Low Capacitance Series
ESD Protection

# PTT144L06M5CA10

## Features

- 100Watts peak pulse power (tp = 8/20μs)
- Tiny SOT-143 package
- Unidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Low capacitance (Cj=0.3pF typ I/O to I/O.)

SOT-143

## IEC COMPATIBILITY (EN61000-4)

- **IEC 61000-4-2 ±15kV contact ±20kV air**
- **IEC 61000-4-4 (EFT) 40A (5/50ns)**
- **IEC 61000-4-5 (Lightning) 6A (8/20μs)**

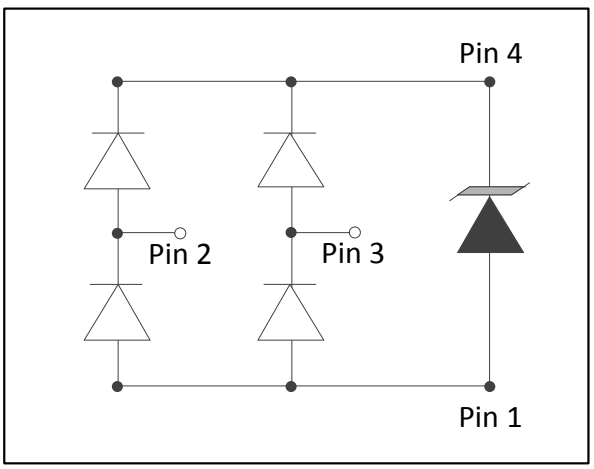
## Applications

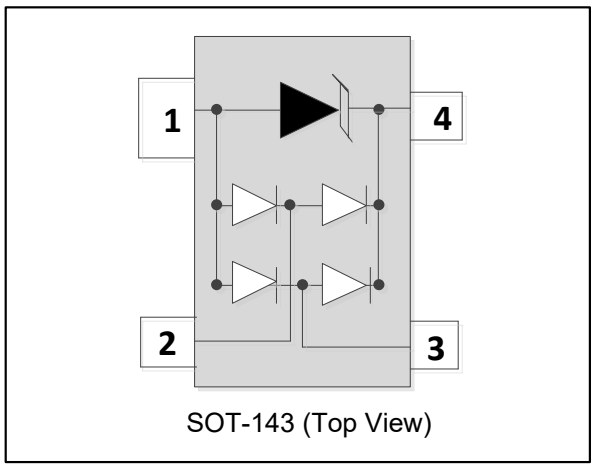
- USB2.0
- Ethernet
- Notebooks, Desktops, and Servers
- Video Line Protection

## Mechanical Characteristics

- SOT-143 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

## Schematic & PIN Configuration




SOT-143 (Top View)

## Absolute Maximum Rating

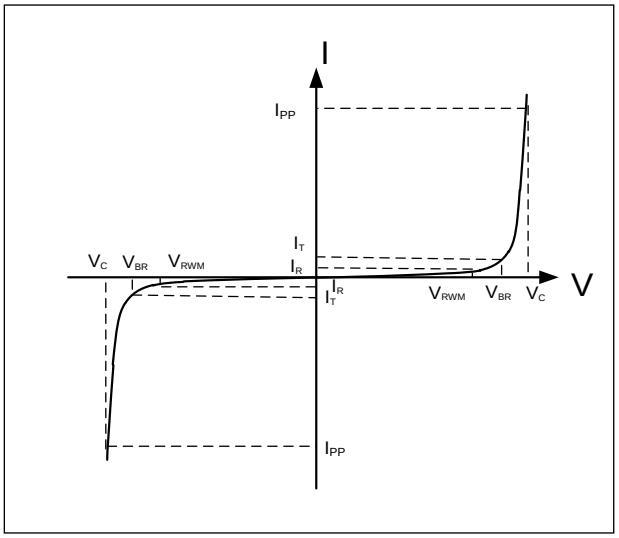
| Rating | Symbol | Value | Units |
|---|---|---|---|
| Peak Pulse Power ( $t_p$ =8/20μs ) | $P_{PP}$ | 100 | Watts |
| Peak Pulse Current ( $t_p$ =8/20μs ) (note1) | $I_{pp}$ | 6 | A |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | $V_{ESD}$ | 20<br>15 | kV |
| Lead Soldering Temperature | $T_L$ | 260(10seconds) | ℃ |
| Junction Temperature | $T_J$ | -55 to + 125 | ℃ |
| Storage Temperature | $T_{stg}$ | -55 to + 125 | ℃ |

## Electrical Characteristics

| Parameter | Symbol | Conditions | Min | Typical | Max | Units |
|---|---|---|---|---|---|---|
| Reverse Stand-Off Voltage | $V_{RWM}$ | | | | 5.0 | V |
| Reverse Breakdown Voltage | $V_{BR}$ | $I_T$=1mA | 6.0 | 6.8 | 8.5 | V |
| Reverse Leakage Current | $I_R$ | $V_{RWM}$=5V,T=25℃ | | 50 | 500 | nA |
| Clamping Voltage | $V_C$ | $I_{PP}$=6A,$t_p$=8/20μs | | 14 | 16 | V |
| Junction Capacitance | $C_j$ | $V_R$ = 0V, f = 1MHz<br>IO to IO | | 0.3 | 0.4 | pF |
| | | $V_R$ = 0V, f = 1MHz<br>IO to GND | | 0.6 | 0.8 | |

## Electrical Parameters (TA = 25°C unless otherwise noted)

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




Note:. 8/20μs pulse waveform.

## Typical Characteristics

**Figure 1: Peak Pulse Power vs. Pulse Time**

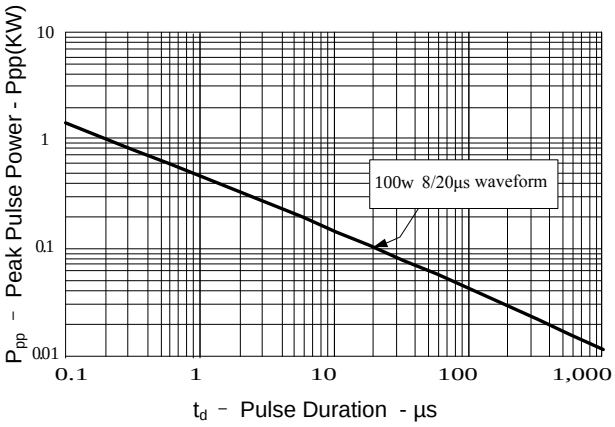



**Figure 2: Power Derating Curve**

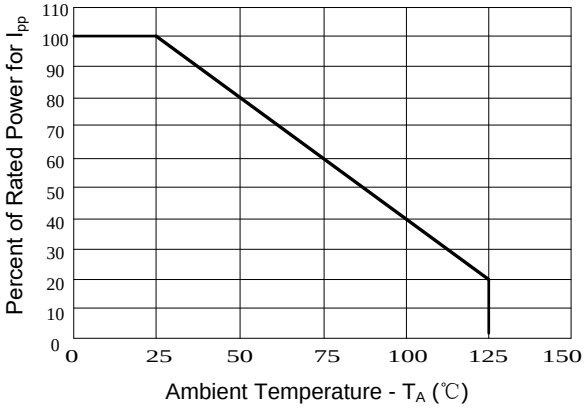



**Figure3: Pulse Waveform**

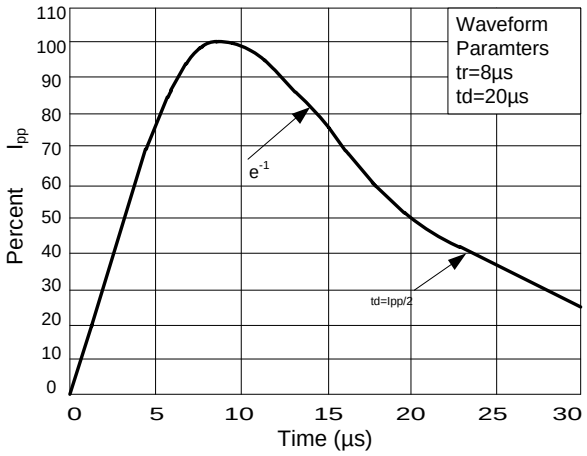
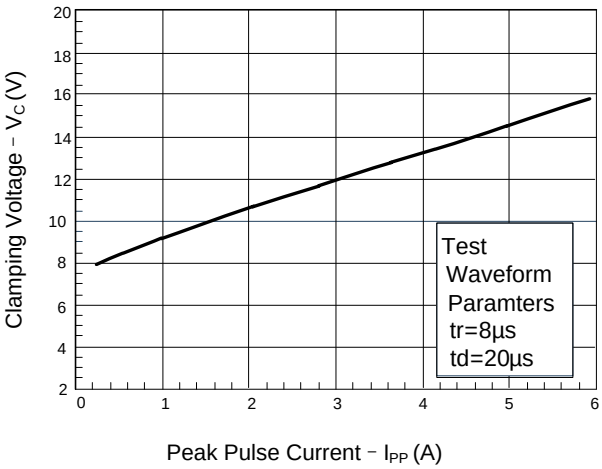
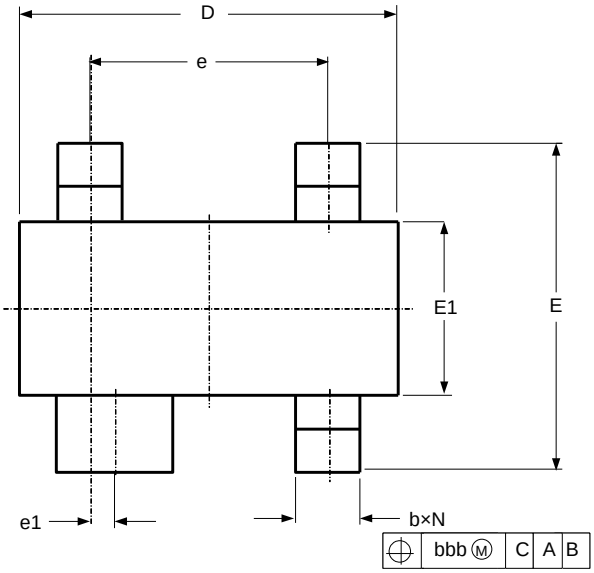


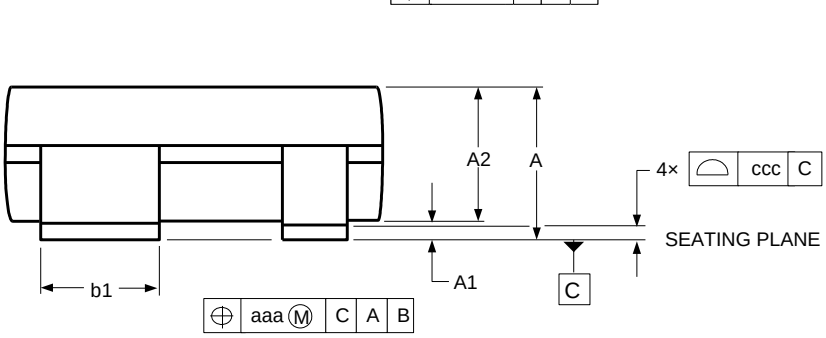

**Figure 4: Clamping Voltage vs.Ipp**

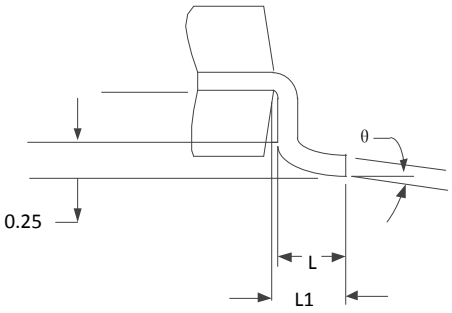


## Outline Drawing




| DIMENSIONS | | | | |
|---|---|---|---|---|
| SYMBOL | MILLIMETER | | INCHES | |
| | MIN | MAX | MIN | MAX |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| b1 | 0.750 | 0.900 | 0.030 | 0.035 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| e | 1.800 | 2.000 | 0.071 | 0.079 |
| e1 | 0.200TYP | | 0.008TYP | |
| E | 2.250 | 2.550 | 0.089 | 0.100 |
| E1 | 1.200 | 1.400 | 0.047 | 0.055 |
| θ | 0° | 8° | 0° | 8° |
| aaa | .006 | | 0.15 | |
| bbb | .008 | | 0.20 | |
| ccc | .004 | | 0.10 | |




## Marking


## Ordering information

| Order code | Package | Base qty | Delivery mode |
|---|---|---|---|
| PTT144L06M5CA10 | SOT-143 | 3k | Tape and reel |