



Diodes

Rectifiers ●	252
Variable Capacitance Diodes ●	254
Radio-Frequency Switching Diodes ●	255
Zener Diodes ●	256
Switching Diodes ●	262
Schottky Barrier Diodes ●	265
Photodiodes ●	270

Rectifiers

General-Purpose Rectifiers

Average Forward Current (A)	Package	Peak Repetitive Reverse Voltage (V)				Remarks
		100	400	600	800	
0.3	VS-6		TPC6K01			Independent 2-in-1
0.5	HM-FLAT		HMG01			Independent 2-in-1
0.7	S-FLAT	CRG01	CRG02 CRG07			
1	S-FLAT		CRG03	CRG04	CRG05	
	M-FLAT		CMG05	CMG06		
2.0	M-FLAT		CMG02	CMG03		
10	TO-220SM				U10LC48	

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

(For Strobe Discharge Circuits)

Peak Repetitive Surge Current IFRM (A)	Peak Repetitive Reverse Current VRRM (V)	Part Number	Package	Remarks
150	400	CMC02	M-FLAT	CM = 500 μ F

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

Super-Fast-Recovery Diodes (S-FRDs)

Average Forward Current (A)	Package	Reverse Recovery Time trr (ns) (Max)	Peak Repetitive Reverse Voltage (V)				
			400	600	800	900	1000
0.5	S-FLAT	100			CRF02		
	M-FLAT				CMF04	CMF03	CMF05
0.7	S-FLAT			CRF03			
1	M-FLAT			CMF02			
2.0	M-FLAT			CMF01			
5.0	TO-220NIS			5GUZ47	5JUZ47		

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

(V-FRDs)

Average Forward Current (A)	Package	Reverse Recovery Time trr (ns) (Max)	Peak Repetitive Reverse Voltage (V)
			1200
12	TO-3P(N)IS	300	12QHZ51

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

High-Efficiency Diodes (HEDs)

		Package	Reverse Recovery Time trr (ns) (Max)	Peak Repetitive Reverse Voltage (V)					
				200	300	400	600		
Single	Average Forward Currents (A)	1	S-FLAT	35	CRH01				
			M-FLAT		CMH04		CMH05A		
		2	M-FLAT	35	CMH07		CMH08A		
				50			CMH08		
				35	CMH01		CMH02A		
	3	M-FLAT	50			CMH02			
			5	L-FLAT	35	CLH01	CLH02	CLH03	
	CLH05	CLH06				CLH07			
	Center-tap	Average Output Currents (A)	5	TO-220NIS	35	5DLZ47A (Note 1)		5GLZ47A (Note 1)	5JLZ47A (Note 1)
									5JLZ47 (Note 1)
5			TO-220NIS	35	5DL2CZ47A	5FL2CZ47A	5GL2CZ47A		
					50				5JL2CZ47
10			TO-220SM	35	U5DL2C48A	U5FL2C48A			
					50	10DL2CZ47A	10FL2CZ47A	10GL2CZ47A	10JL2CZ47A
16			TO-220NIS	35				10JL2CZ47	
					50				U10JL2C48A
16			TO-3P(N)	35	U10DL2C48A	U10FL2C48A			
					50	16DL2C41A	16FL2C41A		
20	TO-220NIS	35	16DL2CZ47A	16FL2CZ47A					
			50	20DL2C41A	20FL2C41A	20GL2C41A	20JL2C41A		
20	TO-3P(N)IS	35				20JL2C41			
			50	20DL2CZ51A	20FL2CZ51A		20JL2CZ51 (Note 2)		
30	TO-220SM	35	20DL2CZ47A	20FL2CZ47A					
			50	U20DL2C48A	U20FL2C48A	U20GL2C48A	U20JL2C48A		
30	TO-3P(N)	50				30JL2C41			

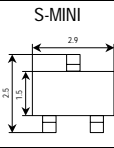
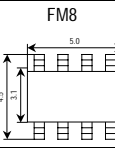
Note 1: Center leadless

Note 2: trr = 50 ns max

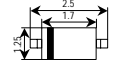
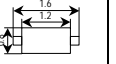
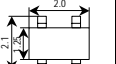
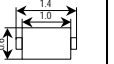
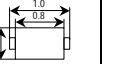
- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Variable Capacitance Diodes



Variable Capacitance Diodes (Diodes for Electronic Tuning)

Part Number		V _R (V)	C _T (pF)	V _R (V)	C _T (pF)	V _R (V)	Applications
Package							
							
1SV225		15	28 to 32	3	12 to 14	9	FM car radios, portable radios
1SV228		32	18.5 to 21	3	6.6 to 7.7	30	FM HI-FI tuners
	HN1V02H	15	28.5 to 32.5	3	11.7 to 13.7	8	FM car radios, portable radios
JDV3C34		16	435 to 540	1	19.9 to 26.7	8	AM car radios, portable radios
		12	67.9 to 72.1	2	26.1 to 27.8	6	FM tuners

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

Part Number					V _R (V)	C _T (pF)	V _R (V)	C _T (pF)	V _R (V)	Applications
Package										
										
1SV214	1SV278B				30	14.16 to 16.25	2	2.11 to 2.43	25	VHF/UHF TV tuners
1SV215					30	26 to 32	2	2.5 to 3.2	25	CATV tuners
1SV229	1SV279				15	14 to 16	2	5.5 to 6.5	10	VHF/UHF VCOs
	1SV286				30	14.5 to 16.1	2	1.56 to 1.86	20	CATV converters
1SV231					30	41 to 49.5	2	2.7 to 3.4	25	CATV tuners
1SV232					30	28 to 32	2	2.75 to 3.1	25	CATV tuners
1SV239	1SV280				15	3.8 to 4.7	2	1.5 to 2.0	10	L-Band VCOs
1SV245	1SV309				30	3.31 to 4.55	2	0.61 to 0.77	25	BS tuners
1SV262	1SV282				34	33 to 38	2	2.6 to 3.0	25	CATV tuners
1SV269	1SV283B				34	29 to 34	2	2.5 to 2.9	25	CATV tuners
1SV270	1SV281				10	15 to 17	1	7.3 to 8.7	4	VHF/UHF VCOs
1SV276	1SV284				10	15 to 17	1	7.0 to 8.5	4	VHF/UHF VCOs
				JDV2S07FS	10	4.0 to 4.9	1	1.85 to 2.35	4	L-Band VCOs
1SV288	1SV290B				30	41 to 49.5	2	2.5 to 3.2	25	CATV tuners
1SV304	1SV305	JDV4P08U	JDV2S08S	JDV2S08FS	10	17.3 to 19.3	1	5.3 to 6.6	4	VHF/UHF VCOs
1SV310	1SV311				10	9.7 to 11.1	1	4.45 to 5.45	4	VHF/UHF VCOs
	1SV314			JDV2S10FS	10	7.3 to 8.4	0.5	2.75 to 3.4	2.5	VHF/UHF VCOs
1SV322	1SV323				10	26 to 30	1	6 to 7.1	4	VCOs
1SV324	1SV325				10	44 to 49.5	1	9.2 to 12.2	4	VCOs
	JDV2S36E				10	44 to 49.5	1	5.4 to 7.3	6	VCOs
	1SV331				10	17 to 19	1	4.25 to 5.43	4	VCOs
	1SV329			JDV2S13FS	10	5.7 to 6.7	1	1.85 to 2.45	4	VHF/UHF VCOs
	JDV2S05E		JDV2S05S	JDV2S05FS	10	3.85 to 4.55	1	1.94 to 2.48	4	VHF/UHF VCOs
	JDV2S71E				30	6 to 7.2	1	0.49 to 0.64	25	UHF/SHF tuners

- The products shown in bold are also manufactured in offshore fabs.
- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Part Number		V _R (V)	C _T (pF)	V _R (V)	C _T (pF)	V _R (V)	Applications
Package							
							
JDV2S25FS *	JDV2S25SC *	10	5.62 to 5.99	1	1.91 to 2.12	4	VHF/UHF VCOs
JDV2S26FS *	JDV2S26SC *	10	15.35 to 16.31	1	5.27 to 5.60	4	VHF/UHF VCOs
JDV2S29FS *	JDV2S29SC *	10	3.59 to 3.87	1	1.26 to 1.40	4	VHF/UHF VCOs
	JDV2S31SC *	10	9.93 to 10.77	1	4.37 to 4.93	4	VHF/UHF VCOs
	JDV2S38SC *	10	7 to 7.74	0.5	2.76 to 3.12	2.5	VHF/UHF VCOs

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

Radio-Frequency Switching Diodes

Radio-Frequency Switching Diodes

Part Number	Applications		I _R (Max)		V _F (Max)		C _T (Typ.)		r _s (Typ.)			Package			
			(μ A)	V _R (V)	(V)	I _F (mA)	(pF)	V _R (V)	(Ω)	I _F (mA)	f (MHz)				
1SS314	TV band switch	Single	30	0.1	15	0.85	2	0.7	6	0.5	2	100	USC		
1SS381			30	0.1	15	0.85	2	0.7	6	0.5	2	100	ESC		
JDS2S03S			30	0.1	15	0.85	2	0.7	6	0.5	2	100	sESC		
1SS268		Twin	30	0.1	15	0.85	2	0.8	6	0.6	2	100	S-MINI		
1SS269			30	0.1	15	0.85	2	0.8	6	0.6	2	100	S-MINI		
1SS312			30	0.1	15	0.85	2	0.8	6	0.6	2	100	USM		
1SS313			30	0.1	15	0.85	2	0.8	6	0.6	2	100	USM		
1SS364			30	0.1	15	0.85	2	0.85	6	0.6	2	100	SSM		
1SV128			Switch, ATT	Single	50	0.1	50	0.95 (Typ.)	50	0.25	50	7	10	100	S-MINI
1SV271	50	0.1			50	1.0	50	0.25	50	3	10	100	USC		
JDP3C04TU *	50	0.1			50	0.95	50	0.3	1	3	10	100	UFM		
1SV307	30	0.1			30	1.0	50	0.5	1	1	10	100	USC		
1SV308	30	0.1			30	1.0	50	0.5	1	1	10	100	ESC		
JDP2S01E	30	0.1			30	0.95	50	0.65	1	0.65	10	100	ESC		
JDP2S04E	50	0.1			50	1.0	50	0.25	50	3	10	100	ESC		
JDP2S02AS	30	0.1			30	1.0	50	0.3	1	1	10	100	sESC		
JDP2S02AFS	30	0.1			30	0.94	50	0.3	1	1	10	100	fSC		
JDP2S05FS	20	0.1			20	0.94	50	0.32	1	1.5	1	100	fSC		
JDP2S08SC	30	0.1			30	0.95	50	0.21	1	1	10	100	SC2		
1SV172	Switch, ATT	Twin			50	0.1	50	0.95 (Typ.)	50	0.25	50	3	10	100	S-MINI
1SV252					50	0.1	50	0.98	50	0.2	50	3.5	10	100	USM
1SV237					50	0.1	50	0.95 (Typ.)	50	0.25	50	4	10	100	SMQ
1SV312			50	0.1	50	1.0	50	0.25	50	3	10	100	USQ		
JDP4P02AT			30	0.1	30	1.0	50	0.3	1	1	10	100	TESQ		

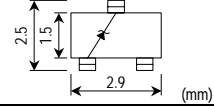
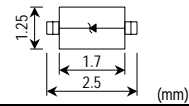
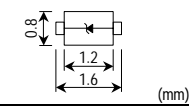
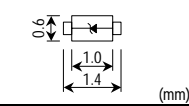
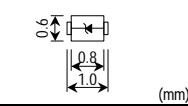
• The products shown in bold are also manufactured in offshore fabs.

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

*: New product

Zener Diodes

Zener Diodes (Small-Signal)

Zener Voltage Vz (V)	S-MINI (SC-59)	USC	ESC	sESC	fSC
2.0	02CZ2.0	02DZ2.0	015AZ2.0	015CZ2.0 *	015DZ2.0 *
2.2	02CZ2.2	02DZ2.2	015AZ2.2	015CZ2.2 *	015DZ2.2 *
2.4	02CZ2.4	02DZ2.4	015AZ2.4	015CZ2.4 *	015DZ2.4 *
2.7	02CZ2.7	02DZ2.7	015AZ2.7	015CZ2.7 *	015DZ2.7 *
3.0	02CZ3.0	02DZ3.0	015AZ3.0	015CZ3.0 *	015DZ3.0 *
3.3	02CZ3.3	02DZ3.3	015AZ3.3	015CZ3.3 *	015DZ3.3 *
3.6	02CZ3.6	02DZ3.6	015AZ3.6	015CZ3.6 *	015DZ3.6 *
3.9	02CZ3.9	02DZ3.9	015AZ3.9	015CZ3.9 *	015DZ3.9 *
4.3	02CZ4.3	02DZ4.3	015AZ4.3	015CZ4.3 *	015DZ4.3 *
4.7	02CZ4.7	02DZ4.7	015AZ4.7	015CZ4.7 *	015DZ4.7 *
5.1	02CZ5.1	02DZ5.1	015AZ5.1	015CZ5.1 *	015DZ5.1 *
5.6	02CZ5.6	02DZ5.6	015AZ5.6	015CZ5.6 *	015DZ5.6 *
6.2	02CZ6.2	02DZ6.2	015AZ6.2	015CZ6.2 *	015DZ6.2 *
6.8	02CZ6.8	02DZ6.8	015AZ6.8	015CZ6.8 *	015DZ6.8 *
7.5	02CZ7.5	02DZ7.5	015AZ7.5	015CZ7.5 *	015DZ7.5 *
8.2	02CZ8.2	02DZ8.2	015AZ8.2	015CZ8.2 *	015DZ8.2 *
9.1	02CZ9.1	02DZ9.1	015AZ9.1	015CZ9.1 *	015DZ9.1 *
10	02CZ10	02DZ10	015AZ10	015CZ10 *	015DZ10 *
11	02CZ11	02DZ11	015AZ11	015CZ11 *	015DZ11 *
12	02CZ12	02DZ12	015AZ12	015CZ12 *	015DZ12 *
13	02CZ13	02DZ13	015AZ13	015CZ13 *	015DZ13 *
15	02CZ15	02DZ15	015AZ15	015CZ15 *	015DZ15 *
16	02CZ16	02DZ16	015AZ16	015CZ16 *	015DZ16 *
18	02CZ18	02DZ18	015AZ18	015CZ18 *	015DZ18 *
20	02CZ20	02DZ20	015AZ20	015CZ20 *	015DZ20 *
22	02CZ22	02DZ22	015AZ22	015CZ22 *	015DZ22 *
24	02CZ24	02DZ24	015AZ24	015CZ24 *	015DZ24 *
27	02CZ27				
30	02CZ30				
33	02CZ33				
36	02CZ36				
39	02CZ39				
43	02CZ43				
47	02CZ47				
100		02DZ100			
Package Dimensions and Internal Connections					
P (mW)	200	200	150	150	150

• The products shown in bold are also manufactured in offshore fabs.

*: New product

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

The internal connection diagrams only show the general configurations of the circuits.

Zener Diodes

Power Dissipation P (W)		0.7	1.0	2.0
Zener Voltage Vz (V) (Typ.)	Package	S-FLAT (SMD)	M-FLAT (SMD)	M-FLAT (SMD)
6.2		CRY62		
6.8		CRY68		
7.5		CRY75		
8.2		CRY82		
9.1		CRY91		
10		CRZ10		
11		CRZ11		
12		CRZ12	CMZB12 *	CMZ12
13		CRZ13	CMZB13 *	CMZ13
15		CRZ15	CMZB15 *	CMZ15
16		CRZ16	CMZB16 *	CMZ16 CMZM16 (Note)
18		CRZ18	CMZB18	CMZ18
20		CRZ20	CMZB20 *	CMZ20
22		CRZ22	CMZB22 *	CMZ22
24		CRZ24	CMZB24 *	CMZ24
27		CRZ27	CMZB27	CMZ27
30		CRZ30	CMZB30 *	CMZ30
33		CRZ33	CMZB33	CMZ33
36		CRZ36	CMZB36	CMZ36
39		CRZ39	CMZB39	CMZ39
40				
43		CRZ43	CMZB43 *	CMZ43
47		CRZ47	CMZB47	CMZ47
48				
51			CMZB51	CMZ51
53				CMZ53

Note: P: 1 W, bi-directional zener diode

*: New product

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

ESD Protection Diodes (Standard Type) (Unidirectional)

Number of Diodes	Single Type				V _Z		I _R max		C _T	
Package	CST2	fSC	sESC	USC	(V)	@I _Z (mA)	(μ A)	@V _R (V)	(pF)	@V _R (V)
Part Number	—	—	DF2S2.0S	—	2.0	5	120	1	63	0
	—	—	DF2S3.6S	—	3.6		10	1	57	0
	DF2S5.6CT	DF2S5.6FS	DF2S5.6S	—	5.6		1	3.5	40	0
	DF2S6.2CT	DF2S6.2FS	DF2S6.2S	—	6.2		2.5	5	32	0
	DF2S6.8CT	DF2S6.8FS	DF2S6.8S	—	6.8		0.5	5	25	0
	DF2S8.2CT	DF2S8.2FS	DF2S8.2S	—	8.2		0.5	6.5	20	0
	—	DF2S10FS	—	—	10		0.5	8	16	0
	—	DF2S12FS	DF2S12S	DF2S12FU	12		0.05	9	15	0
	—	DF2S16FS	DF2S16S	—	16		0.5	12	10	0
	—	DF2S20FS	—	—	20		0.5	15	9.0	0
	—	DF2S24FS	DF2S24S	—	24		0.5	19	8.5	0
	—	DF2S30FS	—	—	30		2	0.5	23	7.0

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

Number of Diodes	2 in 1					V _Z		I _R		C _T	
Package	CST3	VESM	ESM	USM	S-MINI	(V)	@I _Z	(μ A)	@V _Z	(pF)	@V _R
Package Dimensions and Internal Connections						Typ.	(mA)	Max	(V)	Typ.	(V)
Part Number	—	DF3A3.3FV	DF3A3.3FE	DF3A3.3FU	—	3.3	5	20	1.0	115	0
	—	DF3A3.6FV	DF3A3.6FE	DF3A3.6FU	—	3.6	5	10	1.0	110	0
	—	—	—	DF3A4.3FU	—	4.3	5	10	1.8	100	0
	DF3A5.6CT	DF3A5.6FV	DF3A5.6FE	DF3A5.6FU	DF3A5.6F	5.6	5	1	2.5	65	0
	DF3A6.2CT	DF3A6.2FV	DF3A6.2FE	DF3A6.2FU	DF3A6.2F	6.2	5	1	3.0	55	0
	DF3A6.8CT	DF3A6.8FV	DF3A6.8FE	DF3A6.8FU	DF3A6.8F	6.8	5	0.5	5.0	45	0
	DF3A8.2CT	DF3A8.2FV	DF3A8.2FE	DF3A8.2FU	—	8.2	5	0.5	6.5	38	0

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

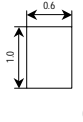
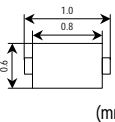
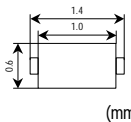
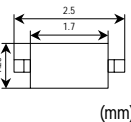
The internal connection diagrams only show the general configurations of the circuits.

Number of Diodes	4 in 1				7 in 1		V _Z		I _R		C _T	
Package	ESV	USV	SMV	US6	US8	(V)	@I _Z	(μ A)	@V _Z	(pF)	@V _R	
Package Dimensions and Internal Connections						Typ.	(mA)	Max	(V)	Typ.	(V)	
Part Number	DF5A3.3JE	DF5A3.3FU	DF5A3.3F	—	—	3.3	5	20	1.0	115	0	
	DF5A3.6JE	DF5A3.6FU	DF5A3.6F	—	—	3.6	5	10	1.0	110	0	
	DF5A5.6JE	DF5A5.6FU	DF5A5.6F	—	DF8A5.6FK	5.6	5	1	2.5	65	0	
	DF5A6.2JE	DF5A6.2FU	DF5A6.2F	—	DF8A6.2FK	6.2	5	1	3.0	55	0	
	DF5A6.8JE	DF5A6.8FU	DF5A6.8F	DF6A6.8FU	DF8A6.8FK	6.8	5	0.5	5.0	45	0	
	DF5A8.2JE	DF5A8.2FU	DF5A8.2F	—	—	8.2	5	0.5	6.5	38	0	
	—	DF5A12FU	—	—	—	12	5	0.05	9	26	0	

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

The internal connection diagrams only show the general configurations of the circuits.

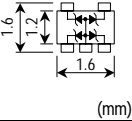
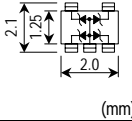
(Bidirectional)

Number of Diodes	Single Type				V _{BR}		I _R max		C _T	
Package	CST2  (mm)	fSC  (mm)	sESC  (mm)	USC  (mm)	(V)	@I _R (mA)	(μA)	@V _R (V)	(pF)	@V _R (V)
Part Number	—	DF2B6.8FS *	—	—	6.8	1	0.5	5	15	0

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

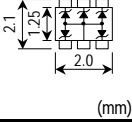
*: New product

(High-Speed Type)

Number of Diodes	4 in 1		V _Z (V)		C _T (pF)	
Package	ESV	USV	Typ.	@I _Z (mA)	Typ.	@V _Z (V)
Package Dimensions and Internal Connections	 (mm)	 (mm)				
Part Number	DF5A3.6CJE	DF5A3.6CFU	3.6	5	52	0
	DF5A5.6CJE	DF5A5.6CFU	5.6	5	29	0
	DF5A6.2CJE	DF5A6.2CFU	6.2	5	25	0
	DF5A6.8CJE	DF5A6.8CFU	6.8	5	23	0
	DF5A8.2CJE	DF5A8.2CFU	8.2	5	19	0

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

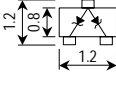
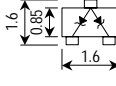
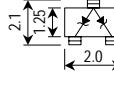
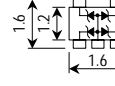
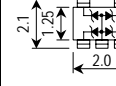
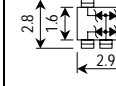
The internal connection diagrams only show the general configurations of the circuits.

Number of Diodes	5 in 1		V _Z (V)		C _T (pF)	
Package	US6		Typ.	@I _Z (mA)	Typ.	@V _Z (V)
Package Dimensions and Internal Connections	 (mm)					
Part Number	DF7A5.6CFU		5.6	5	34	0
	DF7A6.2CFU		6.2	5	28	0
	DF7A6.8CFU		6.8	5	26	0

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

The internal connection diagrams only show the general configurations of the circuits.

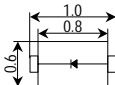
(Super High-Speed Type)

Number of Diodes	2 in 1			4 in 1			V _Z (V)		C _T (pF)	
	Package	VESM	ESM	USM	ESV	USV				
Package Dimensions and Internal Connections							Typ.	@I _Z	Typ.	@V _Z
Part Number	DF3A5.6LFV	DF3A5.6LFE	DF3A5.6LFU	DF5A5.6LJE	DF5A5.6LFU	—	5.6	5	8.0	0
	DF3A6.2LFV	DF3A6.2LFE	DF3A6.2LFU	DF5A6.2LJE	DF5A6.2LFU	—	6.2	5	6.5	0
	DF3A6.8LFV	DF3A6.8LFE	DF3A6.8LFU	DF5A6.8LJE	DF5A6.8LFU	DF5A6.8LF	6.8	5	6	0
	DF3A8.2LFV	DF3A8.2LFE	DF3A8.2LFU	—	DF5A8.2LFU	DF5A8.2LF	8.2	5	5	0

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

The internal connection diagrams only show the general configurations of the circuits.

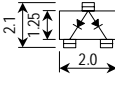
(Ultra High-Speed Type)

Number of Diodes	Single Type	V _R (V)			I _R (μA)		C _T (pF)	
	Package	Min	Typ.	@I _R	Max	@V _R	Max	@V _R
Package Dimensions and Internal Connections	fSC 			(mA)	(V)			(V)
Part Number	DF2S6.8UFS *	5.3	6.8	1	0.5	5.0	2.0	0

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

*: New product

The internal connection diagrams only show the general configurations of the circuits.

Number of Diodes	2 in 1	V _R (V)			I _R (μA)		C _T (pF)	
	Package	Min	Typ.	@I _R	Max	@V _R	Max	@V _R
Package Dimensions and Internal Connections	USM 			(mA)	(V)			(V)
Part Number	DF3A6.8UFU *	5.3	6.8	1	0.5	5.0	2.5	0

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

*: New product

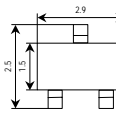
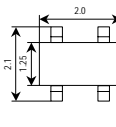
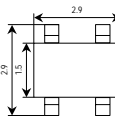
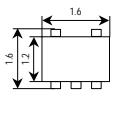
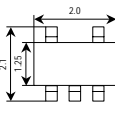
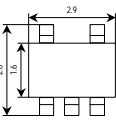
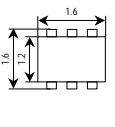
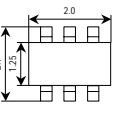































The internal connection diagrams only show the general configurations of the circuits.

Switching Diodes

Small-Signal Switching Diodes and Multiple Switching Diodes

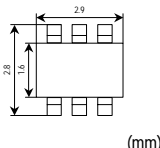





V _R (V)	I _o (mA)	I _{rr} (ns)	CST2	fSC	sESC	ESC	USC	CST3	VESM	ESM	SSM	USM (SC-70)
			(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
30	100	—										
80	100	—										1SS412
80	100	1.6 Typ.								1SS360F 	1SS360 	1SS300
80	100	1.6 Typ.						1SS361CT 	1SS361FV 	1SS361F 	1SS361 	1SS301
80	100 (80)	1.6 Typ.							1SS362FV 		(1SS362) 	1SS302
80	100 (80)	1.6 Typ.	1SS387CT 			1SS387 	1SS352 					
				1SS427 	1SS426 							
80	100	1.6 Typ.										
80	200	7.0 Typ.										
80	200	6.0 Typ.										
200	100	30 Typ.					1SS403 					1SS370
400	100	500 Typ.										1SS397
400	100	500 Typ.										

- The I_o ratings enclosed in parentheses are for those devices whose part numbers are enclosed in parentheses.
- The products shown in bold are also manufactured in offshore fabs.
- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

S-MINI (SC-59)	USQ	SMQ (SC-61)	ESV	USV	SMV (SC-74A)	ES6	US6	Remarks
 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	
1SS307								Low leakage current, Single
								
1SS379								Low leakage current, Single
								
1SS181				HN4D01JU	1SS308	HN1D01FE	HN1D01FU	High-speed switching, Common anode
								
1SS184				HN4D02JU	1SS309	HN1D02FE	HN1D02FU	High-speed switching, Common cathode
								
1SS226							HN1D04FU	High-speed switching, Series-connected
								
1SS193	1SS382	1SS272	HN2D01JE				(HN2D01FU)	High-speed switching, Independent diodes
								
1SS196							(HN2D02FU)	High-speed switching, Independent diodes
								
1SS187								High-speed switching, Independent diodes
								
1SS190								High-speed switching, Independent diodes
								
							HN1D03FU	High-speed switching, Common cathode + Common anode
								
1SS336								High current, Common anode
								
1SS337								High current, Common cathode
								
1SS250		1SS306						High breakdown voltage, Independent diodes
								
1SS311		1SS399						High breakdown voltage, Independent diodes
								
1SS398								High breakdown voltage, Series-connected
								

The internal connection diagrams only show the general configurations of the circuits.

Small-Signal Switching Diodes and Multiple Switching Diodes (Continued)

V _R (V)	I _o (mA)	t _{rr} (ns)	SM6 (SC-74)	Remarks
			 (mm)	
30	100	—		Low leakage current, Single
80	100	—		Low leakage current, Single
80	100	1.6 Typ.	HN1D01F 	High-speed switching, Common anode
80	100	1.6 Typ.	HN1D02F 	High-speed switching, Common cathode
80	100 (80)	1.6 Typ.		High-speed switching, Series-connected
80	100 (80)	1.6 Typ.	(HN2D01F) 	High-speed switching, Independent diodes
				High-speed switching, Independent diodes
				High-speed switching, Independent diodes
				High-speed switching, Independent diodes
80	100	1.6 Typ.	HN1D03F 	High-speed switching, Common cathode + Common anode
80	200	7.0 Typ.		High current, Common anode
80	200	6.0 Typ.		High current, Common cathode
200	100	30 Typ.		High breakdown voltage, Independent diodes
400	100	500 Typ.	HN2D03F 	High breakdown voltage, Independent diodes
400	100	500 Typ.		High breakdown voltage, Series-connected

The internal connection diagrams only show the general configurations of the circuits.

- The I_o ratings enclosed in parentheses are for those devices whose part numbers are enclosed in parentheses.
- The products shown in bold are also manufactured in offshore fabs.
- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

Schottky Barrier Diodes

Schottky Barrier Diodes (SBDs)

	Package	Peak Repetitive Reverse Voltage (V)					
		20	30	40	60	120	
Average Forward Currents (A)	0.7	US-FLAT			CUS03	CUS04	
	1	US-FLAT	CUS05 CUS06	CUS01 CUS02			
		S-FLAT	CRS06	CRS01 CRS02 (Note 1) CRS03 CRS05 CRS11	CRS04	CRS12 CRS13 *	
		M-FLAT		CMS08 CMS09	CMS10		
		VS-8		TPCF8E02 (Note 3)			
		1.5	S-FLAT		CRS08 CRS09		
	2	M-FLAT		CMS06 CMS07 CMS17	CMS11	CMS14	
	3	M-FLAT		CMS01 CMS02 (Note 1) CMS03 CMS18 *	CMS16 CMS19 *	CMS15 CMS20 *	
	5	M-FLAT		CMS04 CMS05			
		TO-220NIS			5GWJZ47 (Note 2)		
	10	L-FLAT		CLS01	CLS02	CLS03	
	Average Output Currents (A) (Center-tap)	5	TO-220NIS	5FWJ2CZ47M	5GWJ2CZ47C		
			TO-220SM	U5FWJ2C48M	U5GWJ2C48C		
10		TO-220NIS	10FWJ2CZ47M	10GWJ2CZ47C			
		TO-220SM	U10FWJ2C48M	U10GWJ2C48C			
20		TO-220NIS	20FWJ2CZ47M				
		TO-220SM	U20FWJ2C48M				
30		TO-3P(N)			30GWJ2C42C		
	TO-220NIS		30FWJ2CZ47M	30GWJ2CZ47C		30QWK2CZ47 (Note 1)	
	TO-220SM		U30FWJ2C48M	U30GWJ2C48C			

Note 1: Trench structure

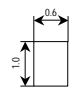
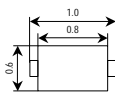
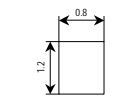
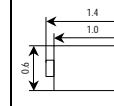
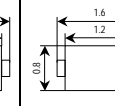
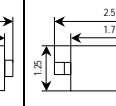
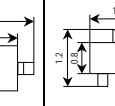
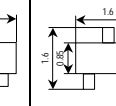


























Note 2: Center leadless

Note 3: Two separate diodes

*: New product

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

Small-Signal Schottky Barrier Diodes and Multiple Schottky Barrier Diodes

Absolute Maximum Ratings		Electrical Characteristics (Ta = 25°C)			CST2	FSC	CST2B	sESC	ESC	USC	VESM	ESM
Vr (V)	Io (mA)	Vf (V)		@If (mA)								
		Typ.	Max		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
10	100	0.23	0.3	5					1SS389	1SS367		
		0.35	0.5	100								
10	100	0.23	0.3	5							1SS385FV	1SS385F
		0.35	0.5	100								
10	100	0.23	0.3	5								
		0.35	0.5	100								
20	50	0.33	—	1		1SS413			1SS405	1SS406		
		0.5	0.55	50								
10	50	0.63	1.0	50								
30	100	0.38	0.5	100	1SS416CT	1SS416		1SS418				
												
30	200	0.52	0.6	200	1SS420CT				1SS420			
												
30	200	0.44	0.5	200					1SS421			
												
20	200	0.42	0.5	200					1SS424			
												
40	100	0.54	0.6	100	(1SS417CT)	(1SS417)		(1SS419)	1SS388	1SS357		
		(0.56)	(0.62)									
40	100	0.54	0.6	100								
40	100	0.54	0.6	100								
80	100	0.56	0.7	100								
20	300	0.16	—	1						1SS404		
		0.38	0.45	300								
20	500	0.50	0.55	500								
30	500	0.40	0.45	500						DSF05S30U *		
												
30	700	0.40	0.45	700						DSF07S30U *		
												
30	500	0.50	0.55	500						DSR05S30U *		
												
30	700	0.50	0.55	700						DSR07S30U *		
												
20	1000	0.46	0.55	1000								
30	500	0.4	0.45	500			DSF05S30CTB *					
												
30	500	0.5	0.55	500			DSR05S30CTB *					
												

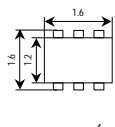
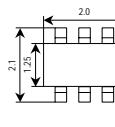
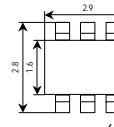
- The ratings enclosed in parentheses are for those devices whose part numbers are enclosed in parentheses.
- The products shown in bold are also manufactured in offshore fabs.
- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

SSM	USM (SC-70)	S-MINI (SC-59)	TESQ	USQ	SMQ (SC-61)	ESV	USV	Remarks
(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	
	1SS395	1SS394		1SS384	1SS391			Low Vf, Independent diodes
1SS385	1SS378	1SS377						Low Vf, Common cathode
	1SS372	1SS374						Low Vf, Series-connected
			HN2S03T	1SS402				Low leakage current, High-speed SW
		1SS321						Low leakage current, Common cathode
1SS422			HN2S06T					Low Vf
								Low Ir
								Low Ir
								Low Ir
	1SS322	1SS294	(HN2S07T)	1SS383	1SS319	HN2S02JE		Standard, Independent diodes
	1SS393	1SS392						Standard, Common cathode
(1SS423)		1SS396						Standard, Series-connected
		1SS348						High breakdown voltage, Single
	1SS401							Low Vf High current
		1SS344						High current, Single
								Low Vf
								High current, Single Improved Vf and Ir
								Low Ir
								High current, Single Improved Vf and Ir
		1SS349						High current, Single
								Low Vf
								Low Ir

*: New product

The internal connection diagrams only show the general configurations of the circuits.

Small-Signal Schottky Barrier Diodes and Multiple Schottky Barrier Diodes (Continued)

Absolute Maximum Ratings		Electrical Characteristics (Ta = 25°C)			ES6	US6	SM6 (SC-74)	Remarks	
Vr (V)	Io (mA)	Vf (V)		@If (mA)	 (mm)	 (mm)	 (mm)		
		Typ.	Max						
10	100	0.23	0.3	5		HN2S01FU	HN2S05FU	HN2S01F	Low Vf, Independent diodes
		0.35	0.5	100					
10	100	0.23	0.3	5					Low Vf, Common cathode
		0.35	0.5	100					
10	100	0.23	0.3	5					Low Vf, Series-connected
		0.35	0.5	100					
20	50	0.33	—	1	HN2S03FE	HN2S03FU			Low leakage current, High-speed SW
		0.5	0.55	50					
10	50	0.63	1.0	50					Low leakage current, Common cathode
30	100	0.38	0.5	100	(HN2S06FE)				Low Vf
30	200	0.52	0.6	200					Low Ir
30	200	0.44	0.5	200					Low Ir
20	200	0.42	0.5	200					Low Ir
40	100	0.54	0.6	100	(HN2S07FE)	HN2S02FU			Standard, Independent diodes
		(0.56)	(0.62)						
40	100	0.54	0.6	100					Standard, Common cathode
40	100	0.54	0.6	100					Standard, Series-connected
80	100	0.56	0.7	100					High breakdown voltage, Single
20	300	0.16	—	1	HN2S04FU *				Low Vf High current
		0.38	0.45	300					
20	500	0.50	0.55	500					High current, Single
30	500	0.40	0.45	500					Low Vf
30	700	0.40	0.45	700					High current, Single Improved Vf and Ir
30	500	0.50	0.55	500					Low Ir
30	700	0.50	0.55	700					High current, Single Improved Vf and Ir
20	1000	0.46	0.55	1000					High current, Single
30	500	0.40	0.45	500					Low Vf
30	500	0.50	0.55	500					Low Ir

- The ratings enclosed in parenthesis are for those devices whose part numbers are enclosed in parentheses.
- The products shown in bold are also manufactured in offshore fabs.
- Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

*: New product
The internal connection diagrams only show the general configurations of the circuits.

Radio-Frequency Schottky Barrier Diodes

Part Number	Applications	V _R ±V _{RM} (V)	I _F (mA)	V _F (Typ.)		C _T (Typ.)		Package
				(V)	I _F (mA)	(pF)	V _R (V)	
1SS154	VHF to S-band mixers	6	30	0.5	10	0.8	0	S-MINI (Single)
1SS271		6	30	0.5	10	0.8	0	S-MINI (Twin)
JDH2S03S *		30	100	0.37 (Max)	1	1.25	1	sESC
1SS295	UHF MIX	4	30	0.25	2	0.6	0.2	S-MINI (Twin)
1SS315		±5	30	0.25	2	0.6	0.2	USC
JDH2S01FS		4	25	0.25	2	0.6	0.2	fSC
JDH3D01S		4	25	0.25	2	0.6	0.2	SSM (Twin)
JDH3D01FV		4	25	0.25	2	0.6	0.2	VESM (Twin)
JDH2S02FS		10	10	0.24	1	0.3	0.2	fSC
JDH2S02SC		10	10	0.24	1	0.3	0.2	SC2

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

*: New product

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.