

TQEML1223V3

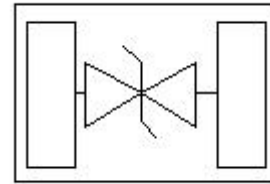
- **Description**

The TQEML1223V3 is designed with TECH CHIP process TVS technology 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.

- **Feature**

- 40W peak pulse power (tP = 8/20μs)
- DFN0603-2L Package
- Working voltage: 5V
- Low clamping voltage
- Low capacitance
- RoHS compliant transient protection for high speed data
- IEC61000-4-2(ESD)±15kV(air),±8kV(contact)

- **PIN configuration**



DFN0603-2L

- **Applications**

- DVI & HDMI Port Protection
- Serial and Parallel Ports
- Projection TV
- Notebooks, Desktops, Servers
- High Speed Line : USB 1.0/2.0/3.0/3.1,VGA,DVI,SDI
- Portable instrumentation

- **Machanical data**

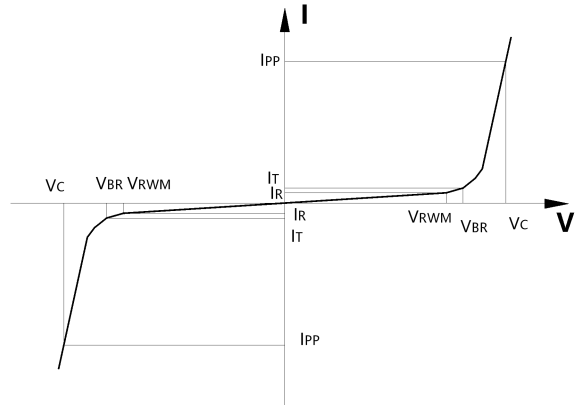
- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260°C
- Device meets MSL 1 requirements
- Pure tin plating: 7 ~ 17 um
- Pin flatness:≤3mil

Ordering Information

| Device | Package | Qty per Reel | Reel Size |
|-------------|------------|--------------|-----------|
| TQEML1223V3 | DFN0603-2L | 15,000pcs | 7 Inch |

● Electronic Parameter

| Symbol | Parameter |
|-----------|-------------------------------------|
| V_{RWM} | Peak Reverse Working Voltage |
| I_R | Reverse Leakage Current @ V_{RWM} |
| V_{BR} | Breakdown Voltage @ I_T |
| I_T | Test Current |
| I_{PP} | Maximum Reverse Peak Pulse Current |
| V_C | Clamping Voltage @ I_{PP} |
| P_{PP} | Peak Pulse Power |
| C | Junction Capacitance |



● Absolute maximum rating @TA=25°C

| Symbol | Parameter | Value | Units |
|-----------|---------------------------------|----------|-------|
| P_{PP} | Peak Pulse Power (8/20 μ S) | 40 | W |
| T_{STG} | Storage Temperature | -55/+150 | °C |
| T_J | Operating Temperature | -55/+150 | °C |

● Electrical Characteristics @TA=25°C

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Units |
|------------------------------|-----------|--|------|------|------|---------------|
| Peak Reverse Working Voltage | V_{RWM} | | | 3.3 | | V |
| Breakdown Voltage | V_{BR} | $I_T = 1\text{mA}$ | 4 | | | V |
| Reverse Leakage Current | I_R | $V_{RWM} = 5.0\text{V}$, $T = 25^\circ\text{C}$ | | 0.1 | | μA |
| Clamping Voltage | V_C | $I_{PP} = 2\text{A}$, $t_P = 8/20\mu\text{s}$ | | 8.7 | | V |
| Clamping Voltage | V_C | $I_{PP} = 4\text{A}$, $t_P = 8/20\mu\text{s}$ | | 11 | 17 | V |
| Junction Capacitance | C_J | $V_R = 0\text{V}$, $f = 1\text{MHz}$ | | 7.5 | 15 | pF |

- Typical Performance Characteristics

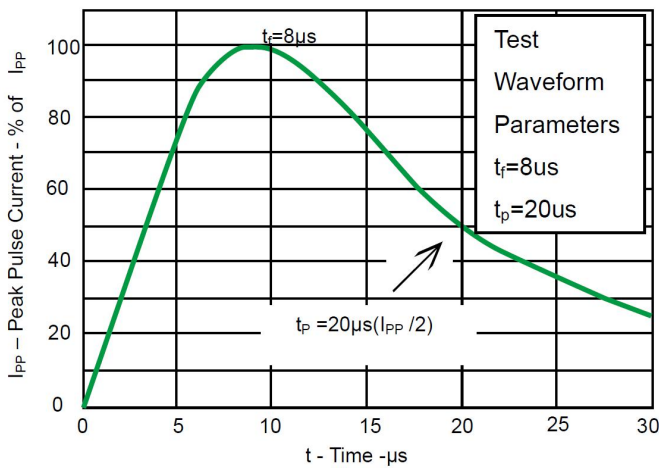


Fig 1. Pulse Waveform

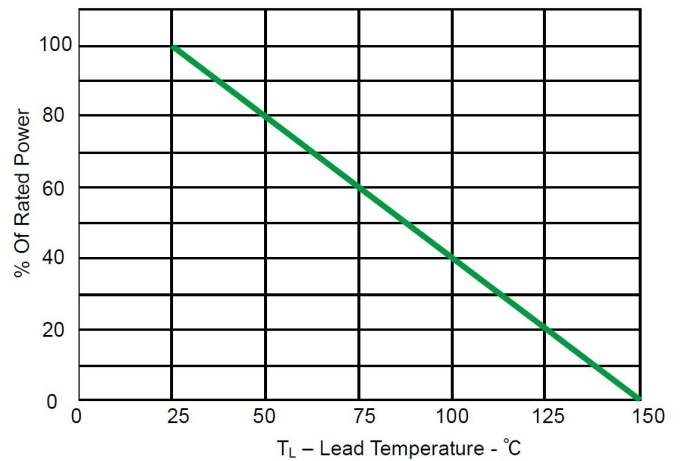
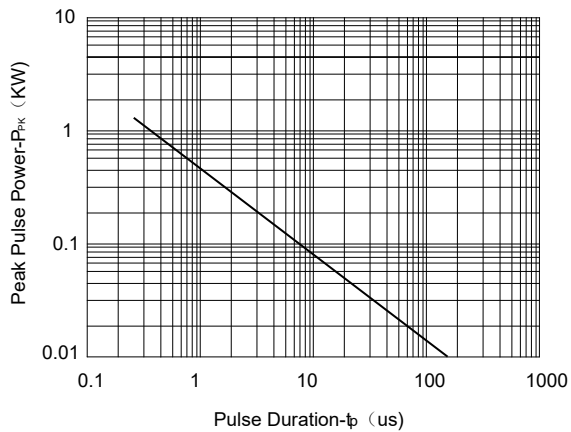


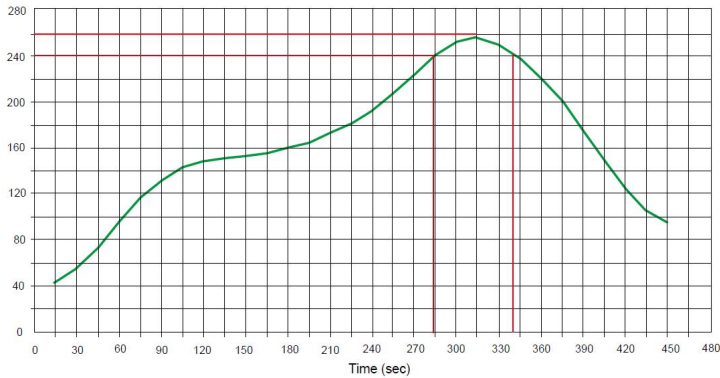
Fig 2. Power Derating Curve



Non-Repetitive Peak Pulse Power vs. Pulse Time

● Solder Reflow Recommendation

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

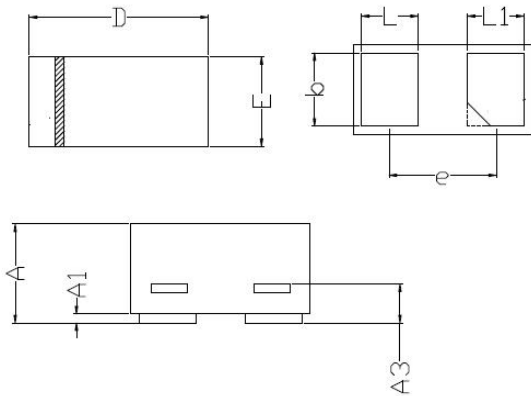


● Package Information

Mechanical Data

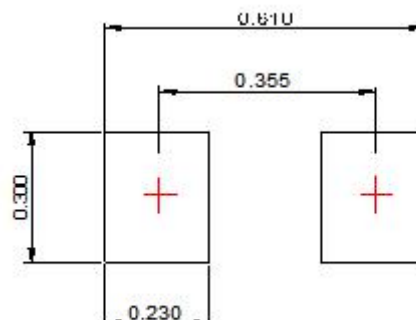
Case: DFN0603-2L

Case Material: Molded Plastic. UL Flammability



| DIM | Millimeters | |
|-----|-------------|-------|
| | Min | Max |
| A | 0.230 | 0.330 |
| A1 | 0.000 | 0.050 |
| A3 | 0.102REF | |
| D | 0.550 | 0.650 |
| E | 0.250 | 0.350 |
| b | 0.215 | 0.275 |
| L | 0.115 | 0.175 |
| L1 | 0.115 | 0.175 |
| e | 0.40BSC | |

Recommended Pad outline



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