

Glass Passivated Junction Transient Voltage Suppressor

Voltage - 6.8 to 550 Volts

400 Watt Peak Power/1.0Watt Steady State

Features

- Plastic package
- Glass passivated chip junction in DO-41 Package
- 400W surge capability at 10/1000 μ s wave form
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0ps from 0 Volts to B_V min.
- Typical IR less than 1 μ A above 10V
- High temperature soldering guaranteed: 265°C/10 seconds/.375", (9.5mm) lead length, 5lbs., (2.3kg) tension
- Pb-free plated



Mechanical Data

- **Case:** JEDEC DO-41 Molded plastic
- **Terminals:** Solderable per MIL-STD-750, Method 2026
- **Polarity:** Color band denotes cathode except Bipolar
- **Mounting Position:** Any
- **Weight:** 0.012 ounce, 0.3 grams

Devices For Bipolar Application

- For Bidirectional use C or CA Suffix for types P4KE6.8 thru types P4KE550 (e.g. P4KE6.8C, P4KE550CA)
- Electrical characteristics apply in both directions

Maximum Ratings And Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

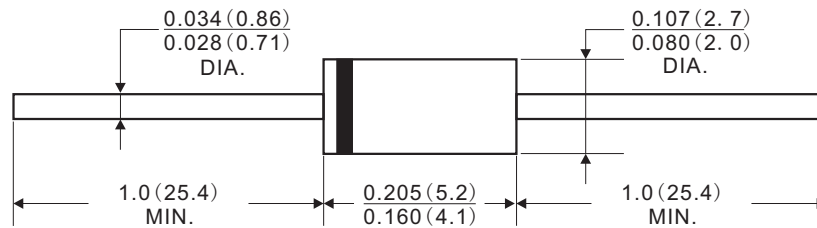
RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation at $T_A = 25^\circ\text{C}$, $T_P = 1\text{ms}$ (Note 1)	P_{PPM}	Minimum 400	Watts
Steady State Power Dissipation at $T_L = 75^\circ\text{C}$, Lead lengths. 375", (9.5mm) (Note 2)	$P_{M(AV)}$	1	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note3)	I_{FSM}	20	Amps
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 $T_A = 25^\circ\text{C}$ per Fig. 2.
2. Mounted on Copper Pad area of 1.6×1.6" (40×40mm) per Fig. 5
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

Dimensions (DO-41)

DO-204AL(DO-41)



Dimensions in inches and(millimeters)

Electrical Characteristics

TABLE1

**Stand for commonly used models

P4KE Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @IT	Breakdown Voltage @IT	Test Current	Maximum Clamping Voltage @Ipp	Peak Pulse Current	Reverse Leakage @VRWM
UNI-Polar	BI-Polar	VRWM(V)	VBR(V)Min.	VBR(V)Max.	IT(mA)	Vc(V)	Ipp(A)	IR(μA)
* P4KE6.8A	P4KE6.8CA	5.80	6.45	7.14	10	10.5	39.00	600
P4KE7.5A	P4KE7.5CA	6.40	7.13	7.88	10	11.3	36.30	400
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	25.5	16.10	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

Notes :

- 1.For bidirectional type having VRWM of 10 volts and less, the IR limit is double
- 2.For parts with A , the VBR is ± 5%

Electrical Characteristics

TABLE 1

***Stand for commonly used models

P4KE Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @IT	Breakdown Voltage @IT	Test Current	Maximum Clamping Voltage @Ipp	Peak Pulse Current	Reverse Leakage @VRWM
UNI-Polar	BI-Polar	VRWM(V)	VBR(V)Min.	VBR(V)Max.	IT(mA)	Vc(V)	Ipp(A)	IR(μA)
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
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	332.00	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
P4KE480A	P4KE480CA	408.00	456.00	504.00	1	658.0	0.61	1
P4KE510A	P4KE510CA	434.00	485.00	535.00	1	698.0	0.57	1
P4KE530A	P4KE530CA	450.00	503.50	556.50	1	725.0	0.55	1
P4KE540A	P4KE540CA	459.00	513.00	567.00	1	740.0	0.54	1
P4KE550A	P4KE550CA	467.00	522.50	577.50	1	760.0	0.52	1

Notes :

- 1.For bidirectional type having VRWM of 10 volts and less, the IR limit is double
- 2.For parts with A , the VBR is ± 5%

Rating And Characteristic Curves

Fig.1 Peak Pulse Power Rating Curve

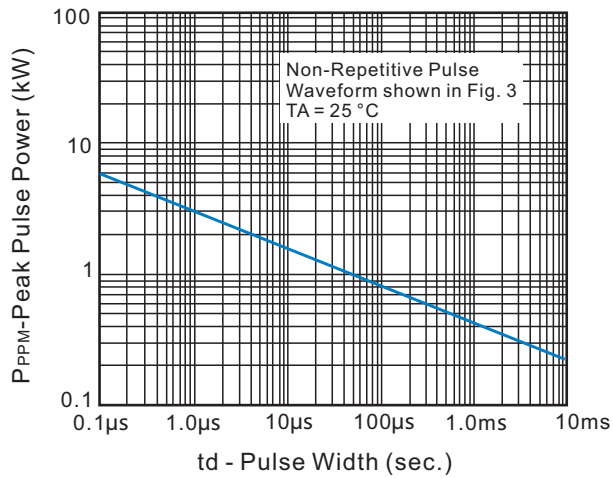


Fig.2 Pulse Derating Curve

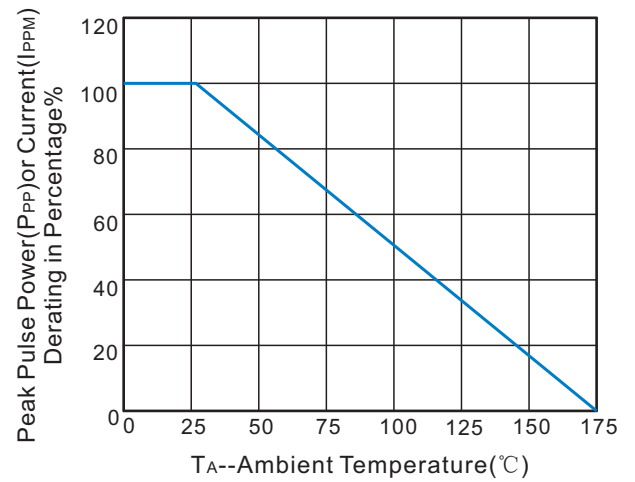


Fig.3 Pulse Waverform

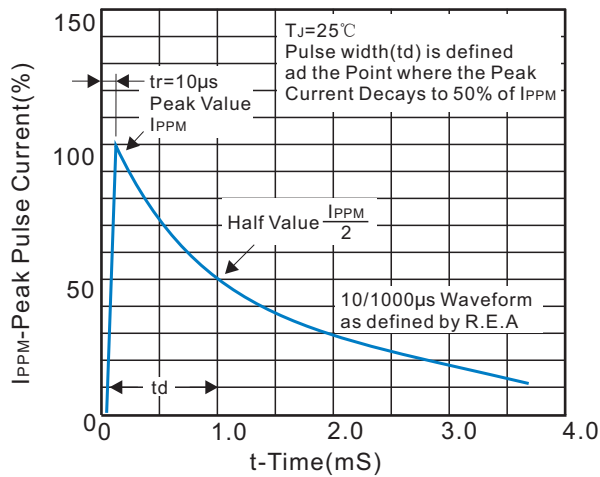


Fig.4 Typ. Junction Capacitance Uni-Directional

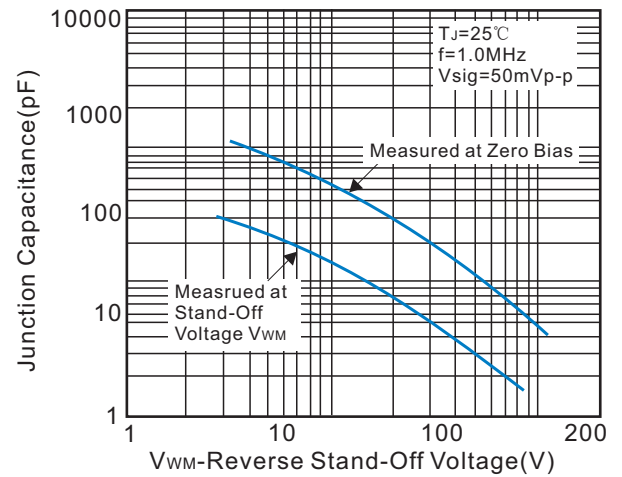


Fig.5 Steady State Power Dissipation Derating Curve

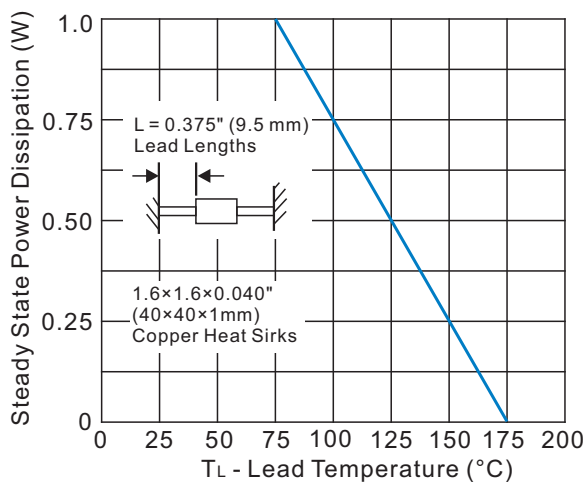
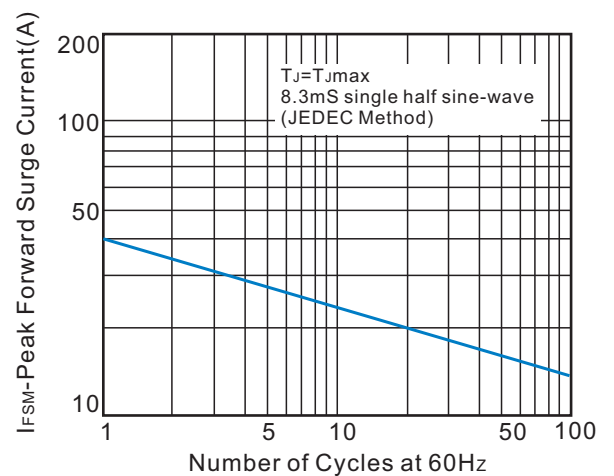


Fig.6 Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

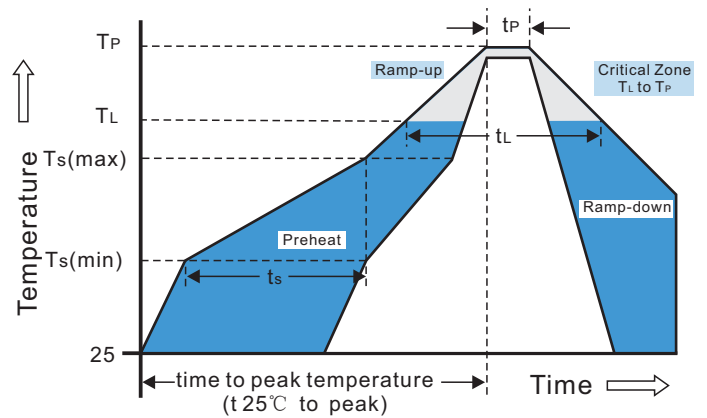


Recommended Soldering Conditions

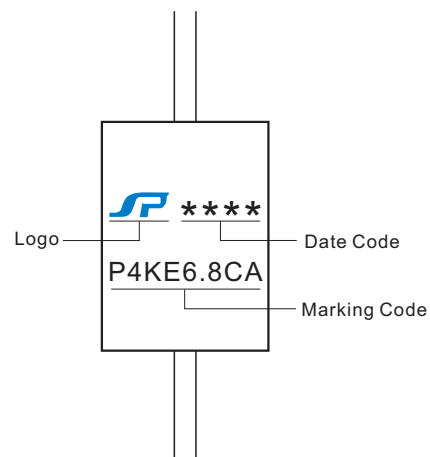
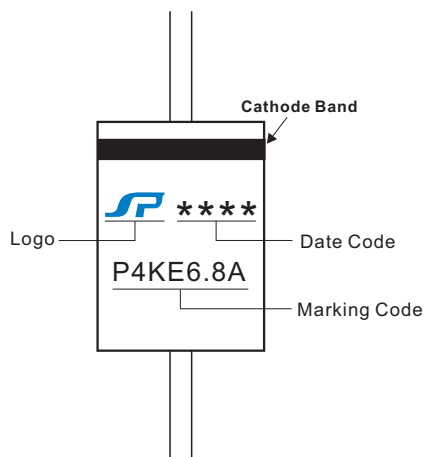
Recommended Conditions

Reflow Condition		Pb-Free assembly (see Fig.1)
Pre Heat	-Temperature Min($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time(Min to Max)(t_s)	60-180secs
Average ramp up rate (Liquidus Temp(T_L) to peak)		3°C/sec.Max.
$T_{s(max)}$ to T_L -Ramp-up Rate		3°C/sec.Max.
Reflow	-Temperature(T_L)(Liquidus)	+217°C
	-Temperature(t_L)	60-150secs
Peak Temp(T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp(t_P)		30 secs.Max.
Ramp-down Rate		6°C/sec.Max.
Time 25°C to Peak Temp(T_P)		8 min.Max.
Do not exceed		+260°C

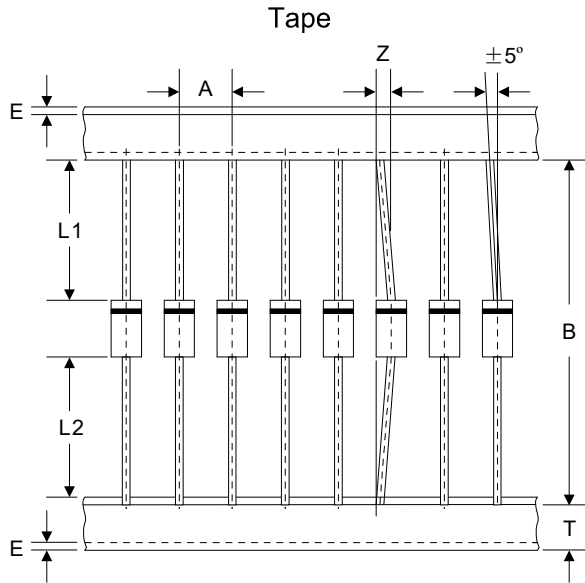
Reflow Soldering



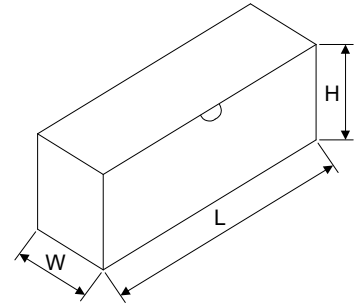
Marking Code



Packaging



Box



Dimensions in millimeters

A	B	Z	T	E	L1-L2
5.0 ± 0.5	52.0 ± 1.0	1.2Max	6.0 ± 0.4	3.0Max	1.0Max

L	W	H	Quantity
250.0 ± 5.0	78.0 ± 5.0	114.0 ± 5.0	3000PCS