

TQEHD3123V3 Bidirectional Micro Packaged TVS Diodes for ESD Protection

● Description

The TQEHD3123V3 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 comes at a premium.

It has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD (electrostatic discharge), and EFT (electrical fast transients).

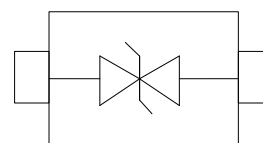
● Feature

- Peak Power Dissipation-300 W(8 x 20 us Waveform)
- Replacement for MLV(0603)
- Protects I/O Port
- Low Clamping Voltage
- Low Leakage
- Low Body Height: 1.68mm
- Response Time is <1 ns
- Stand-off Voltage: 5.0 V
- RoHS compliant
- Meets MSL 1 Requirements
- Solid-state silicon avalanche technology
- ROHS compliant
- Device Meets MSL 1 Requirements
- Panjing technology

Ordering Information

Device	Package	Mark	Qty per Reel	Reel Size
TQEHD3123V3	SOD-523	3Q	3000	7 Inch

● PIN configuration



SOD-523

● Applications

- Cellular handsets and accessories
- Portable instrumentation
- Peripherals
- Serial and Parallel Ports
- Notebooks, Desktops, Servers
- Projection TV

● Mechanical data

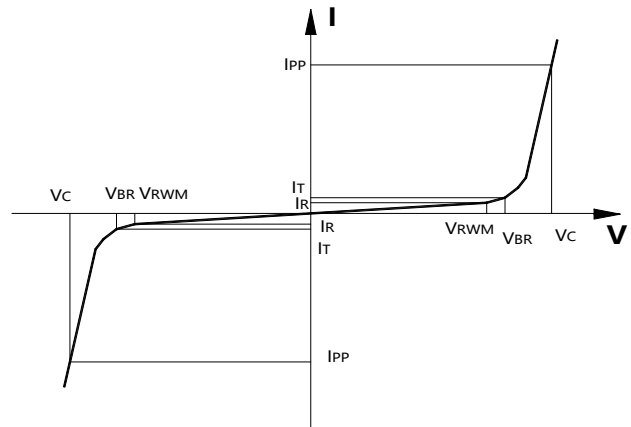
- Lead finish: 100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature: 260°C
- Device meets MSL 1 requirements
- Pure tin plating: 7~17 um
- Pin flatness: ≤3mil

● Protection solution to meet

- IEC61000-4-2(ESD) ±30kV(air), ±30kV(contact)
- IEC61000-4-4(EFT) 40A(5/50ns)
- IEC61000-4-5(Surge) 30A(8/20us)

● Electronic Parameter

Symbol	Parameter
V_{RWM}	Working Peak Reverse Voltage
V_{BR}	Breakdown Voltage @ I_T
V_C	Clamping Voltage @ I_{PP}
I_T	Test Current
I_{RM}	Leakage current at V_{RWM}
I_{PP}	Peak pulse current
C_O	Off-state Capacitance
C_J	Junction Capacitance



● Absolute maximum rating@TA=25°C

Symbol	Parameter	Value	Units
P_{PPP}	Peak Pulse Power($t_p=8/20\mu s$ waveform)	300	Watts
	ESD Rating per IEC61000-4-2: Contact	30	KV
	Air	30	KV
T_L	Lead Soldering Temperature	260(10 sec.)	°C
T_J	Operating Temperature Range	-55~150	°C
T_{STG}	Storage Temperature Range	-55~150	°C
T_L	Lead Solder Temperature–Maximum(10 Second Duration)	260	°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

*Other voltages may be available upon request.

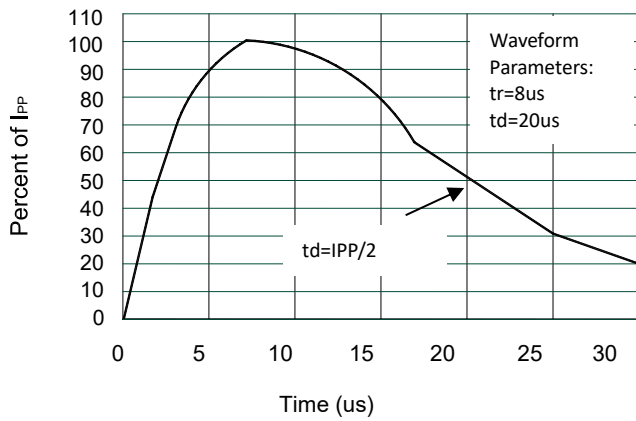
1. Non-repetitive current pulse, per Figure 1.

● Electrical Characteristics@TA=25°C

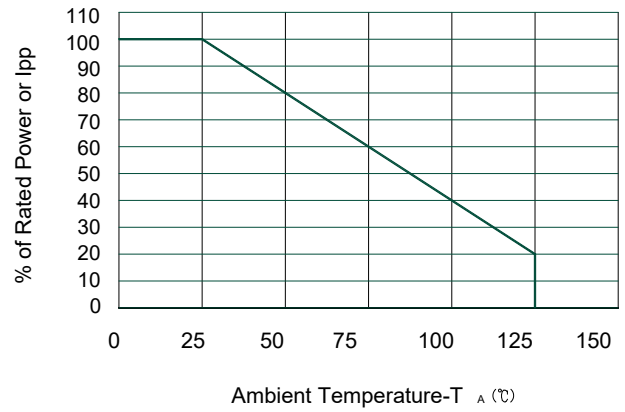
Device	V_{RWM}	$I_R@V_{RWM}$		$V_{BR}@1\text{ mA}$	$V_C@1\text{ A}$	$V_C@30\text{ A}$	Capacitance	
		(uA)		(V)	(V)		@ $V_R=0\text{ V}, 1\text{ MHz(pF)}$	
	(V)	Max	Min	Max	Max	Max	Typ	Max
TQEHD3123V3	3.3	0.1	3.8	6.0	5	10	52	70

Junction capacitance is measured in $V_R=0\text{ V}, F=1\text{ MHz}$

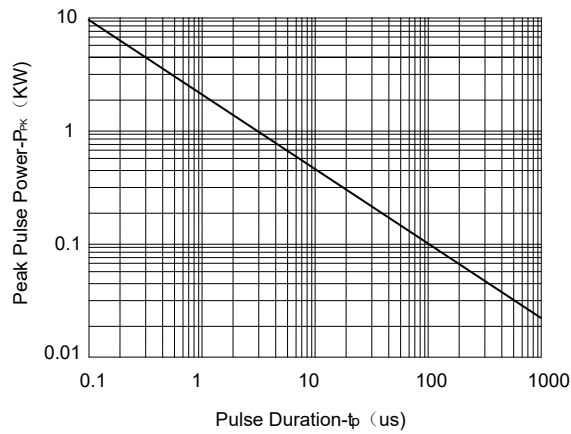
● Typical Performance Characteristics



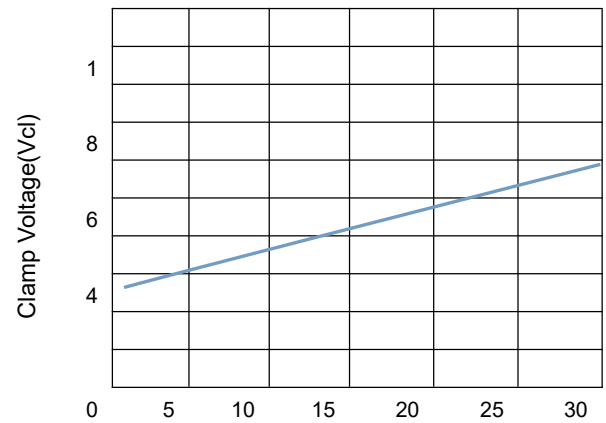
Pulse Waveform



Power Derating Curve



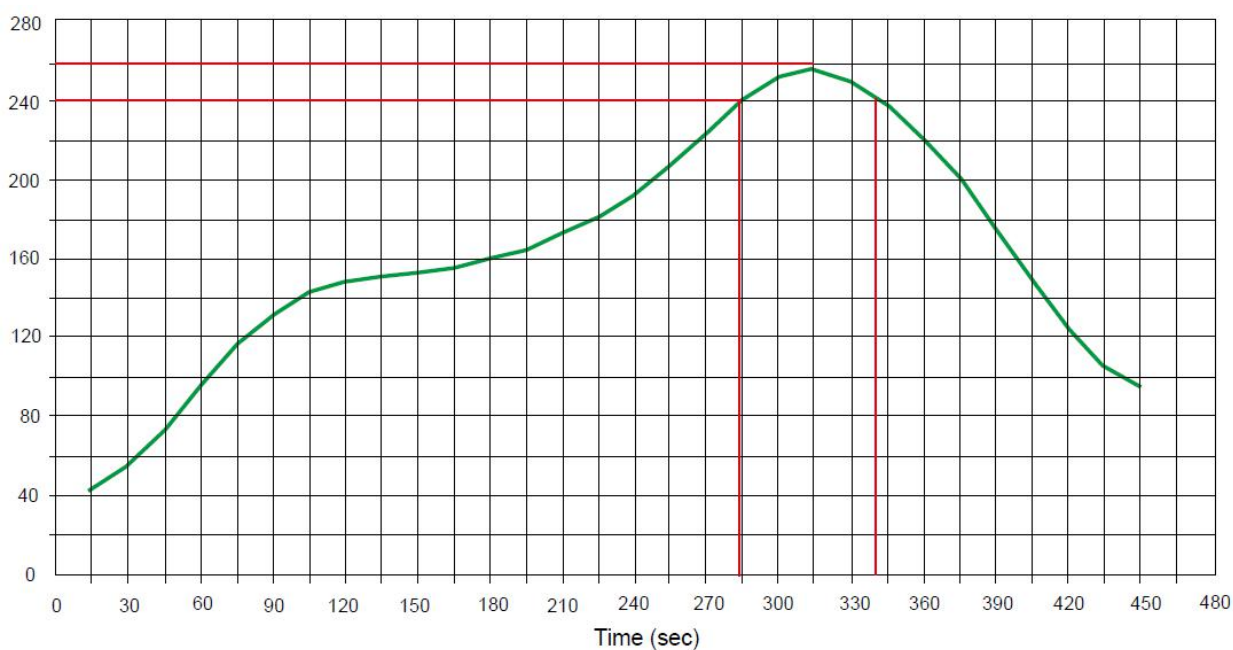
Non-Repetitive Peak Pulse Power vs. Pulse Time



Clamping Voltage Vs Peak Pulse Current(I_{PP})

● Solder Reflow Recommendation

Peak Temp=257°C, Ramp Rate=0.802deg.°C/sec

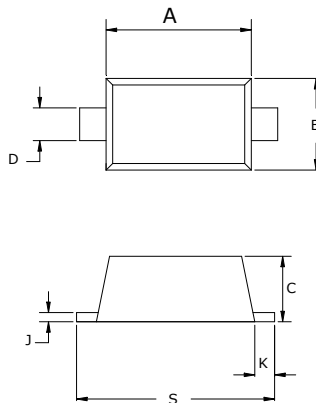


● Package Information

Mechanical Data

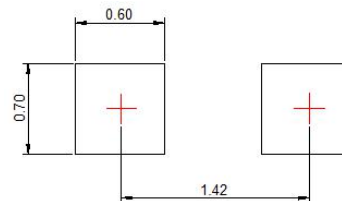
Case:SOD-523

Case Material:Molded Plastic.UL Flammability



DIM	Millimeters	
	Min	Max
A	1.10	1.30
B	0.75	0.85
C	0.51	0.70
D	0.25	0.35
J	0.08	0.15
K	0.15	0.25
S	1.50	1.70

Recommended Pad outline



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