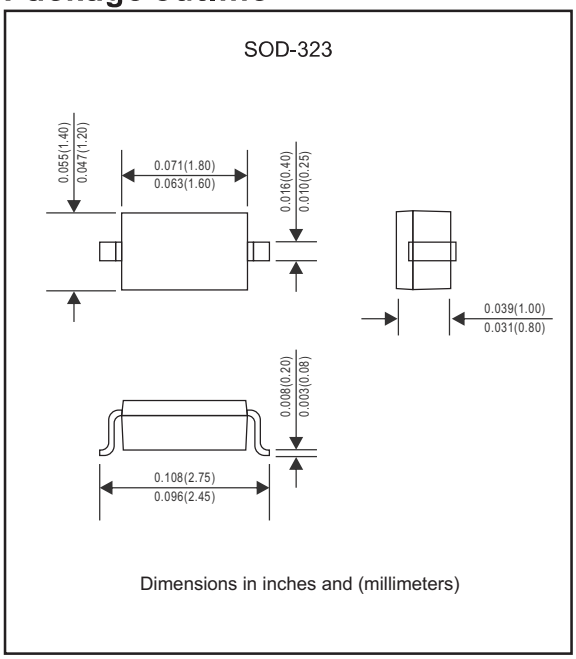
ESD3Z-Q1 Series

Surface Mount Uni-Directional TVS For ESD Protection Diode - 3.3V - 15V

Features

- This series is designed for average power 300W approximated ESD protection, different V_{RWM}, different peak pulse power available.
- Protects one I/O or power line.
- Low clamping voltage.
- Working voltages: 3.3V, 5.0V, 12V, 15V
- Low leakage current.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Compliant to Halogen-free.
- Suffix "-Q1" for AEC-Q101

Package outline



IEC compatibility

- IEC61000-4-2 (ESD) ±30kV (air), ±25kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

Applications

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Peripherals
- Pagers

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-323
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any

Maximum ratings (at T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	VALUE	UNIT
Lead solder temperature-maximum	10 second duration	T_L	260	°C
Operating junction temperature range		T_J	-55 to +125	°C
Storage temperature range		T_{STG}	-55 to +150	°C

Electrical characteristics (at T_A=25 C unless otherwise noted)

Part No.	V_{RWM} (V) (Max).	I_R(uA) @V_{RWM} (Max.)	V_{BR}(V) @I_T (Note 2) (Min.)	I_T (mA)	V_C(V) @I_{PP}=1.0A (Max.)	I_{PP} (A) (Max.)	V_C(V)(Note 1) @Max I_{PP} (Max.)	P_{PK} (W) (Note 1) (Max.)	C_J (pF) (Typ.)
ESD3Z3.3-Q1	3.3	40	4.0	1.0	6.5	20.0	15.0	300	450
ESD3Z5.0-Q1	5.0	10	6.0	1.0	9.8	17.0	18.0	306	300
ESD3Z12-Q1	12	1	13.3	1.0	19.0	11.0	32.0	352	130
ESD3Z15-Q1	15	1	16	1.0	24.0	10.0	38.0	380	120

Notes 1: Surge current waveform per Fig.1
2: V_{BR} is measured with a pulse test current I_T at an ambient temperature of 25°C.

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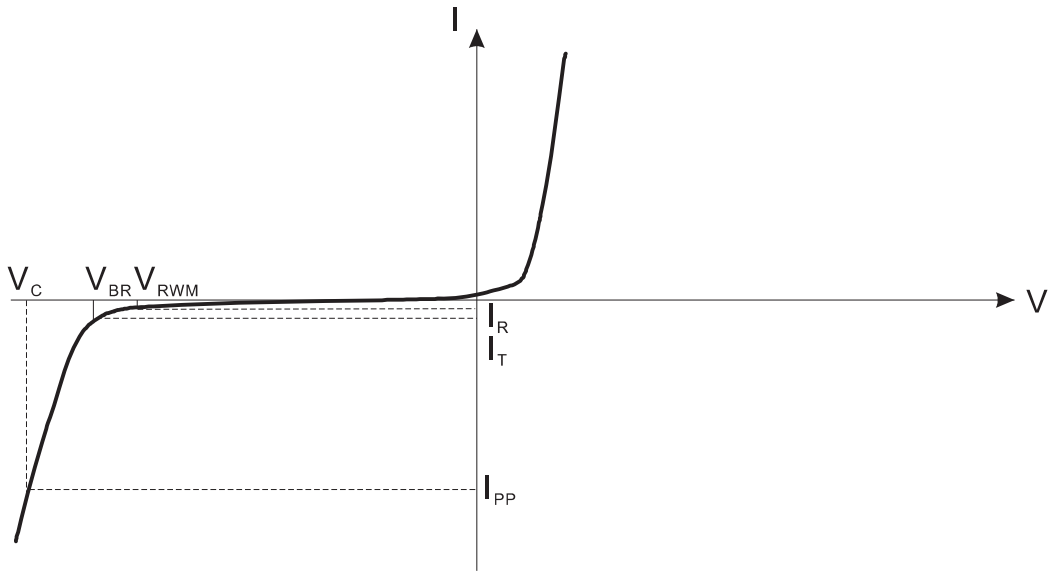
Typical characteristics (at T_A=25°C unless otherwise noted)



Uni-Directional TVS

V_C : Clamping voltage @ I_{PP}
I_{PP} : Maximum reverse peak pulse current
V_{RWM} : Maximum working peak reverse voltage
I_R : Maximum reverse leakage current @V_{RWM}
V_{BR} : Breakdown voltage @I_T
I_T : Test current
C_J : Max. capacitance @V_R = 0V and f = 1MHz

Rating and characteristic curves

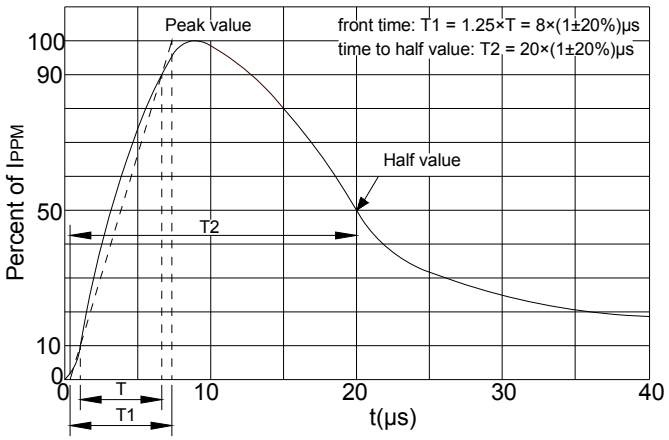


FIG.1: Pulse Waveform curve

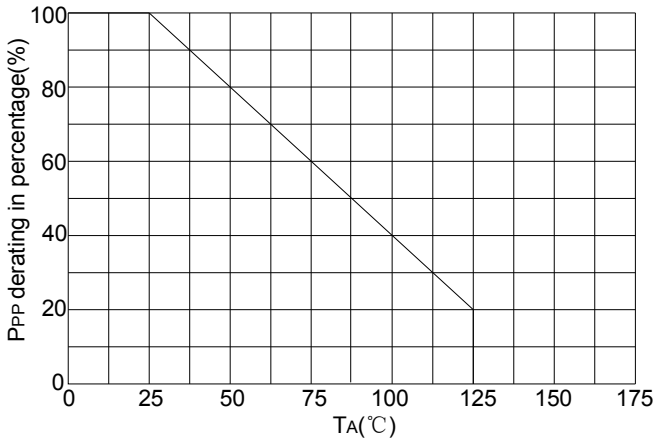


FIG.2: Pulse derating curve

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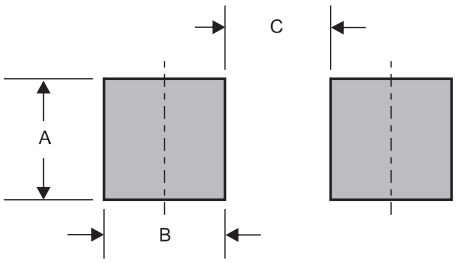
Pinning information

Pin	Simplified outline	Symbol
Uni-Directional Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
ESD3Z3.3-Q1	03W/03
ESD3Z5.0-Q1	05W/D05
ESD3Z12-Q1	12W/D12
ESD3Z15-Q1	15W/D15

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-323	0.033 (0.83)	0.025 (0.63)	0.063 (1.60)