (Continued)

Part Number	Pin Configuration	Features	IFT		RON			VOFF (V)	BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
			Rank	Max (mA)	Max (Ω)	@IF (mA)	@ION (A)			UL	TÜV	VDE	BSI	IEC
TLP597A		6-pin DIP High output current SEMKO-approved	—	3	2	5	±0.5	60	○					
TLP597G		6-pin DIP General-purpose SEMKO-approved	—		35		±0.12	350	○	○ EN 60747	△ EN 60747	◎ EN 60065 EN 60950	△ 60065 60950	
TLP597GA		6-pin DIP General-purpose SEMKO-approved	—		2		±0.5	400	○					
TLP598AA		6-pin DIP High output current	—	2	±0.5	60	○							
TLP598GA		6-pin DIP Low On-resistance	—	12	±0.15	400	○							
TLP797GA TLP797GAF		6-pin DIP High isolation voltage IEC60950-compliant	—	5	35	±0.12	400	○	△ EN 60747	△ EN 60747	△ EN 60065 EN 60950	△ 60065 60950		
TLP797J		6-pin DIP High isolation voltage	—		5	±0.1	600	○	△ EN 60747	△ EN 60747	△ EN 60065 EN 60950	△ 60065 60950		
TLP797JF		6-pin DIP High isolation voltage	—		5	±0.1	600	○	△ EN 60747	△ EN 60747	△ EN 60065 EN 60950	△ 60065 60950		
TLP798GA		6-pin DIP Low On-resistance IEC60950-compliant	—		3	12	±0.15	400	○	△ EN 60747	△ EN 60747	△ EN 60065 EN 60950	△ 60065 60950	
TLP3100			6-pin SOP Lead pitch: 2.54 mm Low On-resistance High output current: ION = 2.5 A (max) For measuring instruments and power supply lines	—	3	0.05	5	2.0	20	△				
TLP3110		4-pin MFSOP Low CR COFF: 100 pF (typ.) For measuring instruments	—	4	1.2	5	±0.35	60	○					
TLP3111	4-pin MFSOP Low CR COFF: 11 pF (typ.) For measuring instruments	—	20		±0.1		80	○						
TLP3113		4-pin SOP Lead pitch: 2.54 mm Ultra-low CR: 15 pF x Ω COFF: 0.6 pF (typ.) For measuring instruments	—	4	35	5	±0.08	40	○					
TLP3114		4-pin SOP Lead pitch: 2.54 mm Ultra-low CR: 10 pF x Ω COFF: 5 pF (typ.) For measuring instruments	—		3		±0.25		40	○				
TLP3115		4-pin SOP Lead pitch: 2.54 mm Ultra-low CR: 10 pF x Ω COFF: 10 pF (typ.) For measuring instruments	—		1.5		±0.3		○					

Note (1): Legend in the Safety Standards column:

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TÜV and VDE: EN60747-5-2-approved with option V4 or D4.

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Part Number	Pin Configuration	Features	IFT		RON			VOFF (V)	BVS 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
			Rank	Max (mA)	Max (Ω)	@IF (mA)	@ION (A)			UL	TÜV	VDE	BSI	IEC
TLP3116		4-pin SOP Lead pitch: 2.54 mm Ultra-low CR: 10 pF x Ω COFF: 1 pF (typ.) For measuring instruments	—	4	15	5	±0.12	40	1500	○				
TLP3118		4-pin SOP Lead pitch: 2.54 mm Low CR: 40 pF x Ω COFF: 2.5 pF (typ.) For measuring instruments	—	3	25	5	±0.04	80		○				
TLP3119		4-pin SOP Lead pitch: 2.54 mm Low CR: 30 pF x Ω COFF: 6.5 pF (typ.) For measuring instruments	—							8	±0.2	○		
TLP3120		6-pin SOP Lead pitch: 2.54 mm High output current ION: 1.25 A (max) For measuring instruments and power supply lines	—	5	0.15	5	±1.25	80	○					
TLP3121		4-pin SOP Lead pitch: 2.54 mm Low CR: 30 pF x Ω For measuring instruments	—	4	1.2		±0.35	80	○					
TLP3122		4-pin SOP Lead pitch: 2.54 mm High output current ION: 1 A (max) @Ta: 50°C For measuring instruments and power supply lines	—	3	0.7	5	±1	60	○					
TLP3123		4-pin SOP Lead pitch: 2.54 mm High output current ION: 1 A (max) For measuring instruments and power supply lines	—						0.13	±1	40	○		
TLP3125		8-pin SOP Lead pitch: 2.54 mm Low On-resistance For measuring instruments	—	3	4	5	±0.2	400	○					
TLP3130		4-pin SOP Lead pitch: 2.54 mm Ultra-low CR: 5 pF x Ω COFF: 1 pF (typ.) For measuring instruments	—	4	8	5	±0.16	20	○					
TLP3131		4-pin SOP Lead pitch: 2.54 mm Ultra-low CR: 5 pF x Ω COFF: 5 pF (typ.) For measuring instruments	—						1.2	±0.3	○			
TLP3212		4-pin SSOP Low CR: 20 pF x Ω COFF: 20 pF (typ.) For measuring instruments	—	5	1.5		±0.4	60	○					
TLP3213		4-pin SSOP Ultra-low CR: 15 pF x Ω COFF: 0.6 pF (typ.) For measuring instruments	—	4	35	5	±0.08	40	○					
TLP3214		4-pin SSOP Ultra-low CR: 10 pF x Ω COFF: 5 pF (typ.) For measuring instruments	—						3	±0.25	○			

Note (1): Legend in the Safety Standards column:

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Photorelays (MOSFET Output, 1-Form-A) (Continued)

Part Number	Pin Configuration	Features	IFT		RON			VOFF (V)	BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
			Rank	Max (mA)	Max (Ω)	@IF (mA)	@ION (A)			UL	TÜV	VDE	BSI	IEC
TLP3215		4-pin SSOP Ultra-low CR: 10 pF x Ω COFF: 10 pF (typ.) For measuring instruments	—	4	1.5	5	±0.3	40	1500	○				
TLP3216		4-pin SSOP Ultra-low CR: 10 pF x Ω COFF: 1 pF (typ.) For measuring instruments	—		15					±0.12	○			
TLP3217		4-pin SSOP Low CR COFF: 5 pF (typ.) For measuring instruments	—	5	12	10	±0.08	80		○				
TLP3220		4-pin SSOP Peak off-state voltage: 100 V For measuring instruments	—		15			100		○				
TLP3230		4-pin SSOP Ultra-low CR: 5 pF x Ω COFF: 1 pF (typ.) For measuring instruments	—	4	8	5	±0.16	20		○				
TLP3231		4-pin SSOP Ultra-low CR: 5 pF x Ω COFF: 5 pF (typ.) For measuring instruments	—		1.2					±0.45	○			
TLP3240		4-pin SSOP Ultra-low CR: 5 pF x Ω COFF: 0.45 pF (typ.) For measuring instruments	—	3	14	10	±0.12	40		○				
TLP3241		4-pin SSOP Ultra-low CR: 5 pF x Ω COFF: 0.7 pF (typ.) For measuring instruments	—		10					±0.14	○			
TLP3250		4-pin SSOP Ultra-low CR: 2.5 pF x Ω COFF: 0.8 pF (typ.) For measuring instruments	—	5	±0.2	20	○							
TLP3542		6-pin DIP Low On-resistance High output current Ion: 2.5 A (max) For measuring instruments and power supply lines	—	3	0.1	10	±2.5	60	2500	○				

Note (1): Legend in the Safety Standards column:

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TUV and VDE: EN60747-5-2-approved with option V4 or D4.

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Photorelays (MOSFET Output, 1-Form-B)

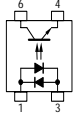
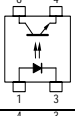
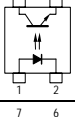
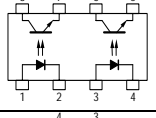
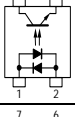
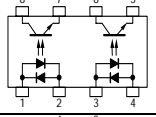
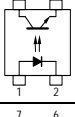
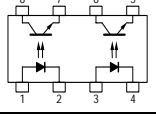
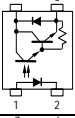
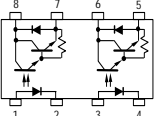
Part Number	Pin Configuration	Features	IFT		RON			VOFF (V)	BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
			Rank	Max (mA)	Max (Ω)	@IF (mA)	@ION (A)			UL	TÜV	VDE	BSI	IEC
TLP4006G		8-pin DIP General-purpose 1-Form-A/1-Form-B	—	3	25	1-Form-A 5	±0.12	350	2500	○				
TLP4007G		8-pin DIP General-purpose 1-Form-A/1-Form-B	—		50	1-Form-B 0	±0.1			○				
TLP4026G		8-pin SOP Lead pitch: 2.54 mm General-purpose 1-Form-A/1-Form-B	—	3	25	1-Form-A 5	±0.12	350	1500	○				
TLP4027G		8-pin SOP Lead pitch: 2.54 mm General-purpose 1-Form-A/1-Form-B	—		50	1-Form-B 0	±0.09			○				
TLP4172G		4-pin SOP Lead pitch: 2.54 mm General-purpose 1-Form-B	—	3	50		±0.09	350	1500	○				
TLP4176G		4-pin SOP Lead pitch: 2.54 mm General-purpose 1-Form-B	—		25		±0.12			○				
TLP4192G		6-pin SOP Lead pitch: 2.54 mm General-purpose 1-Form-B	—	3	50		±0.09	350	1500	○				
TLP4197G		6-pin SOP Lead pitch: 2.54 mm General-purpose 1-Form-B	—		25		±0.12			○				
TLP4202G		8-pin SOP Lead pitch: 2.54 mm Dual channel version of the TLP4172G 2-Form-B	—	3	50		±0.09	350	1500	○				
TLP4206G		8-pin SOP Lead pitch: 2.54 mm Dual channel version of the TLP4176G 2-Form-B	—		25		±0.12			○				
TLP4222G		4-pin DIP General-purpose 1-Form-B	—	3	50	0	±0.1	350	2500	○				
TLP4222G-2		Dual channel version of the TLP4222G 2-Form-B	—							○				
TLP4227G		4-pin DIP General-purpose 1-Form-B SEMKO-approved	—	3	25	0	±0.15	350	2500	○				
TLP4227G-2		Dual channel version of the TLP4227G SEMKO-approved 2-Form-B	—							○				
TLP4592G		6-pin DIP General-purpose 1-Form-B	—	3	50		±0.1	350	2500	○				
TLP4597G		6-pin DIP General-purpose 1-Form-B SEMKO-approved	—		25		±0.15			○				

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Products Manufactured by Toshiba Semiconductor Thailand Co., Ltd.

Part Number	Pin Configuration	Features	V _{CEO} (V)	BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
					UL	TÜV	VDE	BSI	IEC
TLP180(T)		Mini-flat 6-pin MFSOP AC input SEMKO-approved	80	3750	○	○ ⁽²⁾	△	⊙ EN 60065 EN 60950	△ 60065 60950
TLP181(T)		Mini-flat 6-pin MFSOP Transistor output General-purpose	80	3750	○	△	○ ⁽²⁾	⊙ EN 60950	△ 60950
TLP521-1(T)		4-pin DIP Transistor output General-purpose	55	2500	○				
TLP521-2(T)		8-pin DIP Dual channel version of the TLP521-1(T)							
TLP620(T)		4-pin DIP Transistor output AC input SEMKO-approved	55	5000	○	△ EN 60747	⊙ EN 60747	⊙ EN 60065 EN 60950	△ 60065 60950
TLP620-2(T)		8-pin DIP Dual channel version of the TLP620(T) SEMKO-approved							
TLP621(T)		4-pin DIP Transistor output High isolation voltage SEMKO-approved	55	5000	○	△ EN 60747	⊙ EN 60747	⊙ EN 60065 EN 60950	△ 60065 60950
TLP621-2(T)		8-pin DIP Dual channel version of the TLP621(T) SEMKO-approved							
TLP627(T)		4-pin DIP Darlington transistor output High V _{CEO} SEMKO-approved	300	5000	○	△ EN 60747	⊙ EN 60747	⊙ EN 60065 EN 60950	△ 60065 60950
TLP627-2(T)		8-pin DIP Dual channel version of the TLP627(T) SEMKO-approved							

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TUV and VDE: EN60747-5-2-approved with option V4 or D4.

Note that the products manufactured by Toshiba Semiconductor Thailand Co., Ltd. are not available in Japan.

Note (2): The EN60747-5-2 safety standard for compact packages is different from that for standard DIP packages. Since the mini-flat package is a compact package, please contact your nearest Toshiba sales representative for more details.

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Part Number	Pin Configuration	Features	IFT		VTM		VDRM (V)	BVs 1 Minute (Vrms)	Safety Standards ⁽¹⁾				
			Rank	Max (mA)	Max (V)	@ITM (mA)			UL	TÜV	VDE	BSI	IEC
TLP3022(S, T) TLP3022F(S, T)		6-pin DIP SEMKO-approved Non-zero cross	—	10	3.0	100	400	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60950 60065
TLP3023(S, T) TLP3023F(S, T)		6-pin DIP High VDRM SEMKO-approved Non-zero cross	—	5			600						
TLP3052(S, T) TLP3052F(S, T)		6-pin DIP SEMKO-approved Zero cross	—	10	3.0	100	400	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60950 60065
TLP3042(S, T) TLP3042F(S, T)		6-pin DIP SEMKO-approved Zero cross	—	5			600						
TLP3043(S, T) TLP3043F(S, T)		6-pin DIP SEMKO-approved Zero cross	—	10	3.0	100	400	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60950 60065
TLP3062(S, T) TLP3062F(S, T)		6-pin DIP SEMKO-approved High VDRM Zero cross	—	5			600						
TLP3063(S, T) TLP3063F(S, T)		6-pin DIP SEMKO-approved Zero cross	—	3	3.0	100	400	5000	○	△ EN 60747	◎ EN 60747	◎ EN 60065 EN 60950	△ 60950 60065
TLP3064(S, T) TLP3064F(S, T)		6-pin DIP SEMKO-approved Zero cross	—	3			600						

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Fiber-Optic Devices (TOSLINK™)

Simplex Optical Modules (General-Purpose Optical Modules)

Transmitting Module	Receiving Module	Data Rate (NRZ, Mb/s)	Emission Wavelength (nm)	Transmission Distance (m) ⁽¹⁾	Pulse Width Distortion (ns) ⁽¹⁾	Supply Voltage (V)	Operating Temperature (°C)	Compatible Optical Connector	Compatible Optical Fiber (μm)	Compatible Optical Fiber with Fiber-Optic Connectors ⁽¹¹⁾
TOTX171A(F)	TORX170(F)	DC to 6	650	Up to 40	±55	5 ± 0.25	-40 to 70	JIS F05	APF (980/1000) NA = 0.5	LUCT1-TC1000-xxM ⁽⁵⁾ TOCP100-xxMBT ⁽⁶⁾
TOTX180B(F) ⁽²⁾⁽³⁾	TORX180(F) ⁽²⁾	DC to 6	770	Up to 1000	±55	5 ± 0.25	-40 to 85	JIS F05	PCF (200/230)	CF-1071 (HC-20/70) Series ⁽⁷⁾ OPC202HV Series ⁽⁸⁾
TOTX180B(F) ⁽²⁾	TORX186(F) ⁽²⁾	DC to 8	770	Up to 1000	±42	5 ± 0.25	-40 to 85	JIS F05	PCF (200/230)	CF-1071 (HC-20/70) Series ⁽⁷⁾ OPC202HV Series ⁽⁸⁾
TOTX181A(F) ⁽²⁾⁽³⁾	TORX180(F) ⁽²⁾	DC to 6	650	Up to 40	±55	5 ± 0.25	-40 to 85	JIS F05	APF (980/1000) NA = 0.5	LUCT1-TC1000-xxM ⁽⁵⁾ TOCP100-xxMBT ⁽⁶⁾
TOTX193A(F)	TORX193(F)	DC to 6	650	Up to 10	±25	5 ± 0.25	-40 to 85	JIS F05	APF (980/1000) NA = 0.5	—
TOTX195A(F) ⁽³⁾	TORX194(F)	DC to 10	650	Up to 50	±30	5 ± 0.25	-40 to 85	JIS F05	APF (980/1000) NA = 0.5	LUCT1-TC1000-xxM ⁽⁵⁾ TOCP100-xxMBT ⁽⁶⁾
TOTX196B(F) ⁽³⁾	TORX170(F)	DC to 6	770	Up to 1000	±55	5 ± 0.25	-40 to 70	JIS F05	PCF (200/230)	CF-1071 (HC-20/70) Series ⁽⁷⁾ OPC202HV Series ⁽⁸⁾
TOTX196B(F) ⁽³⁾	TORX194(F)	DC to 10	770	Up to 1000	±30	5 ± 0.25	-40 to 85	JIS F05	PCF (200/230)	CF-1071 (HC-20/70) Series ⁽⁷⁾ OPC202HV Series ⁽⁸⁾
TOTX196B(F)	TORX196(F)	DC to 6	770	Up to 1000	±55	5 ± 0.25	-40 to 85	JIS F05	PCF (200/230)	CF-1071 (HC-20/70) Series ⁽⁷⁾ OPC202HV Series ⁽⁸⁾
TOTX197A(F)	TORX196(F)	DC to 6	650	Up to 40	±55	5 ± 0.25	-40 to 85	JIS F05	APF (980/1000) NA = 0.5	LUCT1-TC1000-xxM ⁽⁵⁾ TOCP100-xxMBT ⁽⁶⁾
TOTX197A(F)	TORX198(F) ⁽⁴⁾	DC to 6	650	Up to 40	±55	5 ± 0.25	-40 to 85	JIS F05	APF (980/1000) NA = 0.5	LUCT1-TC1000-xxM ⁽⁵⁾ TOCP100-xxMBT ⁽⁶⁾

Note: TOSLINK is a trademark of Toshiba Corporation.

Note (1) All values at Ta = 25°C

(2) Ceramic-packaged product

(3) External resistances must be changed according to the transmission distance.

(4) This fiber-optic receiving module has analog output pins for monitoring the amount of received light.

(5) Manufactured by Asahi Kasei EMD Corporation.

(6) Manufactured by Toray Industries, Inc.

(7) Manufactured by Sumitomo Electric Industries (SEI), Ltd.

(8) Manufactured by Oki Electric Cable Co., Ltd.

(11) For details on optical fiber cables with connectors, contact the respective manufacturers.

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

(High-Speed Optical Modules)

Transmitting Module	Receiving Module	Data Rate (NRZ, Mb/s)	Emission Wavelength (nm)	Transmission Distance (m) ⁽¹⁾	Supply Voltage (V)	Operating Temperature (°C)	Compatible Optical Connector	Compatible Optical Fiber (μm)	Compatible Optical Fiber with Fiber-Optic Connectors ⁽¹¹⁾
TOTX1400(F)	TORX1400(F)	20 to 125	650	Up to 50	3.3 ± 0.3	-10 to 70	SMA	APF (980/1000) NA = 0.3	—
TOTX1701(F)	TORX1701(F)	20 to 125	650	Up to 20 (APF)	3.3 ± 0.3	-10 to 70	JIS F05	APF (980/1000) NA = 0.5	LUCT1-TC1000-xxM ⁽⁵⁾ TOCP100-xxMBT ⁽⁶⁾
				Up to 100 (GI-PCF)					GI-PCF (200/230)

Note (1) All values at Ta = 25°C

(5) Manufactured by Asahi Kasei EMD Corporation.

(6) Manufactured by Toray Industries, Inc.

(7) Manufactured by Sumitomo Electric Industries (SEI), Ltd.

(11) For details on optical fiber cables with connectors, contact the respective manufacturers.

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

(Digital Audio Transmitting Modules)

Transmitting Module ⁽¹⁶⁾	Data Rate (NRZ, Mb/s)	Emission Wavelength (nm)	Fiber Output Power (dBm) ⁽¹⁾	Pulse Width Distortion (ns) ⁽¹⁾	Supply Voltage (V)	Operating Temperature (°C)	Compatible Optical Connector	Compatible Optical Fiber (μm)	Compatible Optical Fiber with Fiber-Optic Connectors ⁽¹¹⁾
TOTX147(F,T) ⁽¹²⁾	DC to 15	650	-21 to -15	±15	2.7 to 3.6	-20 to 70	JEITA RC-5720C Square	APF (980/1000) NA = 0.5	RFA4011-xxx ⁽⁹⁾
TOTX147L(F,T) ⁽¹²⁾⁽¹³⁾	DC to 15	650	-21 to -15	±15	2.7 to 3.6	-20 to 70	JEITA RC-5720C Square	APF (980/1000) NA = 0.5	RFA4011-xxx ⁽⁹⁾
TOTX147PL(F,T) ⁽¹³⁾⁽¹⁴⁾	DC to 15	650	-21 to -15	±15	2.7 to 3.6	-20 to 70	JEITA RC-5720C Square	APF (980/1000) NA = 0.5	RFA4011-xxx ⁽⁹⁾
TOTX177(F,T) ⁽¹²⁾	DC to 15	650	-21 to -15	±15	5 ± 0.25	-20 to 70	JEITA RC-5720C Square	APF (980/1000) NA = 0.5	RFA4011-xxx ⁽⁹⁾
TOTX177L(F,T) ⁽¹²⁾⁽¹³⁾	DC to 15	650	-21 to -15	±15	5 ± 0.25	-20 to 70	JEITA RC-5720C Square	APF (980/1000) NA = 0.5	RFA4011-xxx ⁽⁹⁾
TOTX177PL(F,T) ⁽¹³⁾⁽¹⁴⁾	DC to 15	650	-21 to -15	±15	5 ± 0.25	-20 to 70	JEITA RC-5720C Square	APF (980/1000) NA = 0.5	RFA4011-xxx ⁽⁹⁾
TOTX1300(F) ⁽¹⁴⁾⁽¹⁵⁾	DC to 15	650	-21 to -15	±15	5 ± 0.25	-40 to 85	JEITA RC-5720C Square	APF (980/1000) NA = 0.5	RFA4011-xxx ⁽⁹⁾

Note (1) All values at Ta = 25°C

(9) Manufactured by Mitsubishi Rayon Co., Ltd.

(11) For details on optical fiber cables with connectors, contact the respective manufactures.

(12) Panel-mount type

(13) Shutter-equipped

(14) Mini-package type (fixed to printed circuit board)

(15) This optical module is not screened for automotive-level reliability.

(16) Optical modules with the (F,T) suffix are manufactured by Toshiba Semiconductor Thailand Co., Ltd.

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

(Digital Audio Receiving Modules)

Receiving Module ⁽¹⁶⁾	Data Rate (NRZ, Mb/s)	Maximum Receivable Power (dBm) ⁽¹⁾	Pulse Width Distortion (ns) ⁽¹⁾	Supply Voltage (V)	Operating Temperature (°C)	Compatible Optical Connector	Compatible Optical Fiber (μm)	Compatible Optical Fiber with Fiber-Optic Connectors ⁽¹¹⁾
TORX147(F,T) ⁽¹²⁾	0.1 to 15	-24 Max.	±15	2.7 to 3.6	-20 to 70	JEITA RC-5720C Square	APF (980/1000) NA = 0.5	RFA4011-xxx ⁽⁹⁾
TORX147L(F,T) ⁽¹²⁾⁽¹³⁾	0.1 to 15	-24 Max.	±15	2.7 to 3.6	-20 to 70	JEITA RC-5720C Square	APF (980/1000) NA = 0.5	RFA4011-xxx ⁽⁹⁾
TORX147PL(F,T) ⁽¹³⁾⁽¹⁴⁾	0.1 to 15	-24 Max.	±15	2.7 to 3.6	-20 to 70	JEITA RC-5720C Square	APF (980/1000) NA = 0.5	RFA4011-xxx ⁽⁹⁾
TORX177(F,T) ⁽¹²⁾	0.1 to 15	-24 Max.	±15	5 ± 0.25	-20 to 70	JEITA RC-5720C Square	APF (980/1000) NA = 0.5	RFA4011-xxx ⁽⁹⁾
TORX177L(F,T) ⁽¹²⁾⁽¹³⁾	0.1 to 15	-24 Max.	±15	5 ± 0.25	-20 to 70	JEITA RC-5720C Square	APF (980/1000) NA = 0.5	RFA4011-xxx ⁽⁹⁾
TORX177PL(F,T) ⁽¹³⁾⁽¹⁴⁾	0.1 to 15	-24 Max.	±15	5 ± 0.25	-20 to 70	JEITA RC-5720C Square	APF (980/1000) NA = 0.5	RFA4011-xxx ⁽⁹⁾
TORX1300 ⁽¹⁴⁾⁽¹⁵⁾	0.1 to 15	-27 Max.	±15	5 ± 0.25	-40 to 85	JEITA RC-5720C Square	APF (980/1000) NA = 0.5	RFA4011-xxx ⁽⁹⁾

Note (1) All values at Ta = 25°C

(9) Manufactured by Mitsubishi Rayon Co., Ltd.

(11) For details on optical fiber cables with connectors, contact the respective manufactures.

(12) Panel-mount type

(13) Shutter-equipped

(14) Mini-package type (fixed to printed circuit board)

(15) This optical module is not screened for automotive-level reliability.

(16) Optical modules with the (F,T) suffix are manufactured by Toshiba Semiconductor Thailand Co., Ltd.

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Duplex Modules (General-Purpose Optical Modules)

Transceiving Module	Data Rate (NRZ, Mb/s)	Emission Wavelength (nm)	Transmission Distance (m) ⁽¹⁾	Pulse Width Distortion (ns) ⁽¹⁾	Supply Voltage (V)	Operating Temperature (°C)	Compatible Optical Connector	Compatible Optical Fiber (μm)	Compatible Optical Fiber with Fiber-Optic Connectors ⁽¹¹⁾
TODX270B(F) ⁽³⁾	DC to 6	770	Up to 40	±55	5 ± 0.25	-40 to 70	JIS F07	PCF (200/230)	CF-2071 (HC-20/70) Series ⁽⁷⁾ OPC202HV Series ⁽⁸⁾
TODX271A(F) ⁽³⁾	DC to 6	650	Up to 40	±55	5 ± 0.25	-40 to 70	JIS F07	APF (980/1000) NA = 0.5	LUCT2-TC1000W-xxM ⁽⁹⁾ TOCP200-xxMBT ⁽⁶⁾
TODX280B(F) ⁽²⁾⁽³⁾	DC to 6	770	Up to 40	±55	5 ± 0.25	-40 to 85	JIS F07	PCF (200/230)	CF-2071 (HC-20/70) Series ⁽⁷⁾ OPC202HV Series ⁽⁸⁾
TODX281A ⁽²⁾⁽³⁾	DC to 6	650	Up to 40	±55	5 ± 0.25	-40 to 85	JIS F07	APF (980/1000) NA = 0.5	LUCT2-TC1000W-xxM ⁽⁹⁾ TOCP200-xxMBT ⁽⁶⁾
TODX286B(F) ⁽²⁾	DC to 8	770	Up to 1000	±42	5 ± 0.25	-40 to 85	JIS F07	PCF (200/230)	CF-2071 (HC-20/70) Series ⁽⁷⁾ OPC202HV Series ⁽⁸⁾
TODX294B(F) ⁽³⁾	DC to 10	770	Up to 1000	±30	5 ± 0.25	-40 to 85	JIS F07	PCF (200/230)	CF-2071 (HC-20/70) Series ⁽⁷⁾ OPC202HV Series ⁽⁸⁾
TODX295A(F) ⁽³⁾	DC to 10	650	Up to 50	±30	5 ± 0.25	-40 to 85	JIS F07	APF (980/1000) NA = 0.5	LUCT2-TC1000W-xxM ⁽⁹⁾ TOCP200-xxMBT ⁽⁶⁾
TODX296B(F)	DC to 6	770	Up to 1000	±55	5 ± 0.25	-40 to 85	JIS F07	PCF (200/230)	CF-2071 (HC-20/70) Series ⁽⁷⁾ OPC202HV Series ⁽⁸⁾
TOTX297A(F)	DC to 6	650	Up to 40	±55	5 ± 0.25	-40 to 85	JIS F07	APF (980/1000) NA = 0.5	LUCT2-TC1000W-xxM ⁽⁹⁾ TOCP200-xxMBT ⁽⁶⁾
TODX298B(F) ⁽⁴⁾	DC to 8	770	Up to 1000	±42	5 ± 0.25	-40 to 85	JIS F07	PCF (200/230)	CF-2071 (HC-20/70) Series ⁽⁷⁾ OPC202HV Series ⁽⁸⁾

Note (1) All values at Ta = 25°C

(2) Ceramic-packaged product

(3) External resistances must be changed according to the transmission distance.

(4) This fiber-optic receiving module has analog output pins for monitoring the amount of received light.

(5) Manufactured by Asahi Kasei EMD Corporation.

(6) Manufactured by Toray Industries, Inc.

(7) Manufactured by Sumitomo Electric Industries (SEI), Ltd.

(8) Manufactured by Oki Electric Cable Co., Ltd.

(11) For details on optical fiber cables with connectors, contact the respective manufactures.

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

(High-Speed Optical Modules)

Transceiving Module	Data Rate (NRZ, Mb/s)	Emission Wavelength (nm)	Transmission Distance (m) ⁽¹⁾	Supply Voltage (V)	Operating Temperature (°C)	Compatible Optical Connector	Compatible Optical Fiber (μm)	Compatible Optical Fiber with Fiber-Optic Connectors ⁽¹¹⁾
TODX283 ⁽²⁾	DC to 50	650	Up to 10 (APF)	5 ± 0.25	-10 to 70	PN	APF (980/1000) NA = 0.5	LUCT2-TC1000W-xxM ⁽⁹⁾ TOCP200-xxMBT ⁽⁶⁾
			Up to 100 (H-PCF)				H-PCF (200/230)	CF-2071 (HC-20/70) Series ⁽⁷⁾ OPC202HV Series ⁽⁸⁾
TODX2402(F)	20 to 250	650	Up to 50 (125M) Up to 20 (250M)	3.3 ± 0.3	-10 to 70 (125M) 0 to 60 (250M)	SMI	APF (980/1000) NA = 0.3	LPG-Z0005P Series ⁽¹⁰⁾
TODX2701(F)	20 to 125	650	Up to 20 (APF)	3.3 ± 0.3	-10 to 70	PN	APF (980/1000) NA = 0.5	LUCT2-TC1000W-xxM ⁽⁹⁾ TOCP200-xxMBT ⁽⁶⁾
			Up to 100 (GI-PCF)				GI-PCF (200/230)	CF-2071 (HC-20/80) Series ⁽⁷⁾

Note (1) All values at Ta = 25°C

(2) Ceramic-packaged product

(5) Manufactured by Asahi Kasei EMD Corporation.

(6) Manufactured by Toray Industries, Inc.

(7) Manufactured by Sumitomo Electric Industries (SEI), Ltd.

(8) Manufactured by Oki Electric Cable Co., Ltd.

(10) Manufactured by Honda Tsushin Kogyo Co., Ltd.

(11) For details on optical fiber cables with connectors, contact the respective manufactures.

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Image Sensors

CCD Linear Image Sensors

Part Number	Style	Photosensitive Pixels (Picture Elements)		Sensitivity (Typ.) (V/lx · s)	Data Rate (Max) (MHz)	Other Features	
		Type/Lamp	Effective Pixels				Size (μm)
TCD1706DG	Lens reduction type	B/W	7400	4.7 x 4.7	15	25 x 4	
TCD1708DG			7450			15 x 2	Single 5-V power supply
TCD1709DG			7500	7 x 7	15	25 x 4	
TCD1710DG			7500 x 2 lines	4.7 x 4.7	15	15 x 2	
TCD1711DG			7450		15	30 x 2	
TCD1712DG			7500 x 2 lines		15		
TCD2558DG-1			Color	5340 x 3 lines	7 x 7	R:8.5, G:12.7, B:9.5	10
TCD2561DG-1		5340 x 4 lines		7 x 7	R:10.4, G:14.4, B:8.7, B/W:21.0	Color:10, B/W:10 x 2	
TCD2563BFG		5340 x 4 lines		5.25 x 8.4	R:22.6, G:22.6, B:17.0	Color:25, B/W:25 x 2	TDI
TCD2704DG-1		7500 x 4 lines		5 x 5	R:4.9, G:6.3, B:4.2, B/W:10.8	Color:12, B/W:12 x 2	
TCD2706DG		7500 x 3 lines		9.325 pitch	R:8.8, G:12.8, B:4.5	30 x 2	
TCD2707DG		7450 x 4 lines		4.7 x 4.7	R:5.5, G:8.5, B:4.2, B/W:12.8	Color:20, B/W:25 x 2	
TCD2708DG		7300 x 3 lines		10 x 10	R:7.6, G:7.7, B:3.2	30 x 2	
TCD2709DG		7450 x 3 lines		4.7 x 4.7	R:5.7, G:5.2, B:2.2	25 x 2	
TCD2710DG		7500 x 3 lines		9.325 x 9.325	R:9.3, G:14.5, B:4.8	30 x 2	
TCD2713DG		7500 x 4 lines		9.325 x 9.325	R:13.1, G:18.4, B:7.6, B/W:23.8	Color:35 x 2, B/W:35 x 4	
TCD2715DG		7450 x 3 lines		4.7 x 4.7	R:5.7, G:5.2, B:2.2	30	
TCD2716DG		7450 x 3 lines		4.7 x 4.7	R:9.1, G:8.5, B:3.8	30 x 2	
TCD2914BFG		10680 x 4 lines		2.625 x 8.4	R:5.5, G:6.3, B:3.4	Color:20, B/W:20 x 2	
TCD2915BFG		10680 x 3 lines			R:5.6, G:7.0, B:4.3	20	
TCD2955BFG		14240 x 6 lines		3 x 4	R:1.5, G:2.0, B:1.1	10	Overflow drain
TCD2959BFG		10680 x 6 lines		2.625 x 5.25	R:2.4, G:3.0, B:1.4	10	
TCD2964BFG		21360 x 6 lines		2 x 4	R:1.3, G:1.5, B:0.7	10	Overflow drain

- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Package	Resolution (DPI)	Applications	Remarks
22-pin Cerdip	A3 600	Photocopiers, scanners	
68-pin Cerdip			
22-pin Cerdip			
22-pin Cerdip	A4 600	Color scanners	
22-pin CLCC			ES: OK
22-pin Cerdip	A3 600	Photocopiers, color scanners	
68-pin Cerdip			
22-pin Cerdip			
68-pin Cerdip			
22-pin Cerdip			ES: OK
68-pin Cerdip			ES: OK
22-pin Cerdip		ES: '07/8	
			ES: OK
22-pin CLCC	A4 1200		ES: OK
32-pin CLCC	A4 3200	Color scanners	
22-pin CLCC	A4 2400		ES: OK
32-pin CLCC	A4 4800		ES: OK

Area Image Sensors (Dynastron™)

Part Number	Package	Features				Power Supply (V)
		Optical Format (Inches)	Total Pixel Count (PIX)	Color/Mono	Digital Signal Processor	
ET8E99-AS	Wafer (Die)	1/2.6	2080 (H) x 1560 (V) (3.2 M)	Color (RGB)	No	1.5/2.8
ET8EC3-AS	Wafer (Die)	1/7	704 x 502 (350 K)	Color (RGB)	Yes	1.5/2.8/1.8
ET8EE6-AS	Wafer (Die)	1/3.2	2080 (H) x 1560 (V) (3.2 M)	Color (RGB)	No	1.8/2.8
ET8EJ0-AS	Wafer (Die)	1/4	1648 (H) x 1216 (V) (2.0 M)	Color (RGB)	Yes	1.8/2.8

- Dynastron is a trademark of Toshiba Corporation.
- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.