

## SEMICONDUCTOR GENERAL CATALOG

### 半導体製品総覧表2018年7月版

## Diodes ダイオード

TVS Diodes (ESD Protection Diodes) / TVSダイオード (ESD保護用ダイオード)

SiC Schottky Barrier Diodes / SiCショットキバリアダイオード

Schottky Barrier Diodes / ショットキバリアダイオード

Rectifiers / 整流用ダイオード

Switching Diodes / スイッチングダイオード

Zener Diodes / ツェナーダイオード

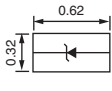
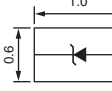
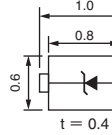
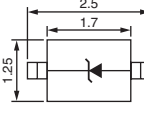
Variable Capacitance Diodes / 可変容量ダイオード

Radio-Frequency Switching Diodes / 高周波スイッチ用ダイオード

# TVS Diodes (ESD Protection Diodes) / TVSダイオード (ESD保護用ダイオード)

## TVS Diodes (ESD Protection Diodes) / TVSダイオード (ESD保護用ダイオード)

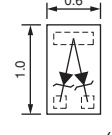
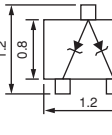
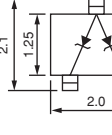
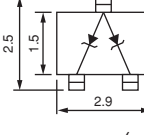
(Standard Type, Unidirectional) / (スタンダードタイプ, 単方向)

Protected Lines	1 Line				Vz (V)	@Iz (mA)	IR (μA)	Ct (pF)	ESD Immunity (IEC 61000-4-2, Contact Discharge) Min		
Package Name (toshiba)	SOD-962 (SL2)	SOD-882 (CST2)	SOD-923	SOD-323 (USC)						Max (V)	Typ. (V)
Package Dimensions and Internal Connections (1)					Typ.						
	(mm)	(mm)	(mm)	(mm)							
Part Number	DF2S5.1ASL *	DF2S5.1CT	DF2S5.1FS	—	5.1	5	1	1.5	45	0	±30 kV
	DF2S5.6ASL *	DF2S5.6CT	DF2S5.6FS	—	5.6		1	3.5	40	0	
	DF2S6.2ASL *	DF2S6.2CT	DF2S6.2FS	—	6.2		2.5	5	32	0	
	DF2S6.8ASL *	DF2S6.8CT	DF2S6.8FS	—	6.8		0.5	5	25	0	
	DF2S8.2ASL *	DF2S8.2CT	DF2S8.2FS	—	8.2		0.5	6.5	20	0	
	—	—	DF2S10FS	—	10		0.5	8	16	0	±20 kV
	—	—	DF2S12FS	DF2S12FU	12		0.05	9	15	0	
	DF2S16ASL *	DF2S16CT	DF2S16FS	—	16		0.5	12	10	0	±12 kV
	—	—	—	—	18		0.5	14	10	0	
	—	DF2S20CT	DF2S20FS	—	20		0.5	15	9	0	
—	—	DF2S24FS	—	24	0.5	19	8.5	0	±10 kV		
—	DF2S30CT	DF2S30FS	—	30	2	0.5	23	7 <sup>(2)</sup>	0	±8 kV	

Note (1): The internal connection diagrams only show the general configurations of the circuits. / 内部接続図はイメージ図です。

\*: New product / 新製品

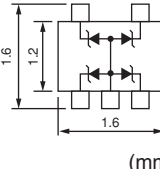
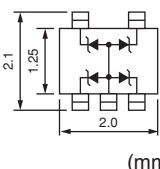
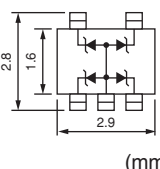
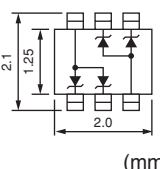
(2): DF2S30CT : 7.2 pF(typ.)@0 V

Protected Lines	2 Lines				Vz (V)	@Iz (mA)	IR (μA)	Ct (pF)	ESD Immunity (IEC 61000-4-2, Contact Discharge) Min		
Package Name (toshiba)	SOT-883 (CST3)	SOT-723 (VESM)	SOT-323 (USM)	SOT-346 (S-Mini)						Max (V)	Typ. (V)
Package Dimensions and Internal Connections (1)					Typ.						
	(mm)	(mm)	(mm)	(mm)							
Part Number	DF3A3.3CT	DF3A3.3FV	DF3A3.3FU	—	3.3	5	20 <sup>(2)</sup>	1 <sup>(2)</sup>	115	0	±30 kV
	DF3A3.6CT	DF3A3.6FV	DF3A3.6FU	—	3.6	5	10 <sup>(3)</sup>	1 <sup>(3)</sup>	110	0	
	DF3A5.6CT	DF3A5.6FV	DF3A5.6FU	DF3A5.6F	5.6	5	1	2.5	65	0	
	DF3A6.2CT	DF3A6.2FV	DF3A6.2FU	DF3A6.2F	6.2	5	1	3	55	0	
	DF3A6.8CT	DF3A6.8FV	DF3A6.8FU	DF3A6.8F	6.8	5	0.5	5	45	0	

Note (1): The internal connection diagrams only show the general configurations of the circuits. / 内部接続図はイメージ図です。

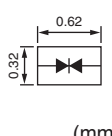
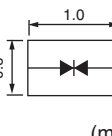
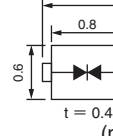
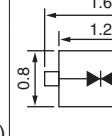
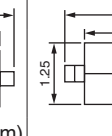
(2): DF3A3.3FV : 100 μA(Max)@1.5 V

(3): DF3A3.6FV : 100 μA(Max)@1.8 V

Protected Lines	4 Lines				Vz (V)	@Iz (mA)	IR (μA)	Ct (pF)	ESD Immunity (IEC 61000-4-2, Contact Discharge) Min		
Package Name (toshiba)	SOT-553 (ESV)	SOT-353 (USV)	SOT-25 (SMV)	SOT-363 (US6)						Max (V)	Typ. (V)
Package Dimensions and Internal Connections (1)					Typ.						
	(mm)	(mm)	(mm)	(mm)							
Part Number	DF5A3.3JE	DF5A3.3FU	DF5A3.3F	—	3.3	5	20	1	115	0	±30 kV
	DF5A3.6JE	DF5A3.6FU	DF5A3.6F	—	3.6	5	10	1	110	0	
	DF5A5.6JE	DF5A5.6FU	DF5A5.6F	—	5.6	5	1	2.5	65	0	
	DF5A6.2JE	DF5A6.2FU	DF5A6.2F	—	6.2	5	1	3	55	0	
	DF5A6.8JE	DF5A6.8FU	DF5A6.8F	DF6A6.8FU	6.8	5	0.5	5	45	0	

Note (1): The internal connection diagrams only show the general configurations of the circuits. / 内部接続図はイメージ図です。

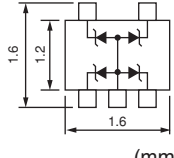
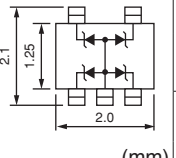
(Standard Type, Bidirectional) / (スタンダードタイプ, 双方向)

Protected Lines	Single Type					V <sub>BR</sub> (V)	I <sub>R</sub> ( $\mu$ A)	C <sub>t</sub> (pF)	ESD Immunity (IEC 61000- 4-2, Contact Discharge) Min			
Package Name (toshiba)	SOD-962 (SL2)	SOD-882 (CST2)	SOD-923	SOD-523 (ESC)	SOD-323 (USC)							
Package Dimensions and Internal Connections (1)	 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	Typ.	@ I <sub>BR</sub> (mA)	Max	@ V <sub>RWM</sub> (V)	Typ.	@ V <sub>R</sub> (V)	
Part Number	—	—	—	DF2B6.8E	—	6.8	1	0.5	5	15	0	$\pm$ 8 kV
	—	DF2B6.8ACT	DF2B6.8AFS	—	—	6.8	1	0.5	5	9	0	$\pm$ 30 kV
	DF2B7SL	—	—	—	—	6.8	1	0.5	5.3	6	0	$\pm$ 17 kV
	DF2B7ASL *	DF2B7ACT *	DF2B7AFS *	DF2B7AE *	DF2B7AFU *	6.8	1	0.1	5.5	8.5	0	$\pm$ 30 kV

Note (1): The internal connection diagrams only show the general configurations of the circuits. / 内部接続図はイメージ図です。

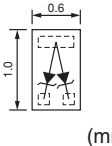
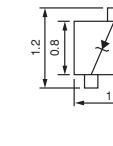
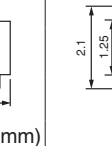
\*: New product / 新製品

(High-Speed Type) / (ハイスピードタイプ)

Protected Lines	4 Lines		V <sub>Z</sub> (V)	I <sub>R</sub> ( $\mu$ A)	C <sub>t</sub> (pF)	ESD Immunity (IEC 61000- 4-2, Contact Discharge) Min			
Package Name (toshiba)	SOT-553 (ESV)	SOT-353 (USV)							
Package Dimensions and Internal Connections (1)	 (mm)	 (mm)	Typ.	@ I <sub>Z</sub> (mA)	Max	@ V <sub>R</sub> (V)	Typ.	@ V <sub>R</sub> (V)	
Part Number	DF5A3.6CJE	DF5A3.6CFU	3.6	5	100	1.8	52	0	$\pm$ 30 kV
	DF5A5.6CJE	DF5A5.6CFU	5.6	5	1	3.5	29	0	
	DF5A6.2CJE	DF5A6.2CFU	6.2	5	2.5	5	25	0	
	DF5A6.8CJE	DF5A6.8CFU	6.8	5	0.5	5	23	0	

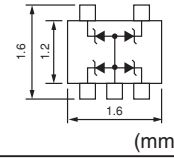
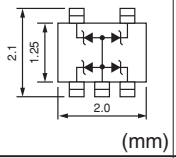
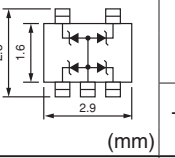
Note (1): The internal connection diagrams only show the general configurations of the circuits. / 内部接続図はイメージ図です。

(Super-High-Speed Type) / (スーパーハイスピードタイプ)

Protected Lines	2 Lines			V <sub>Z</sub> (V)	I <sub>R</sub> ( $\mu$ A)	C <sub>t</sub> (pF)	ESD Immunity (IEC 61000- 4-2, Contact Discharge) Min			
Package Name (toshiba)	SOT-883 (CST3)	SOT-723 (VESM)	SOT-323 (USM)							
Package Dimensions and Internal Connections (1)	 (mm)	 (mm)	 (mm)	Typ.	@ I <sub>R</sub> (mA)	Max	@ V <sub>R</sub> (V)	Typ.	@ V <sub>R</sub> (V)	
Part Number	—	DF3A5.6LFV	DF3A5.6LFU	5.6	5	1	3.5	8	0	$\pm$ 8 kV
	—	DF3A6.2LFV	DF3A6.2LFU	6.2	5	2.5	5	6.5	0	
	DF3A6.8LCT	DF3A6.8LFV	DF3A6.8LFU	6.8	5	0.5	5	6 <sup>(2)</sup>	0	

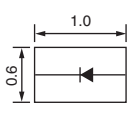
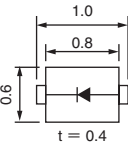
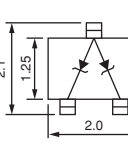
Note (1): The internal connection diagrams only show the general configurations of the circuits. / 内部接続図はイメージ図です。

(2): DF3A6.8LCT : 5.5 pF(typ.)@0 V

Protected Lines	4 Lines			V <sub>Z</sub> (V)	I <sub>R</sub> ( $\mu$ A)	C <sub>t</sub> (pF)	ESD Immunity (IEC 61000- 4-2, Contact Discharge) Min			
Package Name (toshiba)	SOT-553 (ESV)	SOT-353 (USV)	SOT-25 (SMV)							
Package Dimensions and Internal Connections (1)	 (mm)	 (mm)	 (mm)	Typ.	@ I <sub>Z</sub> (mA)	Max	@ V <sub>R</sub> (V)	Typ.	@ V <sub>R</sub> (V)	
Part Number	DF5A5.6LJE	DF5A5.6LFU	—	5.6	5	1	3.5	8	0	$\pm$ 8 kV
	DF5A6.2LJE	DF5A6.2LFU	—	6.2	5	2.5	5	6.5	0	
	DF5A6.8LJE	DF5A6.8LFU	DF5A6.8LF	6.8	5	0.5	5	6	0	

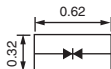
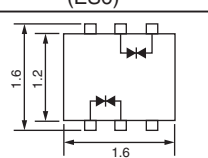
Note (1): The internal connection diagrams only show the general configurations of the circuits. / 内部接続図はイメージ図です。

TVS Diodes (ESD Protection Diodes) / TVSダイオード (ESD保護用ダイオード)  
 (Ultra-High-Speed Type, Unidirectional) / (ウルトラハイスピードタイプ, 単方向)

Protected Lines	4 Lines			2 Lines			V <sub>BR</sub> (V)			I <sub>R</sub> (μA)			C <sub>t</sub> (pF)			ESD Immunity (IEC 61000-4-2, Contact Discharge) Min
Package Name (toshiba)	SOD-882 (CST2)		SOD-923	SOT-323 (USM)			@ I <sub>BR</sub>			@ V <sub>RWM</sub>			@ V <sub>R</sub>			
Package Dimensions and Internal Connections (1)							Min	Typ.	(mA)	Max	(V)	Max	Typ.	(V)		
Part Number	DF2S6.8UCT	DF2S6.8UFS		—			5.3	6.8	1	0.5	5	—	1.6	0	±8 kV	
	—	—		DF3A6.8UFU			5.3	6.8	1	0.5	5	2.5	—	0		
	DF2S24UCT	—		—			22	24	1	0.5	19	—	1.6	0		

Note (1): The internal connection diagrams only show the general configurations of the circuits. / 内部接続図はイメージ図です。

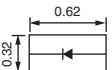
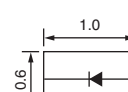
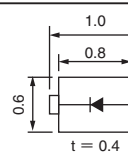
(Ultra-High-Speed Type, Bidirectional) / (ウルトラハイスピード, 双方向)

Protected Lines	2 Lines		1 Line		V <sub>BR</sub> (V)		I <sub>R</sub> (μA)		C <sub>t</sub> (pF)		ESD Immunity (IEC 61000-4-2, Contact Discharge) Min
Package Name (toshiba)	SOD-962 (SL2)		— (ES6)		@ I <sub>BR</sub>		@ V <sub>RWM</sub>		@ V <sub>R</sub>		
Package Dimensions and Internal Connections (1)					Min	(mA)	Max	(V)	Typ.	(V)	
Part Number	DF2B6USL *		DF6D6UFE *		5.7	1	0.1	5.5	1.5	0	±10 kV

Note (1): The internal connection diagrams only show the general configurations of the circuits. / 内部接続図はイメージ図です。

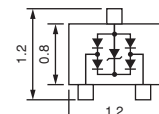
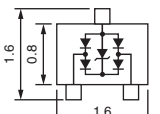
\*: New product / 新製品

(Extra-High-Speed Type, Unidirectional) / (エクストラハイスピードタイプ, 単方向)

Protected Lines	1 Line			V <sub>BR</sub> (V)		I <sub>R</sub> (μA)		C <sub>t</sub> (pF)		ESD Immunity (IEC 61000-4-2, Contact Discharge) Min
Package Name (toshiba)	SOD-962 (SL2)	SOD-882 (CST2)	SOD-923	@ I <sub>BR</sub>		@ V <sub>RWM</sub>		@ V <sub>R</sub>		
Package Dimensions and Internal Connections (1)				Min	(mA)	Max	(V)	Typ.	(V)	
Part Number	DF2S5M5SL *	—	—	3.5	5	0.1	3.3	0.6	0	±20 kV
	DF2S6M5SL *	—	—	5.1	5	0.1	5.0	0.6	0	±20 kV
	DF2S5M4SL *	DF2S5M4CT *	—	3.7	1	0.1	3.6	0.35	0	±20 kV
	DF2S6M4SL *	DF2S6M4CT *	—	5.6	2 μA	0.1	5.5	0.35	0	±20 kV
	DF2S7MSL *	—	DF2S6.8MFS *	6	5	0.5	5	0.5	0	±12 kV

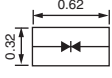
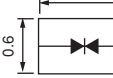
Note (1): The internal connection diagrams only show the general configurations of the circuits. / 内部接続図はイメージ図です。

\*: New product / 新製品

Protected Lines	2 Lines		V <sub>BR</sub> (V)		I <sub>R</sub> (μA)		C <sub>t</sub> (pF)		ESD Immunity (IEC 61000-4-2, Contact Discharge) Min		
Package Name (toshiba)	SOT-723 (VESM)		SOT-416 (SSM)		@ I <sub>BR</sub>		@ V <sub>RWM</sub>				
Package Dimensions and Internal Connections (1)					Min	(mA)	Max	(V)		Typ.	(V)
Part Number	DF3D6.8MFV		DF3D6.8MS		6	5	0.5	5	0.5	0	±8 kV

Note (1): The internal connection diagrams only show the general configurations of the circuits. / 内部接続図はイメージ図です。

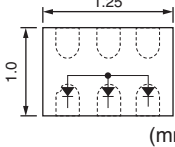
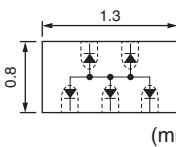
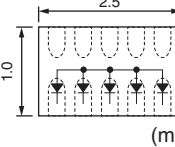
(Extra-High-Speed Type, Bidirectional) / (エクストラハイスピードタイプ, 双方向)

Protected Lines	1 Line		$V_{BR}$ (V)		$I_R$ ( $\mu$ A)		$C_t$ (pF)		ESD Immunity (IEC 61000-4-2, Contact Discharge) Min	
	Package Name (toshiba)	SOD-962 (SL2)								SOD-882 (CST2)
Package Dimensions and Internal Connections (1)				(mm)	(mm)					
Part Number	DF2B5M5SL	*	—	3.6	5	0.1	3.3	0.3	0	$\pm 20$ kV
	DF2B6M5SL	*	—	5.5	5	0.1	5.0	0.3	0	$\pm 20$ kV
	DF2B7M2SL		(DF2B6.8M1ACT)	6	1	0.05 (0.5)	5	0.2 (0.3)	0	$\pm 12$ kV
	—		DF2B12M1CT	10	1	0.05	8	0.3	0	$\pm 8$ kV
	DF2B7M3SL		—	6	1	0.5	5.5	0.1	0	$\pm 12$ kV
	DF2B5M4SL	*	DF2B5M4CT	4	1	0.1	3.6	0.2	0	$\pm 20$ kV
	DF2B6M4SL	*	DF2B6M4CT	5.6	1	0.1	5.5	0.2	0	$\pm 20$ kV
	DF2B20M4SL	*	—	19.5	1	0.1	18.5	0.2	0	$\pm 15$ kV
DF2B26M4SL	*	—	24.5	1	0.1	24	0.2	0	$\pm 15$ kV	

Note (1): The internal connection diagrams only show the general configurations of the circuits. / 内部接続図はイメージ図です。

\*: New product / 新製品

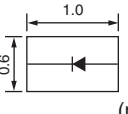
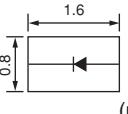
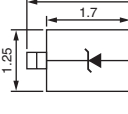
(Extra-High-Speed Type, Flow-Through) / (エクストラハイスピードタイプ, フロースルー)

Protected Lines	2 Lines		4 Lines		$V_{BR}$ (V)		$I_R$ ( $\mu$ A)		$C_t$ (pF)		ESD Immunity (IEC 61000-4-2, Contact Discharge) Min
	Package Name (toshiba)	— (DFN6)	— (DFN5)	— (DFN10)							
Package Dimensions and Internal Connections (1)					(mm)	(mm)	(mm)				
Part Number	DF6D7M1N	—	—	DF10G7M1N	6	1	0.5	5	0.3	0	$\pm 12$ kV
	—		DF5G7M2N	—	6	1	0.5	5.5	0.2	0	$\pm 20$ kV
	DF6D5M4N	*	DF5G5M4N	*	4	1	0.1	3.6	0.2	0	
	DF6D6M4N	*	DF5G6M4N	*	5.6	1	0.1	5.5	0.2	0	

Note (1): The internal connection diagrams only show the general configurations of the circuits. / 内部接続図はイメージ図です。

\*: New product / 新製品

(Surge Protection Type, Unidirectional) / (サージ保護タイプ, 単方向)

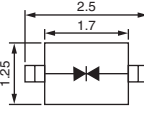
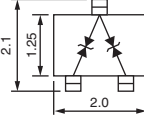
Protected Lines	1 Line			$V_{BR}$ (V)		$I_R$ ( $\mu$ A)		$C_t$ (pF)		ESD Immunity (IEC 61000-4-2, Contact Discharge) Min			
	Package Name (toshiba)	SOD-882 (CST2)	— (CST2C)								SOD-323 (USC)	Min	@ $I_{BR}$ (mA)
Package Dimensions and Internal Connections (1)					(mm)	(mm)	(mm)						
Part Number	DF2S6P1CT	*	—	—	5.6	1	0.1	5.5	—	0	$\pm 30$ kV		
	DF2S12P1CT	*	—	—	10.5	1	0.1	10	—	0	$\pm 30$ kV		
	DF2S14P1CT	*	—	—	12.9	1	0.1	12.6	—	0	$\pm 30$ kV		
	DF2S23P1CT	*	—	—	21.5	1	0.1	21	—	0	$\pm 30$ kV		
	—		DF2S6P2CTC	*	DF2S6P2FU	**	5.6	1	0.1	5.5	600	0	$\pm 30$ kV
	—		DF2S12P2CTC	*	DF2S12P2FU	**	10.5	1	0.1	10	350	0	$\pm 30$ kV
	—		DF2S14P2CTC	*	DF2S14P2FU	**	12.9	1	0.1	12.6	270	0	$\pm 30$ kV
	—		DF2S23P2CTC	*	DF2S23P2FU	**	21.5	1	0.1	21	160	0	$\pm 30$ kV

Note (1): The internal connection diagrams only show the general configurations of the circuits. / 内部接続図はイメージ図です。

\*: New product / 新製品

\*\* : Under development / 開発中

(Automotive Interface Applications, Bidirectional) / (車載インタフェース向け, 双方向)

Protected Lines	1 Line		2 Lines		$V_{BR}$ (V)		$I_R$ ( $\mu$ A)		$C_t$ (pF)		ESD Immunity (IEC 61000-4-2, Contact Discharge) Min
	Package Name (toshiba)	SOD-323 (USC)	SOT-232 (USM)	Min							
Package Dimensions and Internal Connections (1)				(mm)	(mm)						
Part Number	DF2B18FU	*	DF3D18FU	*	16.2	1	0.1	12	9	0	$\pm 30$ kV
	DF2B29FU	*	DF3D29FU	*	26	1	0.1	24	9	0	$\pm 25$ kV
	DF2B36FU	*	DF3D36FU	*	32	1	0.1	28	7	0	$\pm 20$ kV

Note (1): The internal connection diagrams only show the general configurations of the circuits. / 内部接続図はイメージ図です。

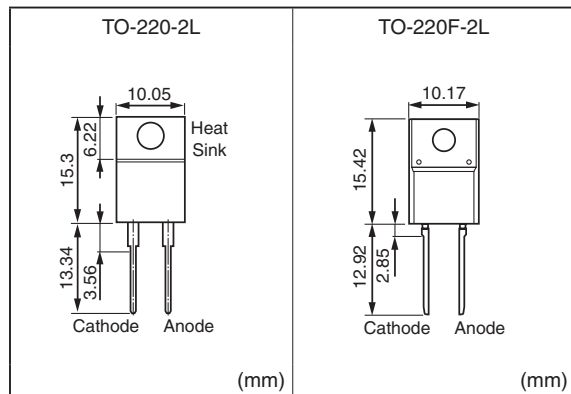
\*: New product / 新製品

# SiC Schottky Barrier Diodes / SiCショットキバリアダイオード

## SiC Schottky Barrier Diodes / SiCショットキバリアダイオード

Design	Absolute Maximum Ratings		Package	Part Number	Electrical Characteristics (Ta = 25°C)			
	VRRM (V)	IF (DC) (A)			VF (V)		Cj (pF)	IRRM (μA)
					@ IF (DC)		@ 650V/1 MHz	@ VRRM
					Typ.	Max	Typ.	Max
2 nd	650	2	TO-220-2L	TRS2E65F	1.45	1.6	8.7	20
		3		TRS3E65F	1.45	1.6	12	20
		4		TRS4E65F	1.45	1.6	16	20
		6		TRS6E65F	1.45	1.6	22	30
		8		TRS8E65F	1.45	1.6	28	40
		10		TRS10E65F	1.45	1.6	36	50
		4		TO-220F-2L Isolation	TRS4A65F	1.45	1.6	16
		6	TRS6A65F		1.45	1.6	22	30
		8	TRS8A65F		1.45	1.6	28	40
		10	TRS10A65F		1.45	1.6	36	50

### Packages / パッケージ



















## Schottky Barrier Diodes / ショットキバリアダイオード

### Schottky Barrier Diodes (SBDs) / 整流用ショットキバリアダイオード (SBD)

	Package	Peak Repetitive Reverse Voltage (V)				
		20	30	40	60	
Average Forward Current (A)	0.7	US-FLAT			CUS03	CUS04
	1	US-FLAT	CUS05 CUS06	CUS01 CUS02 CUS10I30A	CUS10I40A	
		S-FLAT	CRS06	CRS01 CRS03 CRS05 CRS11 CRS10I30A CRS10I30B CRS10I30C	CRS04 CRS10I40A CRS10I40B	CRS12 CRS13
		M-FLAT		CMS08 CMS09 CMS10I30A	CMS10 CMS10I40A	
	1.5	US-FLAT		CUS15I30A		
		S-FLAT		CRS08 CRS09 CRS15I30A CRS15I30B	CRS15I40A	
		M-FLAT			CMS15I40A	
	2	S-FLAT		CRS14 CRS20I30A CRS20I30B	CRS20I40A CRS20I40B	
		M-FLAT		CMS06 CMS07 CMS17 CMS20I30A	CMS11 CMS20I40A	CMS14
	3	S-FLAT		CRS15 CRS30I30A	CRS30I40A	
		M-FLAT		CMS01 CMS03 CMS30I30A	CMS16 CMS30I40A	CMS15
	5	M-FLAT		CMS04 CMS05		























Small-Signal Schottky Barrier Diodes and Multiple Schottky Barrier Diodes /  
 小信号ショットキバリアダイオード, 複合ショットキバリアダイオード

Absolute Maximum Ratings		Electrical Characteristics (Ta = 25°C)					CST2	SOD-923	ESC	USC	VESM	SSM
VR (V)	Io (mA)	VF (V)		@IF (mA)	IR (μA)		 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	 (mm)
		Typ.	Max		Max	@ VR (V)						
10	50	0.63	1.0	50	0.5	10						
10	100	0.23	0.3	5	20	10			1SS389	1SS367		
		0.35	0.5	100								
10	100	0.23	0.3	5	20	10					1SS385FV	1SS385
		0.35	0.5	100								
10	100	0.23	0.3	5	20	10						
		0.35	0.5	100								
20	50	0.33	—	1	0.5	20	1SS413CT	1SS413	1SS405	1SS406		
		0.5	0.55	50								
20	200	0.42	0.5	200	50	20			1SS424			
												
20	300	0.16	—	1	50	20				1SS404		
		0.38	0.45	300								
40	100	0.28	—	1	5	40						
		0.54	0.6	100								




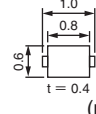












• The internal connection diagrams only show the general configurations of the circuits.

• 内部接続図はイメージ図です。

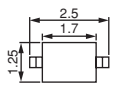
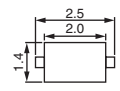
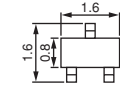
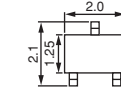
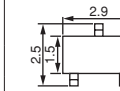
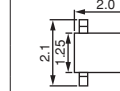
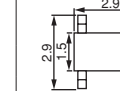
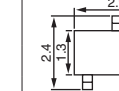
































USM (SC-70)	S-MINI (SC-59)	USQ	SMQ (SC-61)	US6 (SOT-363)	SM6 (SC-74)	Remarks
 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	
	1SS321					Low leakage current, Common cathode
						
1SS395	1SS394	1SS384	1SS391	HN2S01FU	HN2S01F	Low $V_F$ , Independent diodes
						
1SS378	1SS377					Low $V_F$ , Common cathode
						
1SS372	1SS374					Low $V_F$ , Series-connected
						
		1SS402		HN2S03FU		Low leakage current, High-speed SW
						
						Low $I_R$
1SS401				HN2S04FU		Low $V_F$ , High current
						
				HN2S02FU		Standard
						

Small-Signal Schottky Barrier Diodes and Multiple Schottky Barrier Diodes /  
 小信号ショットキバリアダイオード, 複合ショットキバリアダイオード

Absolute Maximum Ratings		Electrical Characteristics (Ta = 25°C)					SL2	CST2	CST2C	SOD-923	CST2B	ESC	
VR (V)	Io (mA)	VF (V)		@IF (mA)	IR (μA)		 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	
		Typ.	Max		Max	@VR (V)							
30	100	0.38	0.5	100	20	10		1SS416CT		1SS416			
30	100	0.27	0.3	10	7	10	DSF01S30SL						
		0.41	0.5	100	50	30							
30	100	0.37	0.5	10	0.35	10	DSR01S30SL						
		0.51	0.62	100	0.7	30							
30	200	0.52	0.6	200	5	30		CTS520			CES520		
30	200	0.45	0.5	200	30	30		CTS521				CES521	
													
30	200	0.45	0.58	100	2	25							
30	500	0.38	0.45 (0.47)	500	50	30					CBS05F30		
30	500	0.41	0.47	500	300	30		CTS05S30 *					
30	800	0.40	0.45	800	50	30							
30	1000	0.43	0.5	1000	50	30							
30	1000	0.37	0.45	1000	500	30					CBS10S30 *		
30	1500	0.33	0.4	1000	500	30			CCS15S30				
		0.39	—	1500									
40	100	0.54 (0.56)	0.6 (0.62)	100	5	40		(1SS417CT)		(1SS417)		CES388	
40	100	0.54 (0.56)	0.6 (0.62)	100	5	40							
40	100	0.54 (0.56)	0.6 (0.62)	100	5	40							
40	500	0.53 (0.56)	0.6	500	50	40						CTS05S40 *	
40	1000	0.45 (0.48)	0.50 (0.55)	1000	150	40						(CBS10S40) *	
													
40	1000	0.60 (0.63)	0.67 (0.7)	1000	20	40						(CBS10F40) *	
40	1000	0.74	0.81	500	15	40							CTS05F40 *
													
40	1500	0.40	0.45	1000	200	40			CCS15S40 *				
		0.47	0.55	1500									
40	1500	0.50	0.55	1000	25	40			CCS15F40 *				
		0.59	0.64	1500									
40	2000	0.47	0.54	2000	60	40							
60	1000	0.56	0.62	1000	40	60							

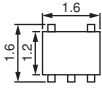
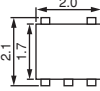
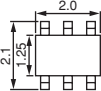



- The VF ratings enclosed in parentheses are for those devices whose part numbers are enclosed in parentheses.
- The internal connection diagrams only show the general configurations of the circuits.
- ( ) 内品種はVF特性が異なります。
- 内部接続図はイメージ図です。

USC	US2H	SSM	USM (SC-70)	S-MINI (SC-59)	USQ	SMQ (SC-61)	SOT23	Remarks
 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	
		1SS422 						Low $V_F$
								Low $V_F$
								Low $I_R$
CUS520 								Low $I_R$
CUS521 								Low $V_F$
							TBAT54 * 	Low $I_R$ , single
							TBAT54A * 	Low $I_R$ , common anode
							TBAT54C * 	Low $I_R$ , common cathode
							TBAT54S * 	Low $I_R$ , series-connected
(CUS551V30) 								Low $V_F$
CUS05S30 * 								High current, single, very Low- $V_F$
CUS08F30 								High current, single Improved $V_F$ and $I_R$
CUS10F30 								High current, single Improved $V_F$ and $I_R$
CUS10S30 * 								High current, single, very Low- $V_F$
CUS15S30 * 								High current, single, very Low- $V_F$
	CUHS20F30 ** 							High current, single, very Low- $V_F$
CUS357 			1SS322 	1SS294 	1SS383 	1SS319 		Standard, Independent diodes
			1SS393 	1SS392 				Standard, common cathode
		(1SS423) 		1SS396 				Standard, series-connected
CUS05S40 * 								High current, single, very Low- $V_F$
CUS10S40 * 								High current, single, very Low- $V_F$
CUS10F40 * 								High current, single Improved $V_F$ and $I_R$
CUS05F40 * 								High current, single Improved $V_F$ and $I_R$
CUS15S40 * 								High current, single, very Low- $V_F$
								High current, single Improved $V_F$ and $I_R$
	CUHS20F40 ** 							High current, single, very Low- $V_F$
	CUHS10F60 * 							High current, single, very Low- $V_F$

\*: New product / 新製品

\*\* : Under development / 開発中

## Small-Signal Schottky Barrier Diodes and Multiple Schottky Barrier Diodes / 小信号ショットキバリアダイオード, 複合ショットキバリアダイオード

Absolute Maximum Ratings		Electrical Characteristics (Ta = 25°C)					ESV	UFV	US6	Remarks
VR (V)	Io (mA)	VF (V)		@IF (mA)	IR (μA)		 (mm)	 (mm)	 (mm)	
		Typ.	Max		Max	@VR (V)				
30	1000	0.47	0.57	1000	50	30		CVJ10F30 	High current, single Improved VF and IR	
40	100	0.54	0.6	100	5	40	HN2S02JE 	HN2S02FU 	Standard, Independent diodes	

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

・ 内部接続図はイメージ図です。

## Radio-Frequency Schottky Barrier Diodes / 高周波用ショットキバリアダイオード

Part Number	Applications	VR ♣VRM (V)	IF (mA)	VF(Typ.)		CT(Typ.)		Package
				(V)	IF (mA)	(pF)	VR (V)	
1SS154	VHF to S band mixer	6	30	0.5	10	0.8	0	S-Mini (Single)
1SS271		6	30	0.5	10	0.8	0	S-Mini (Twin)
1SS295	UHF MIXER	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	0.25	0.2	SC2
JDH2S02SL		10	10	0.24	1	0.25	0.2	SL2

## Rectifiers / 整流用ダイオード

### General-Purpose Rectifiers / 一般整流用ダイオード

Average Forward Current (A)	Package	Peak Repetitive Reverse Voltage (V)			Remarks
		400	600	800	
0.7	HM-FLAT	HMG02			Independent 2-in-1
	S-FLAT	CRG07			
1	S-FLAT	CRG09A (1) *	CRG04	CRG05	
	M-FLAT	CMG05 CMG07	CMG06 CMG08		
2	M-FLAT	CMG02	CMG03		

Note (1): High ESD protection / 高静電気耐量タイプ

\*: New product / 新製品

### (For Strobe Discharge Circuits) / (ストロボフラッシュ放電回路用)

Peak Repetitive Forward Current	Peak Repetitive Reverse Voltage	Part Number	Package	Remarks
$I_{FRM}$ (A)	$V_{RRM}$ (V)			
150	400	CMC02	M-FLAT	CM = 500 $\mu$ F

### Super-Fast-Recovery Diodes (S-FRDs) / 超高速整流用ダイオード (S-FRD)

Average Forward Current (A)	Package	Reverse Recovery Time $t_{rr}$ (ns) (Max)	Peak Repetitive Reverse Voltage (V)			
			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	M-FLAT		CMF01			


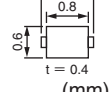
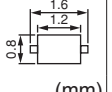
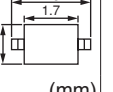

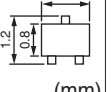
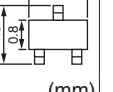
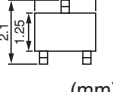
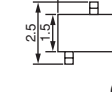
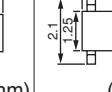


































☆: Dry-packed / 防湿梱包品

### High-Efficiency Diodes (HEDs) / 高速高効率ダイオード (HED)

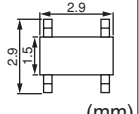
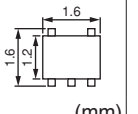
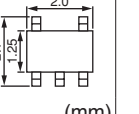
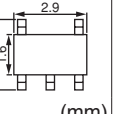
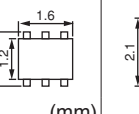
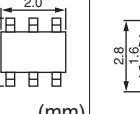
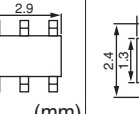
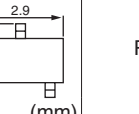

























Average Forward Current (A)	Package	Reverse Recovery Time $t_{rr}$ (ns) (Max)	Peak Repetitive Reverse Voltage (V)
			200
0.5	S-FLAT	35	CRH02
1	S-FLAT		CRH01
	M-FLAT	CMH04	
2	M-FLAT	35	CMH07
3		35	CMH01

# Switching Diodes / スイッチングダイオード

## Small-Signal Switching Diodes and Multiple Switching Diodes / 小信号スイッチングダイオード, 複合スイッチングダイオード

$V_R$ (V)	$I_o$ (mA)	trr (ns)	CST2  (mm)	SOD-923  (mm)	ESC  (mm)	USC  (mm)	CST3  (mm)	VESM  (mm)	SSM  (mm)	USM (SC-70)  (mm)	S-MINI (SC-59)  (mm)	USQ  (mm)			
30	100	—									1SS307 				
80	100	—			1SS307E * 					1SS412 	1SS379 				
80	100	1.6 Typ.							1SS360 	1SS300 	1SS181 				
80	100	1.6 Typ.					1SS361CT 	1SS361FV 	1SS361 	1SS301 	1SS184 				
80	100 (80)	1.6 Typ.						1SS362FV 	(1SS362) 	1SS302A * 	1SS226 				
80	100 (80)	1.6 Typ.	1SS387CT 		1SS387 	1SS352 						1SS193 	1SS382 		
				1SS427 									1SS196 		
														1SS187 	
														1SS190 	
80	100	1.6 Typ.													
80	215	4.0 Max													
100	215	4.0 Max								BAV99W * 					
100	250	3.0 Max			BAS516 * 	BAS316 * 									
200	100	10 (30) Typ.			1SS403E * 	1SS403 				1SS370 	1SS250 				
400	100	500 (1500) Typ.								1SS397 					
400	100	500 Typ.									1SS398 				

- The  $I_o$  ratings enclosed in parentheses are for those devices whose part numbers are enclosed in parentheses.
- The internal connection diagrams only show the general configurations of the circuits.
- ( )内の品種は $I_o$ の定格が異なります。
- 内部接続図はイメージ図です。

SMQ (SC-61)	ESV	USV	SMV (SC-74A)	ES6	US6	SM6 (SC-74)	SOT23	Remarks
 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	 (mm)	
								Low leakage current, Single
								Low leakage current, Series-connected
		HN4D01JU	1SS308	HN1D01FE	HN1D01FU	HN1D01F		High-speed switching, Common anode
								
		HN4D02JU	1SS309	HN1D02FE	HN1D02FU	HN1D02F		High-speed switching, Common cathode
								
					HN1D04FU			High-speed switching, Series-connected
								
1SS272	HN2D01JE				(HN2D01FU)	(HN2D01F)		High-speed switching, Independent diodes
								
					(HN2D02FU)			High-speed switching, Independent diodes
								
								High-speed switching, Independent diodes
								High-speed switching, Independent diodes
								High-speed switching, Independent diodes
					HN1D03FU	HN1D03F		High-speed switching, Common cathode + Common anode
								
							TBAW56 *	High-speed switching, Common anode
								
							TBAS16 *	Low leakage current, Single
								
							BAV99 *	Low leakage current, Series-connected
								
							BAV70 *	High-speed switching, Common cathode
								
								High-speed switching, Independent diodes
(1SS306)								High breakdown voltage, Independent diodes
								
1SS399						HN2D03F		High breakdown voltage, Independent diodes
								
								High breakdown voltage, Series-connected

\*: New product / 新製品

## Zener Diodes / ツェナーダイオード

### Zener Diodes / ツェナーダイオード

Power Dissipation P (W)	0.7	1.0	2.0
Zener Voltage Vz (V) (typ.)	S-FLAT	M-FLAT	M-FLAT
6.2	CRY62		
6.8	CRY68		
8.2	CRY82		
10	CRZ10		
12	CRZ12	CMZB12	CMZ12
13	CRZ13	CMZB13	CMZ13
15	CRZ15	CMZB15	CMZ15
16	CRZ16		CMZ16
18	CRZ18	CMZB18	CMZ18
20	CRZ20	CMZB20	CMZ20
24	CRZ24	CMZB24	CMZ24
27	CRZ27	CMZB27	CMZ27
30	CRZ30	CMZB30	CMZ30
33	CRZ33	CMZB33	CMZ33
36	CRZ36	CMZB36	CMZ36
39	CRZ39	CMZB39	CMZ39
43		CMZB43	CMZ43
47		CMZB47	CMZ47
51		CMZB51	CMZ51
68		CMZB68	
75		CMZB75	
82		CMZB82	



## Variable Capacitance Diodes / 可変容量ダイオード

### Variable Capacitance Diodes / 可変容量ダイオード

(Diodes for Electronic Tuning) / (電子同調用)

Part Number	Package	$V_R$ (V)	$C_T$ (pF)	$V_R$ (V)	$C_T$ (pF)	$V_R$ (V)	Applications
1SV228		15	28.5 to 32.5	3	11.7 to 13.7	8	FM car radios, portable radios

Part Number			$V_R$ (V)	$C_T$ (pF)	$V_R$ (V)	$C_T$ (pF)	$V_R$ (V)	Applications
Package								
USC	ESC	fSC						
1SV324	1SV325		10	44 to 49.5	1	9.2 to 12.0	4	VCXO
	JDV2S36E		10	44 to 49.5	1	5.4 to 7.3	6	VCXO
1SV262	1SV282		34	33 to 38	2	2.6 to 3.0	25	CATV tuners
1SV322	1SV323		10	26.5 to 29.5	1	6 to 7.1	4	VCXO
1SV304	1SV305		10	17.3 to 19.3	1	5.3 to 6.6	4	VHF/UHF VCO
1SV270	1SV281		10	15 to 17	1	7.3 to 8.7	4	VHF/UHF VCO
1SV229	1SV279	JDV2S41FS	15	14 to 16	2	5.5 to 6.5	10	VHF/UHF VCO
1SV310	1SV311	JDV2S09FS	10	9.7 to 11.1	1	4.45 to 5.45	4	VHF/UHF VCO
	1SV314	JDV2S10FS	10	7.3 to 8.4	0.5	2.75 to 3.4	2.5	VHF/UHF VCO
1SV277	1SV285	JDV2S07FS	10	4.0 to 4.9	1	1.85 to 2.35	4	VHF/UHF VCO
1SV239	1SV280		15	3.8 to 4.7	2	1.5 to 2.0	10	L Band VCO

## Radio-Frequency Switching Diodes / 高周波スイッチ用ダイオード

### Radio-Frequency Switching Diodes / 高周波スイッチ用ダイオード

Part Number	Applications	$V_R$ (V)	$I_R$ (Max)		$V_F$ (Max)		$C_T$ (Typ.)		$r_s$ (Typ.)			Package											
			( $\mu$ A)	$V_R$ (V)	(V)	$I_F$ (mA)	(pF)	$V_R$ (V)	( $\Omega$ )	$I_F$ (mA)	f (MHz)												
1SS314	TV band switch	30	0.1	15	0.85	2	0.7	6	0.5	2	100	USC											
1SS381												ESC											
1SS268												Twin	30	0.1	15	0.85	2	0.8	6	0.6	2	100	S-Mini
1SS269																							S-Mini
1SS312																							USM
1SS313																							USM
1SS364																							SSM
1SV128	Switch, ATT	50	0.1	50	0.95 (Typ.)	50	0.25	50	3	10	100	S-MINI											
JDV2S12CR												S-FLAT											
1SV307												Single	30	0.1	30	1.0	50	0.3	1	1	10	100	USC
1SV271																							USC
1SV308																							ESC
JDV2S04E																							ESC
JDV2S02AFS																							fSC
JDV2S02ACT																							CST2
JDV2S08SC																							SC2
1SV172																							Switch, ATT
JDV3C02AU	USM																						

# SEMICONDUCTOR GENERAL CATALOG

## 半導体製品総覧表

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