

TVS Diode – AMPC-H Series

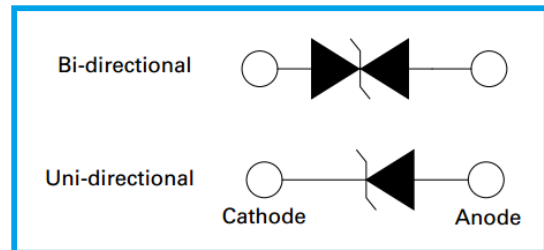
Features

- Working voltage: 16 to 43V
- Glass passivated chip
- Excellent voltage clamping capability
- Automotive grade AEC-Q101 qualified
- Meets ISO7637-2 5a surge specification
- 5000W peak pulse power capability on 10/1000 μ s waveform
- Low leakage current
- Very fast response time



Applications

- I/O interface, V_{CC} bus
- Automotive
- Industrial and consumer electronic applications
- Relay and electromagnetic valve surge absorption



Mechanical and Physical Data

- Case: DO-218AB molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Polarity: Heat-sink is anode

Maximum Ratings and Thermal Characteristics

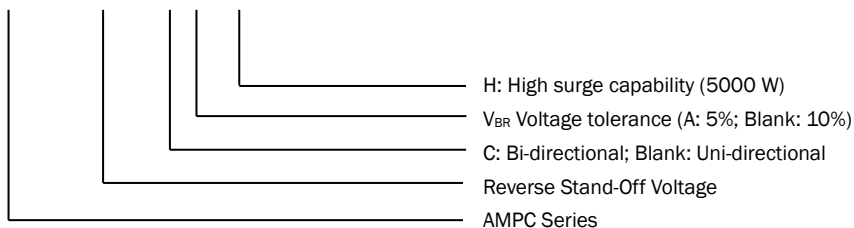
| Parameter | Symbol | Value | Unit |
|--|----------------|-----------|------------------|
| Peak Pulse Power Dissipation on 10/1000 μ s waveform (Note 1, Fig.1). | P_{PPM} | Min 5000 | Watt |
| Peak Pulse Current of 10/1000 μ s waveform (Note 1, Fig.3). | I_{PPM} | See Table | Amp |
| Power Dissipation on Infinite Heatsink at $T_L = 25^\circ\text{C}$ | P_D | 5.0 | Watt |
| Peak Forward Surge Current, 8.3 ms Single Half Sine Wave Superimposed on Rated Load (Note 2, Fig.6). | I_{FSM} | 500 | Amp |
| Operating Junction and Storage Temperature Range. | T_J, T_{STG} | -55~175 | $^\circ\text{C}$ |

Note:

1. Non-repetitive current pulse, per Fig.3 and derated above $T_A = 25^\circ\text{C}$ per Fig.2.
2. 8.3ms single half sine wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

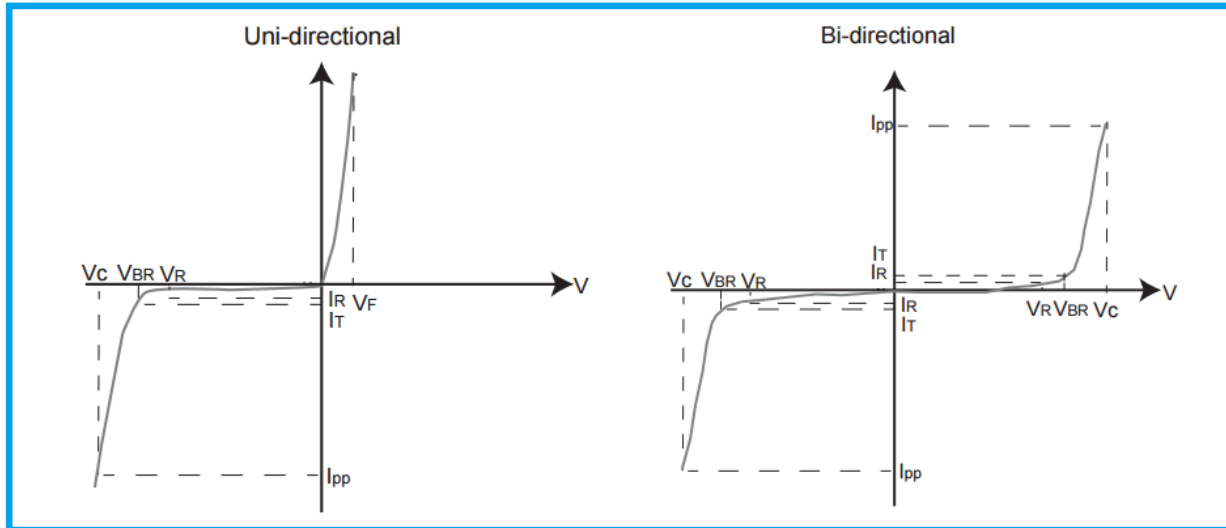
Part Number Code

AMPC C A - H



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I-V Curve Characteristics



- P_{PPM} Peak Pulse Power Dissipation – Maximum power dissipation
- V_R Stand-off Voltage – Maximum voltage that can be applied to the TVS without operation
- V_{BR} Breakdown Voltage – Maximum voltage that flows through the TVS at a specified test current (I_T)
- V_C Clamping Voltage – Peak voltage measured across the TVS at a specified I_{PPM} (Peak Impulse Current)
- I_R Reverse Leakage Current – Current measured at V_R
- V_F Forward Voltage Drop for Uni-directional

Electrical Characteristics

| Part Number (Uni) | | Reverse Stand Off Voltage V _R (V) | Breakdown Voltage V _{BR} (V) @ I _T | | Test Current I _T (mA) | Maximum Clamping Voltage V _C (V) @ I _{PP} | Maximum Peak Pulse Current I _{PP} (A) | Maximum Reverse Leakage I _R (μA) @ V _R | Maximum I _R (μA) @ V _R T _J = 175°C |
|-------------------|------------|--|--|------|----------------------------------|---|--|--|---|
| Uni | Bi | | Min. | Max. | | | | | |
| AMPC16A-H | AMPC16CA-H | 16.0 | 17.8 | 19.7 | 5 | 26.0 | 193.0 | 10 | 150 |
| AMPC17A-H | AMPC17CA-H | 17.0 | 18.9 | 20.9 | 5 | 27.6 | 181.0 | 10 | 150 |
| AMPC18A-H | AMPC18CA-H | 18.0 | 20.0 | 22.1 | 5 | 29.2 | 172.0 | 10 | 150 |
| AMPC20A-H | AMPC20CA-H | 20.0 | 22.2 | 24.5 | 5 | 32.4 | 155.0 | 10 | 150 |
| AMPC22A-H | AMPC22CA-H | 22.0 | 24.4 | 26.9 | 5 | 35.5 | 141.0 | 10 | 150 |
| AMPC24A-H | AMPC24CA-H | 24.0 | 26.7 | 29.5 | 5 | 38.9 | 129.0 | 10 | 150 |
| AMPC26A-H | AMPC26CA-H | 26.0 | 28.9 | 31.9 | 5 | 42.1 | 119.0 | 10 | 150 |
| AMPC28A-H | AMPC28CA-H | 28.0 | 31.1 | 34.4 | 5 | 45.4 | 110.0 | 10 | 150 |
| AMPC30A-H | AMPC30CA-H | 30.0 | 33.3 | 36.8 | 5 | 48.4 | 103.0 | 10 | 150 |
| AMPC33A-H | AMPC33CA-H | 33.0 | 36.7 | 40.6 | 5 | 53.3 | 93.9 | 10 | 150 |
| AMPC36A-H | AMPC36CA-H | 36.0 | 40.0 | 44.2 | 5 | 58.1 | 86.1 | 10 | 150 |
| AMPC40A-H | AMPC40CA-H | 40.0 | 44.4 | 49.1 | 5 | 64.5 | 77.6 | 10 | 150 |
| AMPC43A-H | AMPC43CA-H | 43.0 | 47.8 | 52.8 | 5 | 69.4 | 72.1 | 10 | 150 |

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Ratings and Characteristic Curves

Fig 2 - Pulse Derating Curve

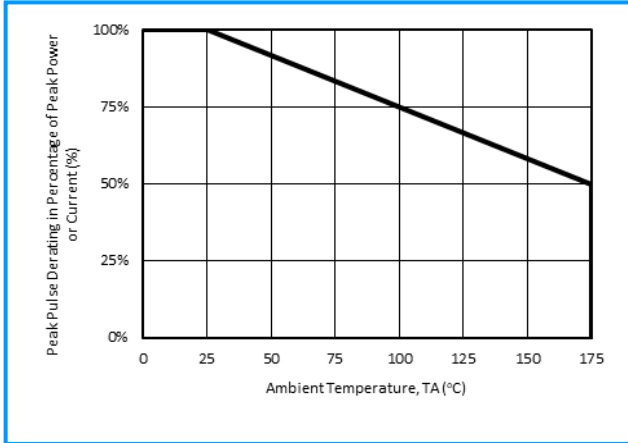


Fig 3 - Pulse Waveform

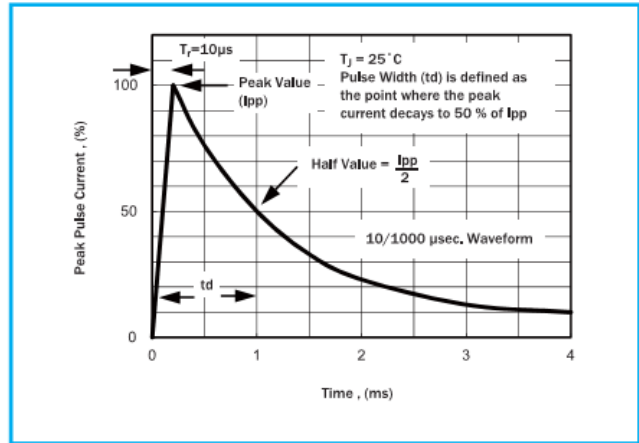
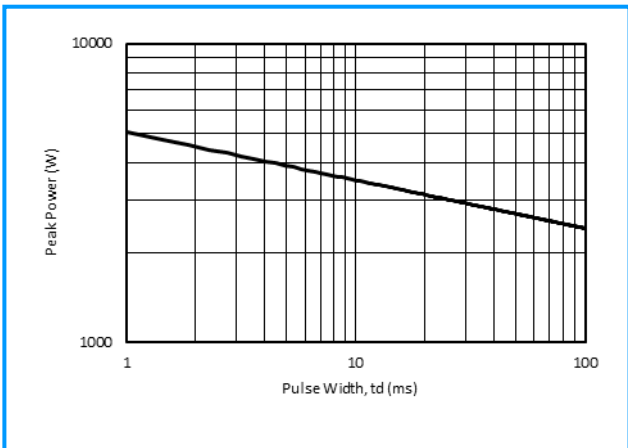


Fig 4 - Peak Pulse Power Rating Curve

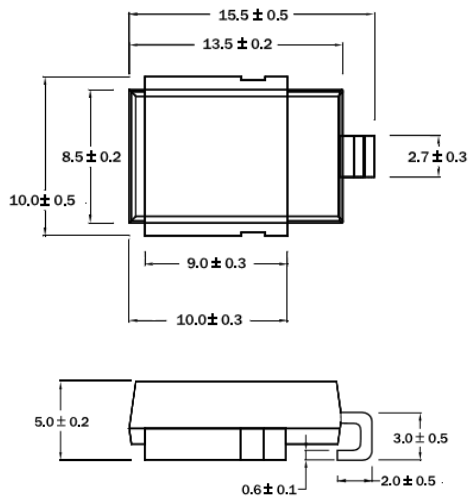


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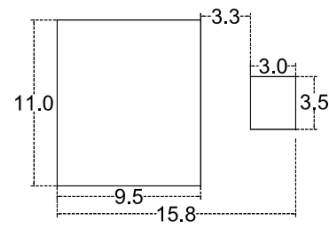
Marking Definitions



Physical Dimensions (Millimeters)

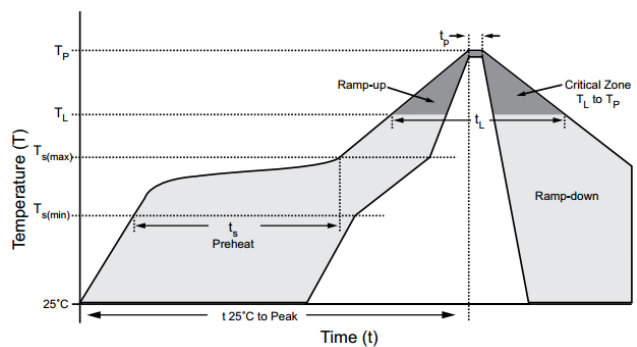


Recommended Mounting Pad Layout



Lead Free Reflow Soldering Recommendations

| | |
|--|-------------------|
| Preheat | |
| - Temperature Min (T _{smin}) | 150°C |
| - Temperature Max (T _{smax}) | 200°C |
| - Time (T _{smin} to T _{smax}) | 60-180 seconds |
| - Average Ramp-Up Rate | 1~3°C/second |
| Peak Temperature | 260°C max. |
| Time within 5°C of actual Peak Temperature (t _p) | 30 seconds max. |
| Ramp-Down Rate | 6 °C /second max. |



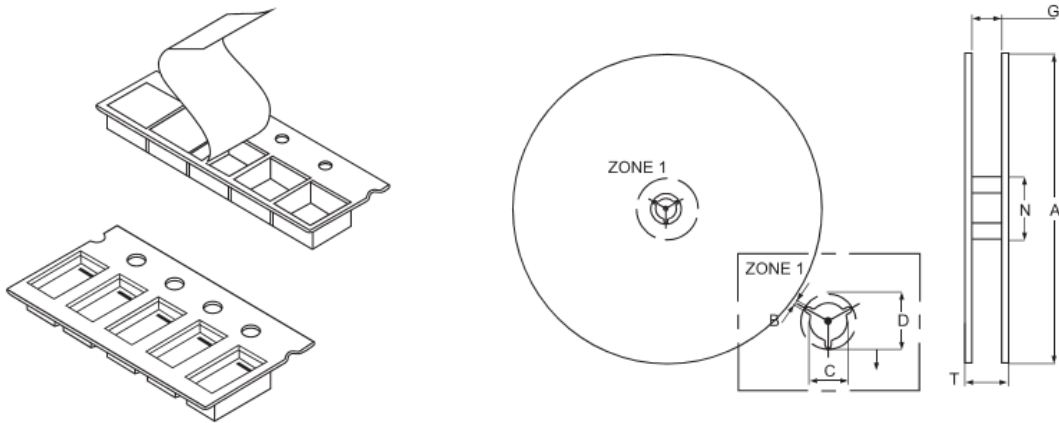
Note: If the soldering temperatures exceed the recommended profile, devices may not meet the performance requirements.

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Packaging Information

| Part Number | Component Package | Quantity | Packaging Option | Packaging Specification |
|---------------|-------------------|----------|----------------------------------|-------------------------|
| AMPC-H Series | DO-218AB | 750 | Tape & Reel - 24mm tape/13" reel | EIA STD RS-481 |

Tape and Reel Specifications



| Symbol | A | B (Min.) | C | D (Min.) | N (Min.) | G (Max.) | T (Max.) |
|--------|---------|----------|----------|----------|----------|----------|----------|
| Spec | 330±2.0 | 1.5 | 13.0±0.2 | 20.2 | 50.0 | 26.4 | 30.4 |

*Dimension in mm