



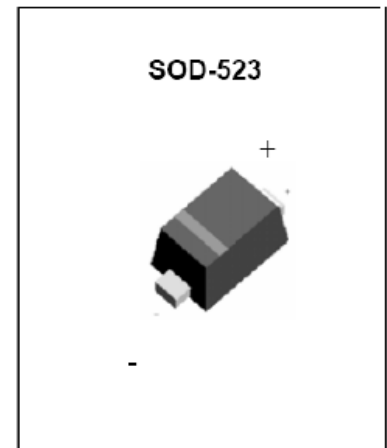
ESD Protection Diodes

DESCRIPTION

The CESD12VD5 is designed to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space is at a premium.

FEATURES

- Stand-off Voltage: 3.3 V–12 V
- Low Leakage
- Response Time is Typically < 1 ns
- ESD Rating of Class 3 (> 16 kV) per Human Body Model
- IEC61000-4-2 Level 4 ESD Protection
- These are Pb-Free Devices



Maximum Ratings @T_A=25°C

Parameter	Symbol	Limits	Unit
IEC61000-4-2(ESD) Air Contact		±30 ±30	KV
ESD voltage per human body model		16	KV
Per machine model		400	V
Total power dissipation on FR-5 board (Note 1)	P _D	150	mW
Thermal Resistance Junction-to-Ambient	R _{θJA}	833	°C/W
Lead Solder Temperature – Maximum (10 Second Duration)	T _L	260	°C
Junction and Storage temperature range	T _J , T _{stg}	-55 ~ +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only.

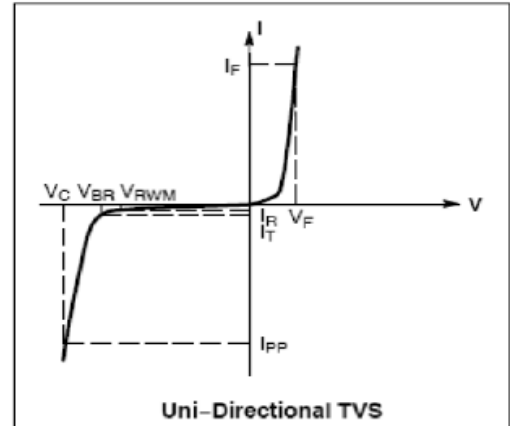
Functional operation above the Recommended. Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. FR-5 = 1.0 x 0.75 x 0.62 in.



ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F
P_{pk}	Peak Power Dissipation
C	Max. Capacitance @ $V_R=0$ and $f=1\text{MHz}$



ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 0.9\text{ V Max.}$ @ $I_F = 10\text{mA}$ for all types)

Device*	Device Marking	V_{RWM} (V)	I_R (μA) @ V_{RWM}	V_{BR} (V) @ I_T (Note 2)		I_T mA	V_C @ $I_{PP}^* = 5\text{ A}$	$I_{PP}(\text{A})^*$	V_C (V) @Max I_{PP}^*	P_{pk}^* (W)	C (pF)
		Max	Max	Min	Max		V	Max	Max	Max	Typ
CESD3V3D5	ZE	3.3	0.08	5.0	5.9	1.0	9.4	11.2	14.1	158	105
CESD5V0D5	ZF	5.0	0.08	6.2	7.3	1.0	11.6	9.4	18.6	174	80
CESD7V0D5	ZH	7.0	0.03	7.5	8.7	1.0	13.5	8.8	22.7	200	65
CESD12VD5	ZM	12	0.02	14.1	15.7	1.0	23	9.6	29	240	55

*Other voltages available upon request.

+Surge current waveform per Figure 1.

2. V_{BR} is measured with a pulse test current I_T at an ambient temperature of 25°C .

TYPICAL CHARACTERISTICS

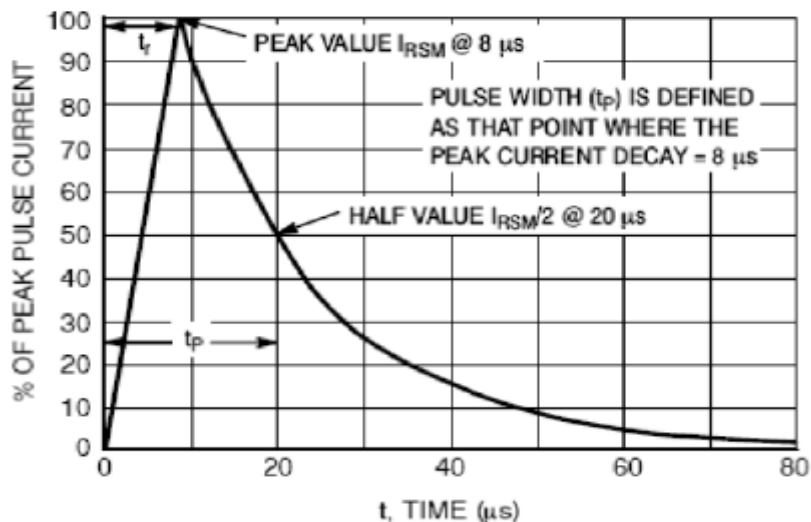


Figure 1. 8 x 20 μs Pulse Waveform