



ESD



TVS



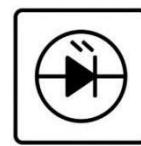
TSS



MOV



GDT



PLED

MSTVS16H12T5G

Product specification

Features

- 2-pin lead-less package
- Junction capacitance (Max value: 280pF)
- Peak Pulse Current (8/20μs) Max: 100A
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- Low clamping voltage
- Low leakage current
- Working voltages:12V
- RoHS Compliant

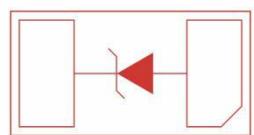
Mechanical Characteristics

- Package: DFN1610-2L
- Lead Finish:Matte Tin
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020

Applications

- Mobile Phone, Digital cameras
- Battery Protection
- Power Line Protection
- Vbat pin for Mobile Devices
- Hand Held Portable Applications
- PCI Express and Serial SATA Ports

Reference News

| DFN1610-2L | Graphic symbol | Marking |
|---|---|---|
|  |  |  |

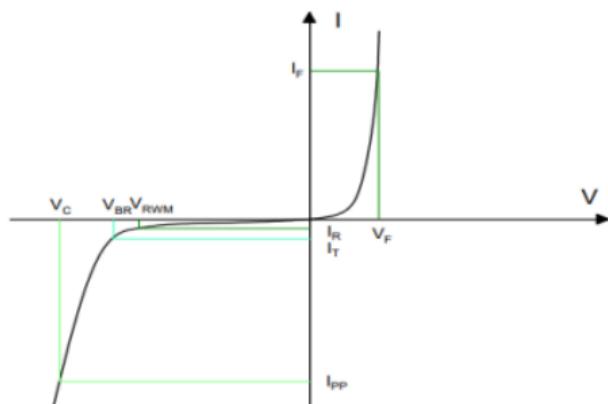
Absolute Maximum Ratings (T=25°C, RH=45%-75%, unless otherwise noted)

| Parameters | Symbol | Value | Unit |
|--|-----------|-------------|------|
| Peak Pulse Power (tp=8/20μs waveform) | P_{PP} | 2500 | W |
| Peak Pulse Current (8/20μs) | I_{PP} | 100 | A |
| ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact) | V_{ESD} | ±30 ±30 | kV |
| Operating Temperature Range | T_J | -55 to +125 | °C |
| Storage Temperature Range | T_{STG} | -55 to +150 | °C |

Electrical Characteristics (T=25°C, RH=45%-75%, unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---------------------------|-----------|---|------|-----|------|------|
| Reverse Working Voltage | V_{RWM} | | | | 12 | V |
| Reverse Breakdown Voltage | V_{BR} | $I_R = 1\text{mA}$ | 13.3 | | 17.8 | V |
| Reverse Leakage Current | I_R | $V_R = 12\text{V}$ | | | 0.2 | uA |
| Clamping voltage | V_C | $I_{PP} = 10\text{A}, T_P=8/20\mu\text{s}$ | | | 18 | V |
| Clamping voltage | V_C | $I_{PP} = 100\text{A}, T_P=8/20\mu\text{s}$ | | | 25 | V |
| Junction capacitance | C_J | $V_R = 0\text{V}, f = 1\text{MHz}$ | | | 280 | pF |

| 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_J | Junction Capacitance |
| I_F | Forward Current |
| V_F | Forward Voltage @ I_F |



Typical Characteristics

FIG1: Power rating derating curve

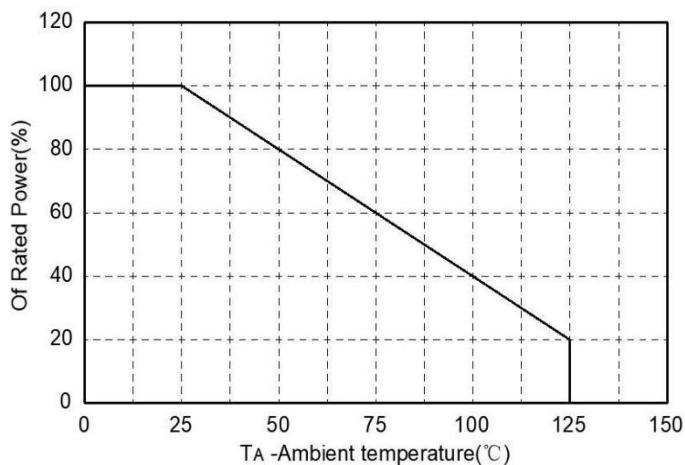


FIG2: pulse Waveform

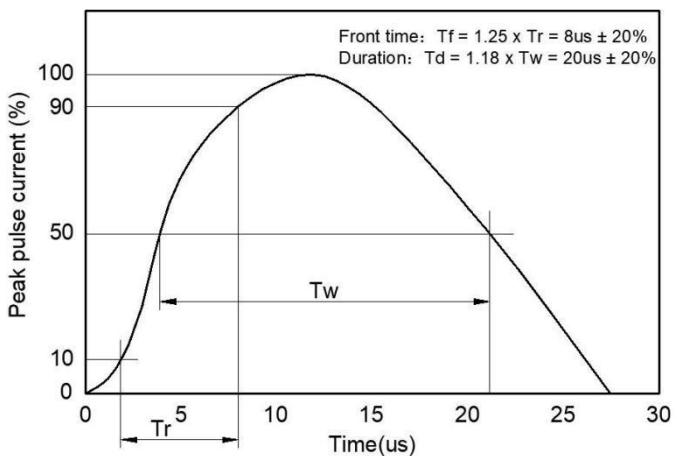


FIG3: Capacitance between terminals characteristics

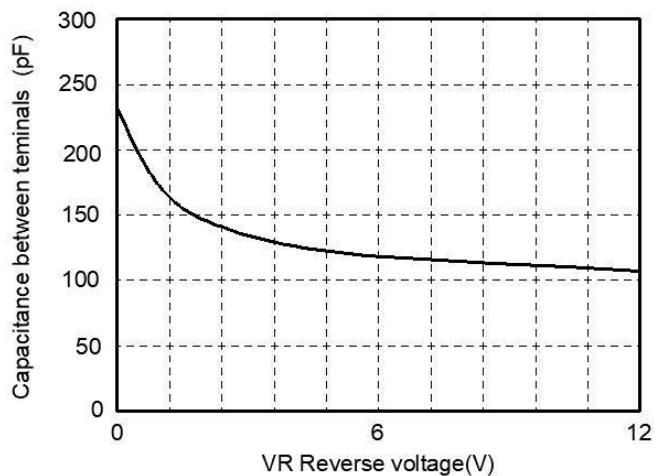
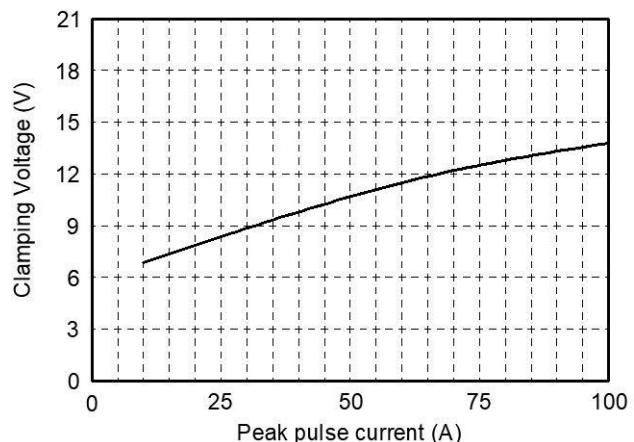
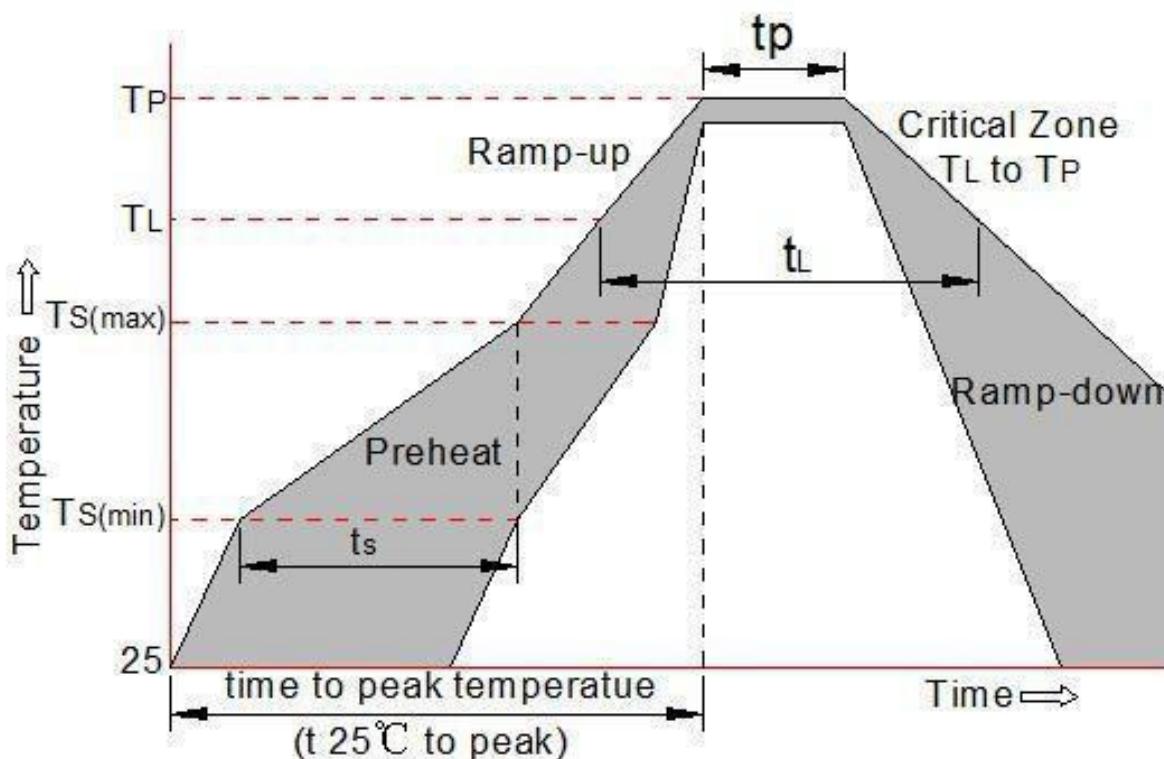


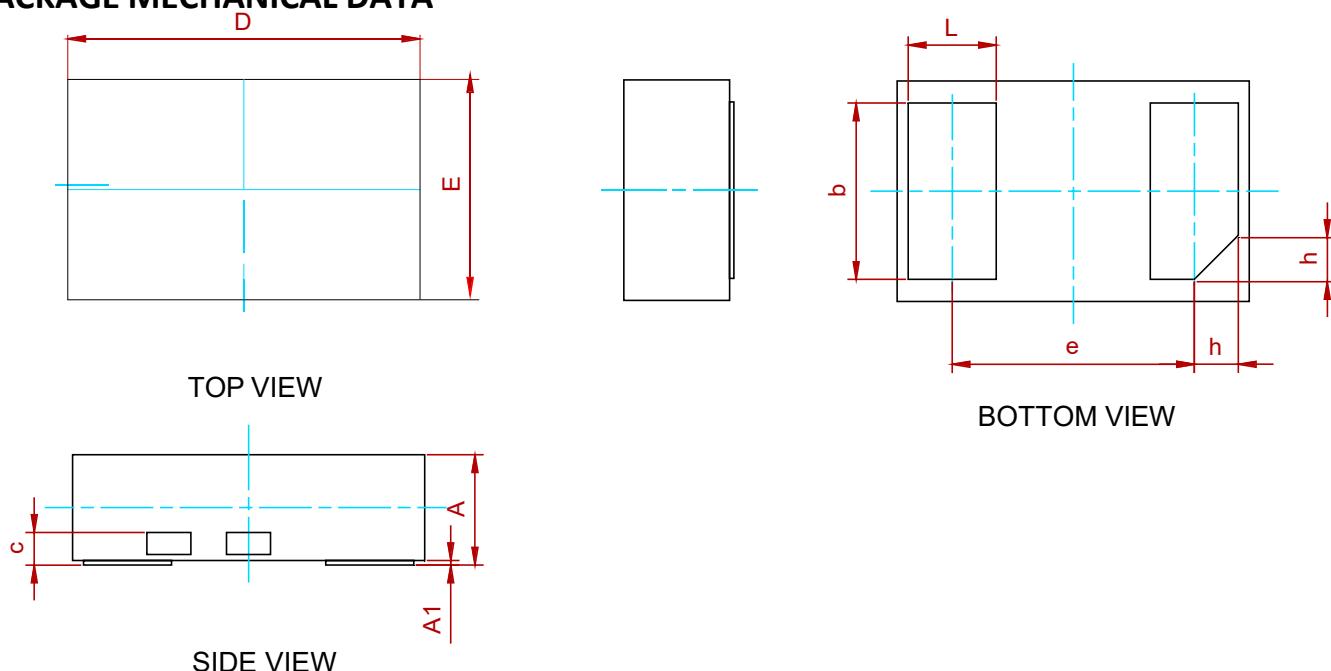
FIG4: Clamping Voltage vs. Peak Pulse Current



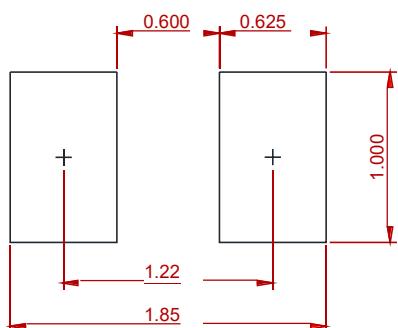
Soldering Parameters

| Reflow Condition | | Pb-Free assembly (see as below) |
|---|-----------------------------------|------------------------------------|
| Pre Heat | -Temperature Min ($T_{s(min)}$) | +150°C |
| | -Temperature Max($T_{s(max)}$) | +200°C |
| | -Time (Min to Max) (ts) | 60-180 secs. |
| Average ramp up rate (Liquid us Temp (T_L) to peak) | | 3°C/sec. Max |
| $T_{s(max)}$ to T_L - Ramp-up Rate | | 3°C/sec. Max |
| Reflow | -Temperature(T_L) (Liquid us) | +217°C |
| | -Temperature(t_L) | 60-150 secs. |
| Peak Temp (T_p) | | +260(+0/-5)°C |
| Time within 5°C of actual Peak Temp (t_p) | | 30 secs. Max |
| Ramp-down Rate | | 6°C/sec. Max |
| Time 25°C to Peak Temp (T_p) | | 8 min. Max |
| Do not exceed | | +260°C |



PACKAGE MECHANICAL DATA


| Symbol | Dimensions in Millimeters | | |
|--------|---------------------------|------|------|
| | Min. | Typ. | Max. |
| A | 0.45 | 0.50 | 0.60 |
| A1 | 0.00 | 0.02 | 0.05 |
| c | 0.15 Ref. | | |
| b | 0.75 | 0.80 | 0.95 |
| L | 0.35 | 0.40 | 0.45 |
| D | 1.55 | 1.60 | 1.70 |
| E | 0.95 | 1.00 | 1.10 |
| e | 1.10 BSC | | |
| h | 0.20 Ref. | | |

Recommend PCB Layout (Unit: mm)

Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

REEL SPECIFICATION

| P/N | PKG | QTY |
|---------------|------------|------|
| MSTVS16H12T5G | DFN1610-2L | 3000 |

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