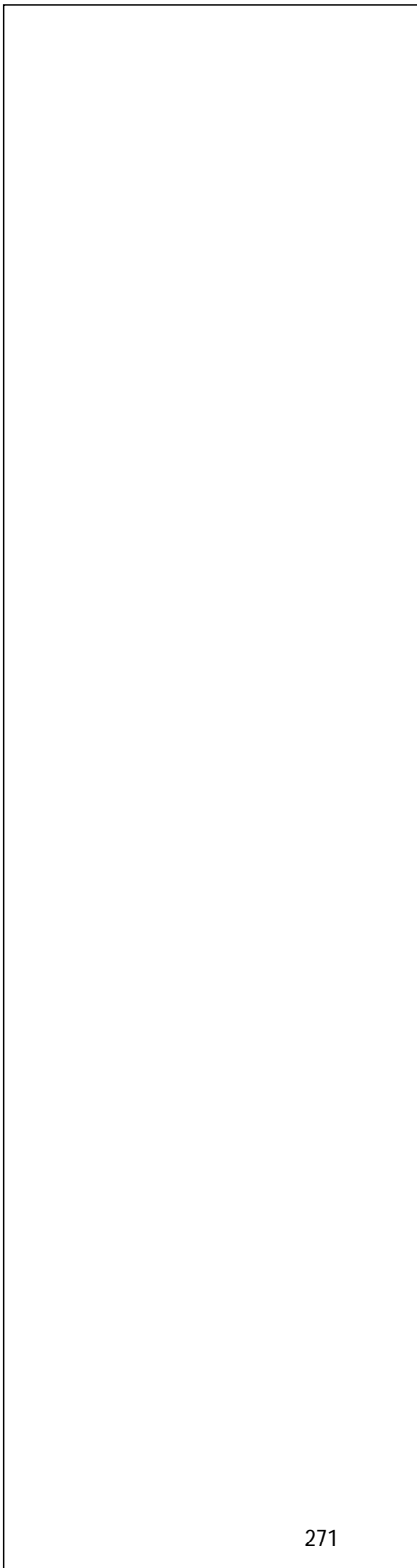




Sensors/Image Pickup Devices

Photosensors ● 272

Image Sensors ● 276



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

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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	Single 5-V power supply
TCD1708DG			7450			15 x 2	
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	
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

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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: OK	
22-pin Cerdip		ES: '07/8	
22-pin Cerdip		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

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