

TQTHD211XXX

Mount TVS Diode for ESD Protection

● Description

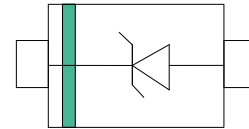
The TQTHD211XXX Series is designed with TECH CHIP technology to protect voltage sensitive components from Surge. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to surge.

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 – 1800W (8 x 20 us Waveform)
- Stand-off Voltage:5、 7、 12、 15 V
- Protects I/O Port
- Low Clamping Voltage
- Low Leakage
- Response Time is < 1 ns
- Meets MSL 1 Requirements
- Solid-state silicon avalanche technology
- ESD Rating of above 16 kV per Human Body Model
- Lead Orientation in Tape: Cathode Lead to Sprocket Holes
- ROHS compliant
- TECH CHIP technology

● PIN configuration



SOD323

● Applications

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

● 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

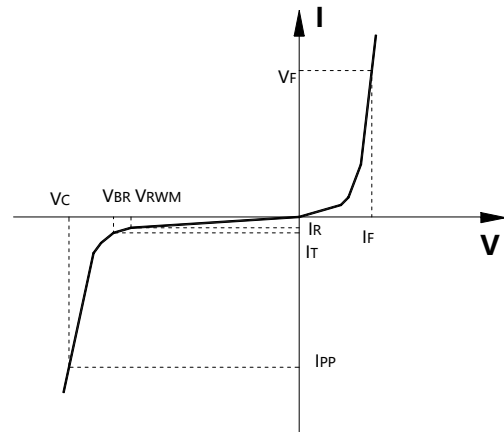
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

Ordering Information

| Device | Qty per Reel | Reel Size |
|-------------|--------------|-----------|
| TQTHD211XXX | 3000 | 7 Inch |

● 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 @ $T_A=25^{\circ}C$

| Symbol | Parameter | Value | Units |
|-----------|--|---------------|-------------|
| P_{PPP} | Peak Pulse Power ($t_p=8/20\mu s$ waveform) | 1800 | Watts |
| | ESD Rating per IEC61000-4-2: | | |
| | Contact | 30 | KV |
| | Air | 30 | |
| T_L | Lead Soldering Temperature | 260 (10 sec.) | $^{\circ}C$ |
| T_J | Operating Temperature Range | -55 ~ 150 | $^{\circ}C$ |
| T_{STG} | Storage Temperature Range | -55 ~ 150 | $^{\circ}C$ |
| T_L | Lead Solder Temperature – Maximum (10 Second Duration) | 260 | $^{\circ}C$ |

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.

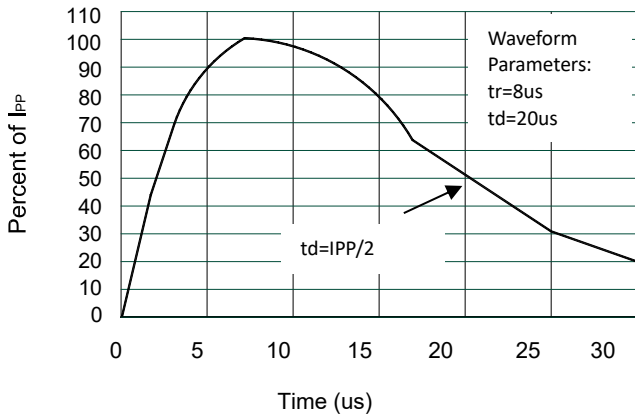
*Other voltages may be available upon request.

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

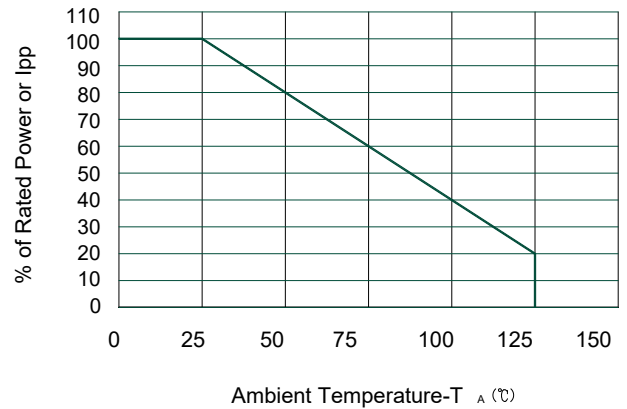
● Electrical Characteristics @TA=25°C

| Device* | Mark | V _{RWM} | V _{BR} @ I _T (V) | | I _T | I _R @ V _{RWM} | V _C @I _{PP} | I _{PP} (Max) | Capacitance (Typ) (nF) | |
|-------------|------|------------------|--------------------------------------|------|----------------|-----------------------------------|---------------------------------|-----------------------|------------------------|------|
| | | (V) | Min | Max | (mA) | (uA) | (V) | (A) | Typ | Max |
| TQTHD2115V0 | 5H | 5 | 6 | 7.8 | 1 | 1 | 15V@100A | 130 | 1.1 | 1.5 |
| TQTHD2117V0 | 7H | 7 | 7.8 | 9.7 | 1 | 1 | 17V@100A | 130 | 0.8 | 1.1 |
| TQTHD21112V | 12H | 12 | 13 | 17 | 1 | 1 | 30V@70A | 80 | 0.4 | 0.6 |
| TQTHD2115V | 15H | 15 | 16.7 | 19.6 | 1 | 1 | 30V@50A | 65 | 0.4 | 0.55 |

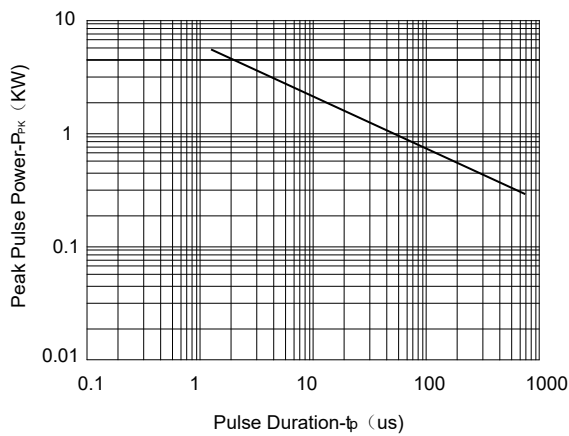
● Typical Performance Characteristics



Pulse Waveform



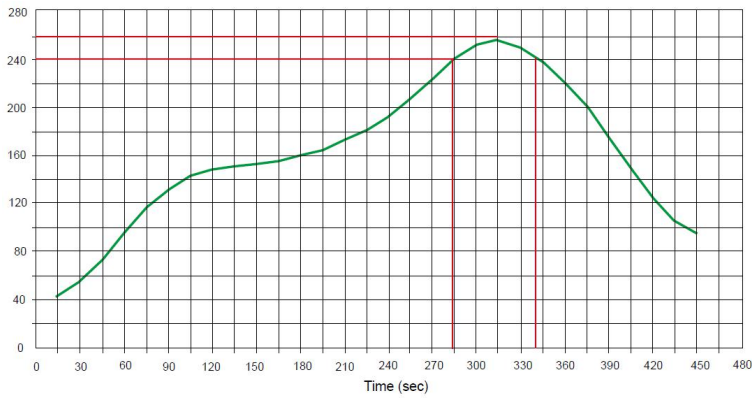
Power Derating Curve



Non-Repetitive Peak Pulse Power vs. Pulse Time

● Solder Reflow Recommendation

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

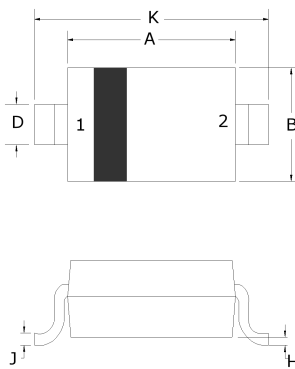


● Package Information

Mechanical Data

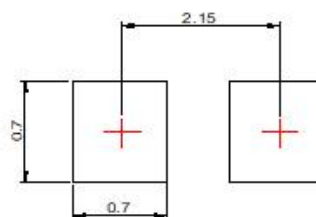
Case:SOD-323

Case Material: Molded Plastic. UL Flammability



| DIM | Millimeters | |
|-----|-------------|------|
| | Min | Max |
| A | 1.6 | 1.8 |
| B | 1.2 | 1.4 |
| C | 0.8 | 0.9 |
| D | 0.25 | 0.35 |
| E | 0.15REF | |
| H | 0 | 0.10 |
| J | 0.08 | 0.15 |
| K | 2.50 | 2.70 |

Recommended Pad outline



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