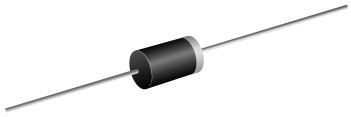
P4KE530 & P4KE550

Vishay General Semiconductor

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

ELECTRICAL CHARACTERISTICS (T_A = 25 °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		mV/°C
Typical capacitance	1 MHz, V_R = 0 V	C_J	90		pF
	1 MHz, V_R = 200 V	C_J	7.5		pF

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

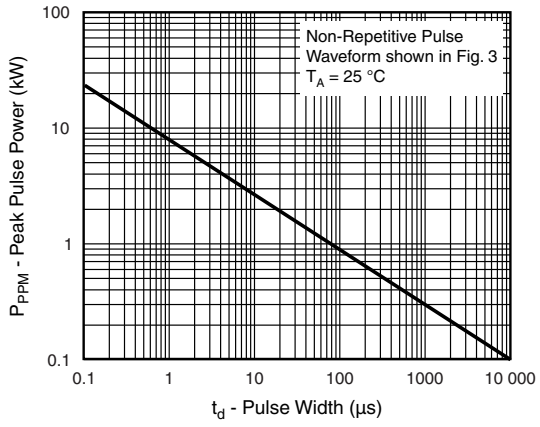


Figure 1. Peak Pulse Power Rating Curve

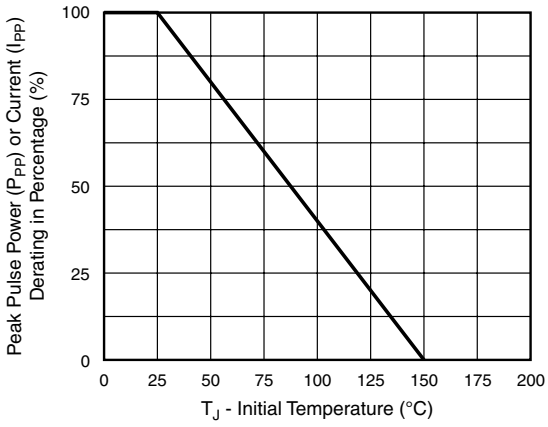


Figure 2. Pulse Power or Current vs. Initial Junction Temperature

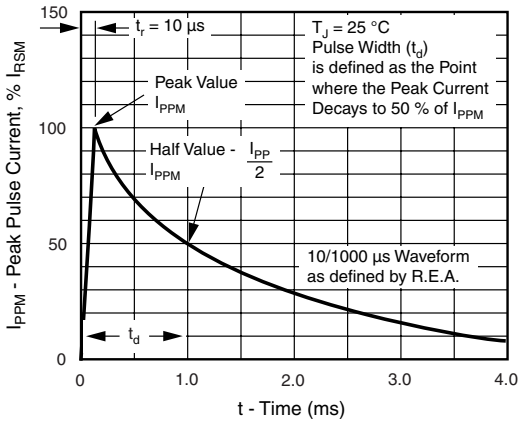


Figure 3. Pulse Waveform

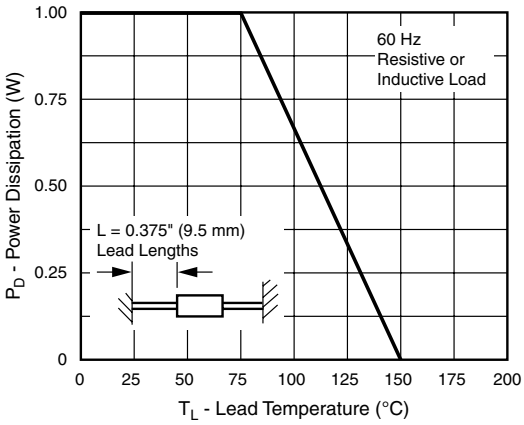
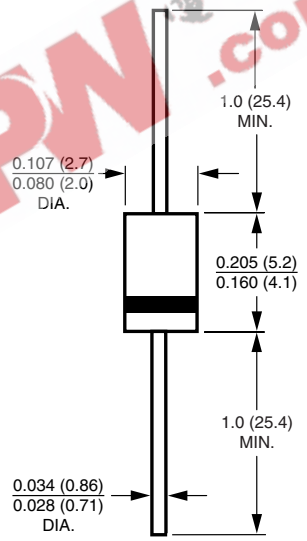


Figure 4. Pulse Derating Curve

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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