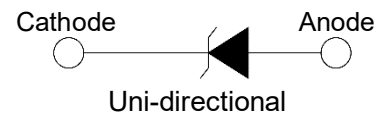
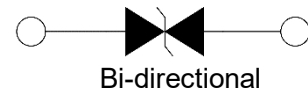
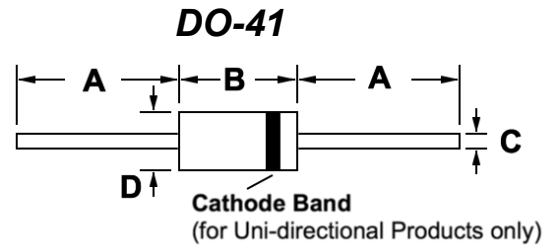




# 400W Axial Leaded Transient Voltage Suppressors

## Features

- Peak power dissipation 400W @10 x 1000 us Pulse
- Low profile package.
- Excellent clamping capability.
- Glass passivated junction.
- Fast response time: typically less than 1ps from 0 Volts to BV min
- Typical I<sub>R</sub> less than 1uA when V<sub>BR</sub> min above 12V.
- IEC 61000-4-2 ESD 30KV(Air), 30KV(Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2
- EFT protection of data lines in accordance with IEC 61000-4-4
- RoHS compliant
- Lead-free finish



## Mechanical Characteristics

- CASE: DO-41Molded Plastic
- Mounting Position: Any
- Polarity: by cathode band denotes uni-directional device, none cathode band denotes bi-directional device.
- Terminal: Solder plated

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	25.4	---	1.000	---
B	4.20	5.20	0.165	0.205
C	0.65	0.90	0.026	0.034
D	2.00	2.85	0.080	0.112

## Maximum Ratings and Characteristics @ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Value	Units
Peak Pulse Power Dissipation on 10/1000 us Waveform(Note 1, FIG.1)	P <sub>PPM</sub>	Min 400	W
Power Dissipation on Infinite Heat Sink at T <sub>L</sub> =75°C	P <sub>D</sub>	1.5	W
Peak Pulse Current of on 10/1000us Waveform (Note 1, FIG.3)	I <sub>PPM</sub>	See Table 1	A
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave (Note 2)	I <sub>FSM</sub>	60	A
Operating Junction Temperature Range	T <sub>J</sub>	-55 to 150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to 150	°C

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above T<sub>A</sub>=25°C per Fig.2.
2. Measured on 8.3ms single half sine-wave, or equivalent square wave, for Unidirectional device only.

## Electrical Specification ( $T_A=25@25^{\circ}\text{C}$ unless otherwise specified)

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage Min. @ $I_T$	Breakdown Voltage Max. @ $I_T$	Test Current	Maximum Clamping Voltage @ $I_{PP}$	Peak Pulse Current	Reverse Leakage @ $V_{RMW}$
(Uni)	(Bi)	$V_{RMW}(V)$	$V_{BR\ MIN}(V)$	$V_{BR\ MAX}(V)$	$I_T\ (mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
P4KE6.8A	P4KE6.8CA	5.80	6.45	7.14	10	10.5	39.00	1000
P4KE7.5A	P4KE7.5CA	6.40	7.13	7.88	10	11.3	36.30	500
P4KE8.2A	P4KE8.2CA	7.02	7.79	8.61	10	12.1	33.90	200
P4KE9.1A	P4KE9.1CA	7.78	8.65	9.55	1	13.4	30.60	50
P4KE10A	P4KE10CA	8.55	9.50	10.50	1	14.5	28.30	10
P4KE11A	P4KE11CA	9.40	10.50	11.60	1	15.6	26.30	5
P4KE12A	P4KE12CA	10.20	11.40	12.60	1	16.7	24.60	5
P4KE13A	P4KE13CA	11.10	12.40	13.70	1	18.2	22.50	1
P4KE15A	P4KE15CA	12.80	14.30	15.80	1	21.2	19.30	1
P4KE16A	P4KE16CA	13.60	15.20	16.80	1	22.5	18.20	1
P4KE18A	P4KE18CA	15.30	17.10	18.90	1	25.2	16.30	1
P4KE20A	P4KE20CA	17.10	19.00	21.00	1	27.7	14.80	1
P4KE22A	P4KE22CA	18.80	20.90	23.10	1	30.6	13.40	1
P4KE24A	P4KE24CA	20.50	22.80	25.20	1	33.2	12.30	1
P4KE27A	P4KE27CA	23.10	25.70	28.40	1	37.5	10.90	1
P4KE30A	P4KE30CA	25.60	28.50	31.50	1	41.4	9.90	1
P4KE33A	P4KE33CA	28.20	31.40	34.70	1	45.7	9.00	1
P4KE36A	P4KE36CA	30.80	34.20	37.80	1	49.9	8.20	1
P4KE39A	P4KE39CA	33.30	37.10	41.00	1	53.9	7.60	1
P4KE43A	P4KE43CA	36.80	40.90	45.20	1	59.3	6.90	1
P4KE47A	P4KE47CA	40.20	44.70	49.40	1	64.8	6.30	1
P4KE51A	P4KE51CA	43.60	48.50	53.60	1	70.1	5.80	1
P4KE56A	P4KE56CA	47.80	53.20	58.80	1	77.0	5.30	1
P4KE62A	P4KE62CA	53.00	58.90	65.10	1	85.0	4.80	1
P4KE68A	P4KE68CA	58.10	64.60	71.40	1	92.0	4.50	1
P4KE75A	P4KE75CA	64.10	71.30	78.80	1	103.0	4.00	1
P4KE82A	P4KE82CA	70.10	77.90	86.10	1	113.0	3.60	1
P4KE91A	P4KE91CA	77.80	86.50	95.50	1	125.0	3.30	1
P4KE100A	P4KE100CA	85.50	95.00	105.00	1	137.0	3.00	1
P4KE110A	P4KE110CA	94.00	105.00	116.00	1	152.0	2.70	1
P4KE120A	P4KE120CA	102.00	114.00	126.00	1	165.0	2.50	1
P4KE130A	P4KE130CA	111.00	124.00	137.00	1	179.0	2.30	1
P4KE150A	P4KE150CA	128.00	143.00	158.00	1	207.0	2.00	1
P4KE160A	P4KE160CA	136.00	152.00	168.00	1	219.0	1.90	1
P4KE170A	P4KE170CA	145.00	162.00	179.00	1	234.0	1.80	1
P4KE180A	P4KE180CA	154.00	171.00	189.00	1	246.0	1.70	1

※ For Bi-directional type having  $V_{RMW}$  of 10 Volts and less, the  $I_R$  limit is double.

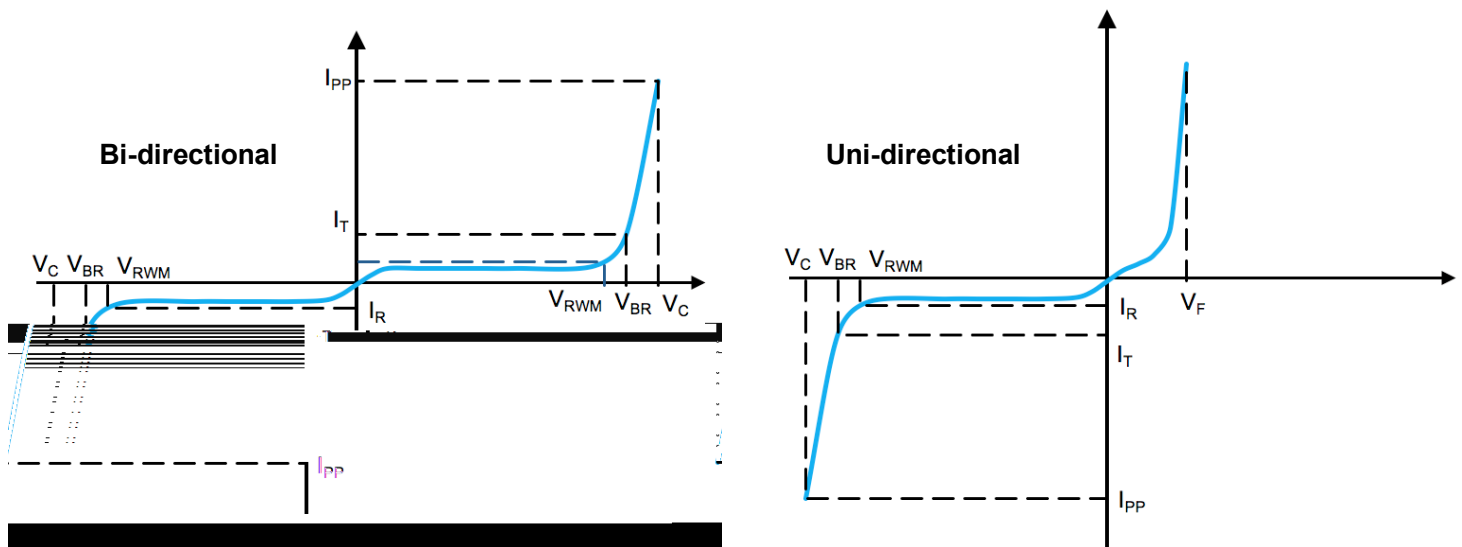
※ For parts without A, the  $V_{BR}$  is  $\pm 10\%$  and  $V_C$  is 5% higher than with A parts.

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage Min. @ $I_T$	Breakdown Voltage Max. @ $I_T$	Test Current	Maximum Clamping Voltage @ $I_{PP}$	Peak Pulse Current	Reverse Leakage @ $V_{RWM}$
(Uni)	(Bi)	$V_{RWM}(V)$	$V_{BR\ MIN}(V)$	$V_{BR\ MAX}(V)$	$I_T\ (mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
P4KE200A	P4KE200CA	171.00	190.00	210.00	1	274.0	1.50	1
P4KE220A	P4KE220CA	185.00	209.00	231.00	1	328.0	1.30	1
P4KE250A	P4KE250CA	214.00	237.00	263.00	1	344.0	1.20	1
P4KE300A	P4KE300CA	256.00	285.00	315.00	1	414.0	1.00	1
P4KE350A	P4KE350CA	300.00	333.00	368.00	1	482.0	0.85	1
P4KE400A	P4KE400CA	342.00	380.00	420.00	1	548.0	0.75	1
P4KE440A	P4KE440CA	376.00	418.00	462.00	1	602.0	0.68	1

※ For Bi-directional type having  $V_{RWM}$  of 10 Volts and less, the  $I_R$  limit is double.

※ For parts without A, the  $V_{BR}$  is  $\pm 10\%$  and  $V_C$  is 5% higher than with A parts.

## I-V Curve Characteristics



**$P_{PPM}$  Peak Pulse Power Dissipation** -Max power dissipation

**$V_{RWM}$  Reverse Stand-off Voltage** -Maximum voltage that can be applied to TVS without operation

**$V_{BR}$  Breakdown Voltage** – Maximum voltage that flows through the TVS at a specified 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**

## Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$ unless otherwise noted)

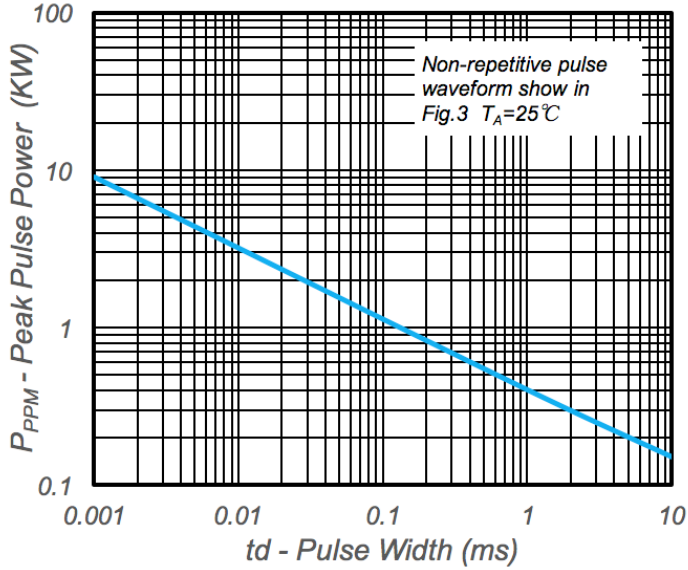


Fig.1 Peak Pulse Power Rating

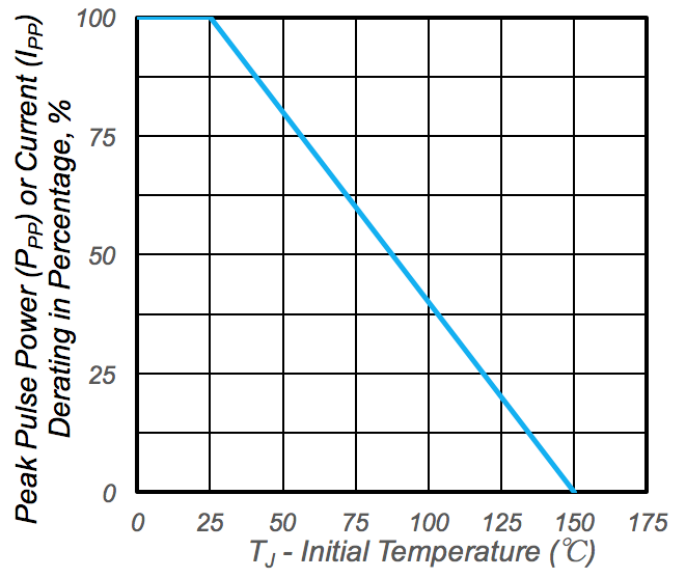


Fig.2 Pulse Derating Curve

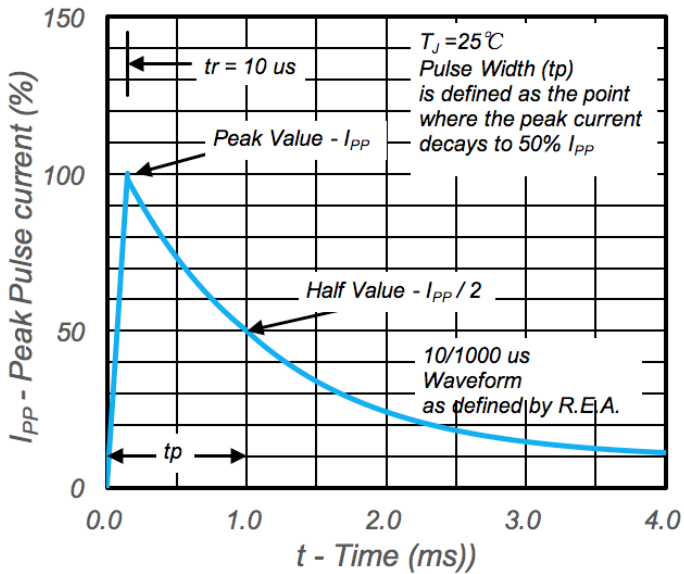


Fig.3 Pulse Waveform

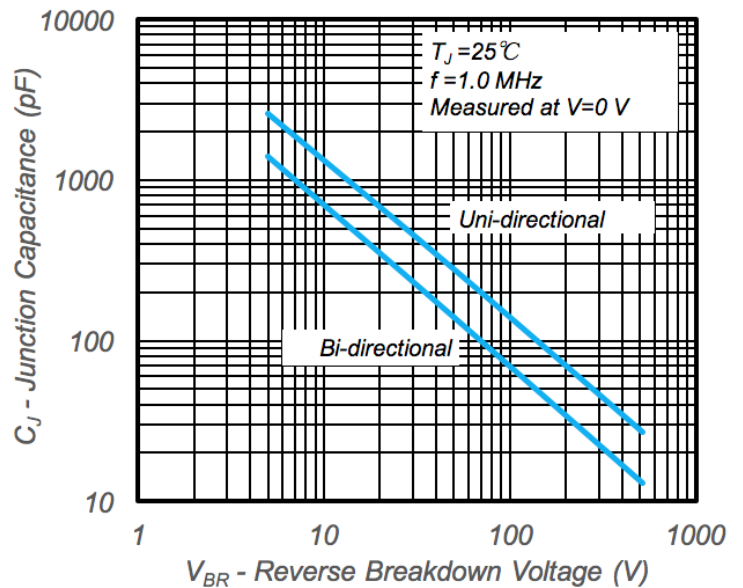


Fig.4 Typical Junction Capacitance