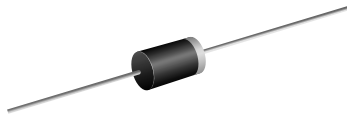




TRANSZORB® Transient Voltage Suppressors



DO-204AL (DO-41)

FEATURES

- Glass passivated chip junction
- Available in uni-directional only
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS COMPLIANT

TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial and telecommunication.

| PRIMARY CHARACTERISTICS | |
|---------------------------------|--------------|
| V _{BR} uni-directional | 530 V, 550 V |
| P _{PPM} | 300 W |
| P _D | 1.0 W |
| V _{WM} | 477 V, 495 V |
| V _C | 760 V |
| T _J max. | 150 °C |

MECHANICAL DATA

Case: DO-204AL, molded epoxy over passivated chip
Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS compliant, commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes cathode end

| MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted) | | | | |
|---|-----------------------------------|---------------|---------|------|
| PARAMETER | SYMBOL | P4KE530 | P4KE550 | UNIT |
| Power dissipation on infinite heatsink at T _L = 75 °C (Fig. 4) | P _D | 1.0 | | W |
| Peak pulse power dissipation ⁽¹⁾⁽²⁾ (Fig. 1) | P _{PPM} | 300 | | W |
| Stand-off voltage | V _{WM} | 477 | 495 | V |
| Operating junction and storage temperature range | T _J , T _{STG} | - 55 to + 150 | | °C |

Notes:

(1) Non repetitive current pulse per Fig. 3 and derated above 25 °C per Fig. 2

(2) Peak pulse power waveform is 10/1000 μs

P4KE530 & P4KE550

Vishay General Semiconductor



| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | |
|--|--|----------|---------|---------|----------------------------|
| PARAMETER | TEST CONDITIONS | SYMBOL | P4KE530 | P4KE550 | UNIT |
| Minimum breakdown voltage | 100 μA | V_{BR} | 530 | 550 | V |
| Max. clamping voltage | 400 mA, 10/1000 μs waveform | V_C | 760 | | V |
| Maximum DC reverse leakage current | at V_{WM} | I_D | 1.0 | | μA |
| Typical temperature coefficient | of V_{BR} | | 650 | | $\text{mV}/^\circ\text{C}$ |
| Typical capacitance | 1 MHz, $V_R = 0\text{ V}$ | C_J | 90 | | pF |
| | 1 MHz, $V_R = 200\text{ V}$ | C_J | 7.5 | | pF |

| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | |
|---|-----------------|---------|---------|---------------------------|
| PARAMETER | SYMBOL | P4KE530 | P4KE550 | UNIT |
| Typical thermal resistance, junction to lead | $R_{\theta JL}$ | 75 | | $^\circ\text{C}/\text{W}$ |
| Typical thermal resistance, junction to ambient | $R_{\theta JA}$ | 125 | | $^\circ\text{C}/\text{W}$ |

| ORDERING INFORMATION (Example) | | | | |
|---------------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| P4KE530-E3/54 | 0.350 | 54 | 5500 | 13" diameter paper tape and reel |
| P4KE550-E3/54 | 0.350 | 54 | 5500 | 13" diameter paper tape and reel |

RATINGS AND CHARACTERISTICS CURVES

($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

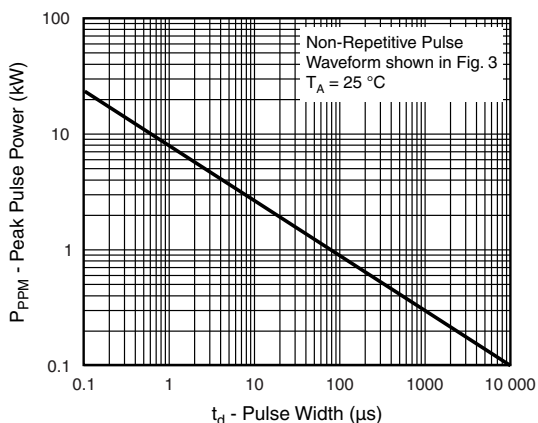


Figure 1. Peak Pulse Power Rating Curve

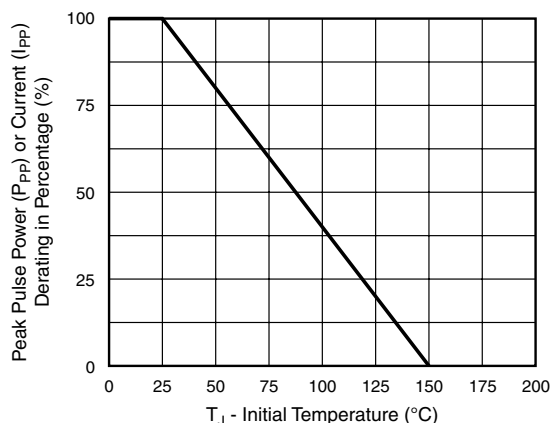


Figure 2. Pulse Power or Current vs. Initial Junction Temperature

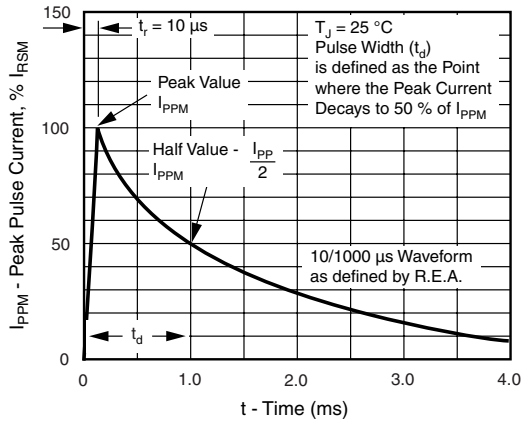


Figure 3. Pulse Waveform

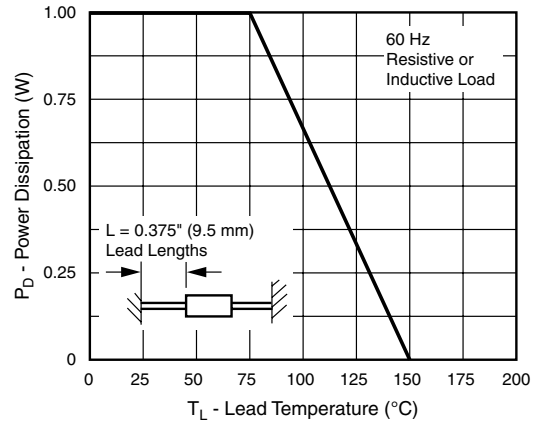
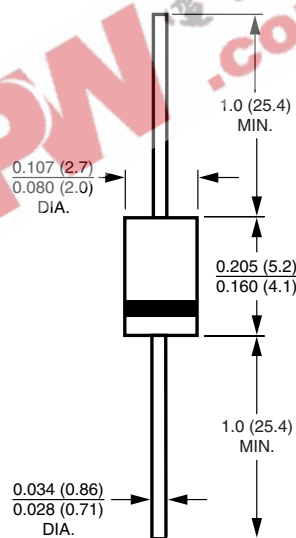


Figure 4. Pulse Derating Curve

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



APPLICATION NOTES

- Respect Thermal Resistance (PCB Layout) - as the temperature coefficient also contributes to the clamping voltage
- Select minimum breakdown voltage, so you get acceptable power dissipation and PCB tie point temperature. Devices with higher breakdown voltage will have a shorter conduction time and will dissipate less power
- Clamping voltage is influenced by internal resistance - design approximation is 7 V per 100 mA slope
- Keep temperature of TVS lower than TOPSwitch® as a recommendation
- Maximum current is determined by the maximum T_J and can be higher than 300 mA. Contact supplier for different clamping voltage/current arrangements
- Minimum breakdown voltage can be customized for other applications. Contact supplier
- TOPSwitch is a registered trademark of Power Integrations, Inc.



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