

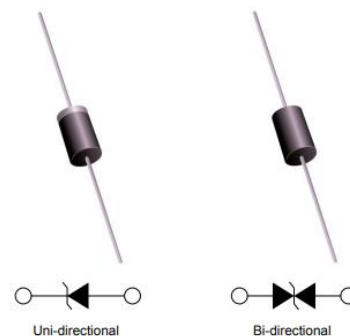
# Transient Voltage Suppression Diodes: P4KE Series

## Axial Leaded Type 400 W



### ■ Features

1. Glass passivated chip
2. Excellent clamping capability
3. Low clamping voltage
4. Low leakage current
5. Very fast response time
6. RoHS compliant
7. 400W peak pulse power capability at 10/1000µs waveform, repetition rate (duty cycle): 0.01%



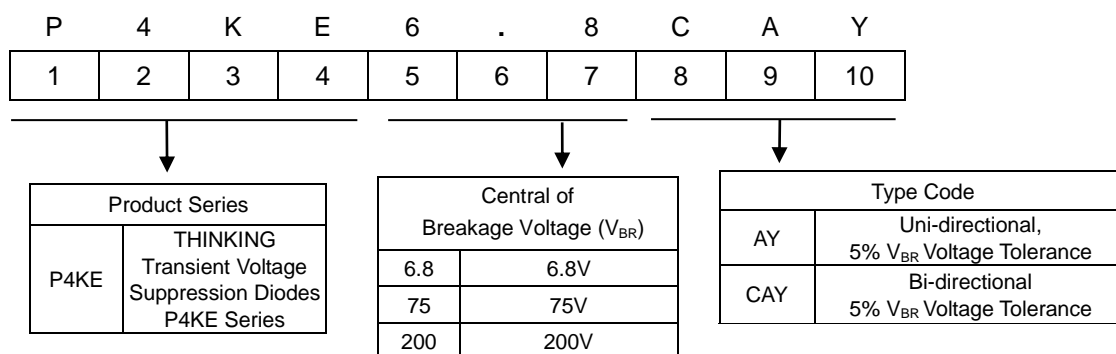
### ■ Recommended Applications

1. Computers
2. Telecom system
3. Industrial equipment
4. Consumer electronic applications
5. Other VCC bus and I/O interfaces

### ■ Mechanical Data

1. Case: Molded plastic, DO-41
2. Epoxy: UL 94V-0 rate flame retardant
3. Terminals: Solderable per MIL-STD-750, method 2026
4. Polarity: Color band denotes cathode end
5. Mounting Position: Any

### ■ Part Number Code

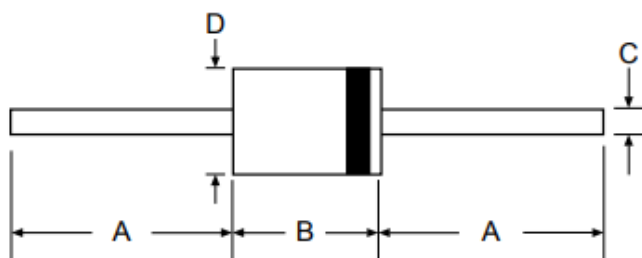


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### ■ Structures and Dimensions



Symbol	Dimensions in millimeters	
	Min	Max
A	25.0	-
B	4.1	5.2
C	0.54	0.85
D	2.0	2.7

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

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000 $\mu\text{s}$ waveform (Note 1)	$P_{PPM}$	400	W
Peak pulse current with 10/1000 $\mu\text{s}$ waveform (Note 1)	$I_{PPM}$	See next table	A
Peak forward surge current, 8.3 ms single half sine-wave (Note 2)	$I_{FSM}$	40	A
Power dissipation on infinite heatsink at $T_L=75^\circ\text{C}$	$P_D$	1	W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Typical thermal resistance junction to lead	$R_{\theta JL}$	60	$^\circ\text{C/W}$
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

Note:

1. Non-repetitive current pulse, per Fig. 3 and derated above  $T_A=25^\circ\text{C}$  per Fig. 2.
2. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

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### ■ Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage	Breakage Voltage V <sub>BR</sub> @ I <sub>T</sub>		Test Current I <sub>T</sub> (mA)	Maximum Clamping Voltage V <sub>C</sub> @ I <sub>pp</sub>	Maximum Peak Pulse Current I <sub>pp</sub> (A)	Maximum Reverse Leakage I <sub>R</sub> @ V <sub>RWM</sub>
			V <sub>RWM</sub> (V)	Min(V)				
P4KE6.8AY	P4KE6.8CAY	5.8	6.45	7.14	10	10.5	39	1000
P4KE7.5AY	P4KE7.5CAY	6.4	7.13	7.88	10	11.3	36.3	500
P4KE8.2AY	P4KE8.2CAY	7.02	7.79	8.61	10	12.1	33.9	200
P4KE9.1AY	P4KE9.1CAY	7.78	8.65	9.55	1	13.4	30.6	50
P4KE10AY	P4KE10CAY	8.55	9.5	10.5	1	14.5	28.3	10
P4KE11AY	P4KE11CAY	9.4	10.5	11.6	1	15.6	26.3	5
P4KE12AY	P4KE12CAY	10.2	11.4	12.6	1	16.7	24.6	5
P4KE13AY	P4KE13CAY	11.1	12.4	13.7	1	18.2	22.5	1
P4KE15AY	P4KE15CAY	12.8	14.3	15.8	1	21.2	19.3	1
P4KE16AY	P4KE16CAY	13.6	15.2	16.8	1	22.5	18.2	1
P4KE18AY	P4KE18CAY	15.3	17.1	18.9	1	25.2	16.1	1
P4KE20AY	P4KE20CAY	17.1	19	21	1	27.7	14.8	1
P4KE22AY	P4KE22CAY	18.8	20.9	23.1	1	30.6	13.4	1
P4KE24AY	P4KE24CAY	20.5	22.8	25.2	1	33.2	12.3	1
P4KE27AY	P4KE27CAY	23.1	25.7	28.4	1	37.5	10.9	1
P4KE30AY	P4KE30CAY	25.6	28.5	31.5	1	41.4	9.9	1
P4KE33AY	P4KE33CAY	28.2	31.4	34.7	1	45.7	9	1
P4KE36AY	P4KE36CAY	30.8	34.2	37.8	1	49.9	8.2	1
P4KE39AY	P4KE39CAY	33.3	37.1	41	1	53.9	7.6	1
P4KE43AY	P4KE43CAY	36.8	40.9	45.2	1	59.3	6.9	1
P4KE47AY	P4KE47CAY	40.2	44.7	49.4	1	64.8	6.3	1
P4KE51AY	P4KE51CAY	43.6	48.5	53.6	1	70.1	5.8	1
P4KE56AY	P4KE56CAY	47.8	53.2	58.8	1	77	5.3	1
P4KE62AY	P4KE62CAY	53	58.9	65.1	1	85	4.8	1
P4KE68AY	P4KE68CAY	58.1	64.6	71.4	1	92	4.5	1
P4KE75AY	P4KE75CAY	64.1	71.3	78.8	1	103	4	1
P4KE82AY	P4KE82CAY	70.1	77.9	86.1	1	113	3.6	1
P4KE91AY	P4KE91CAY	77.8	86.5	95.5	1	125	3.3	1
P4KE100AY	P4KE100CAY	85.5	95	105	1	137	3	1

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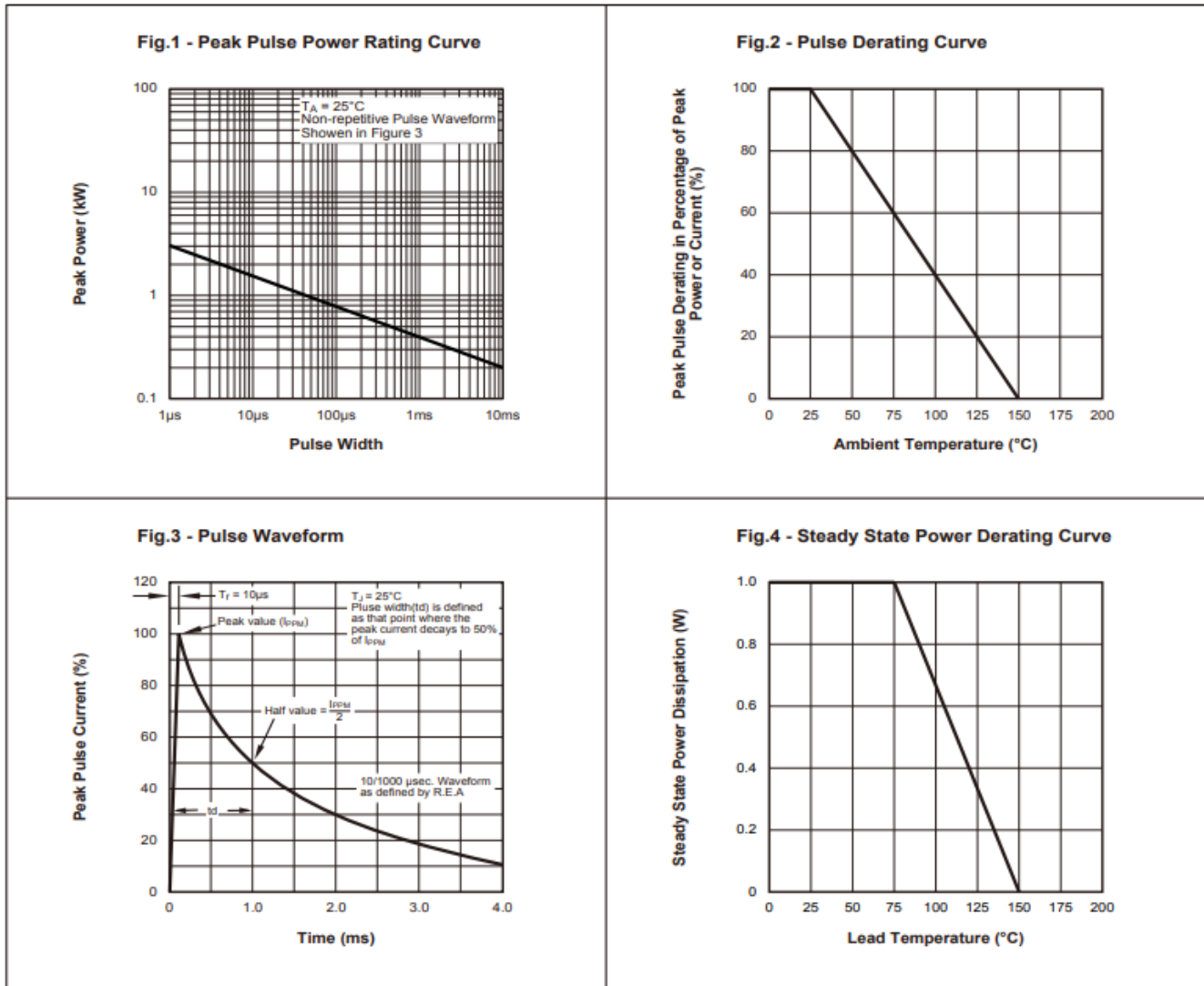
Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage	Breakage Voltage V <sub>BR</sub> @ I <sub>T</sub>		Test Current	Maximum Clamping Voltage V <sub>C</sub> @ I <sub>pp</sub>	Maximum Peak Pulse Current	Maximum Reverse Leakage I <sub>R</sub> @ V <sub>RWM</sub>
		V <sub>RWM</sub> ( V )	Min( V )	Max( V )	I <sub>T</sub> ( mA )	V <sub>C</sub> ( V )	I <sub>pp</sub> (A)	I <sub>R</sub> (μA)
P4KE110AY	P4KE110CAY	94	105	116	1	152	2.7	1
P4KE120AY	P4KE120CAY	102	114	126	1	165	2.5	1
P4KE130AY	P4KE130CAY	111	124	137	1	179	2.3	1
P4KE150AY	P4KE150CAY	128	143	158	1	207	2	1
P4KE160AY	P4KE160CAY	136	152	168	1	219	1.9	1
P4KE170AY	P4KE170CAY	145	162	179	1	234	1.8	1
P4KE180AY	P4KE180CAY	154	171	189	1	246	1.7	1
P4KE200AY	P4KE200CAY	171	190	210	1	274	1.5	1
P4KE220AY	P4KE220CAY	185	209	231	1	328	1.3	1
P4KE250AY	P4KE250CAY	214	237	263	1	344	1.2	1
P4KE300AY	P4KE300CAY	256	285	315	1	414	1	1
P4KE350AY	P4KE350CAY	300	332	368	1	482	0.9	1
P4KE400AY	P4KE400CAY	342	380	420	1	548	0.8	1
P4KE440AY	P4KE440CAY	376	418	462	1	602	0.7	1
P4KE480AY	P4KE480CAY	408	456	504	1	658	0.6	1
P4KE510AY	P4KE510CAY	434	485	535	1	698	0.6	1
P4KE530AY	P4KE530CAY	450	503.5	556.5	1	725	0.6	1
P4KE540AY	P4KE540CAY	459	513	567	1	740	0.5	1
P4KE550AY	P4KE550CAY	467	522.5	557.5	1	760	0.5	1

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

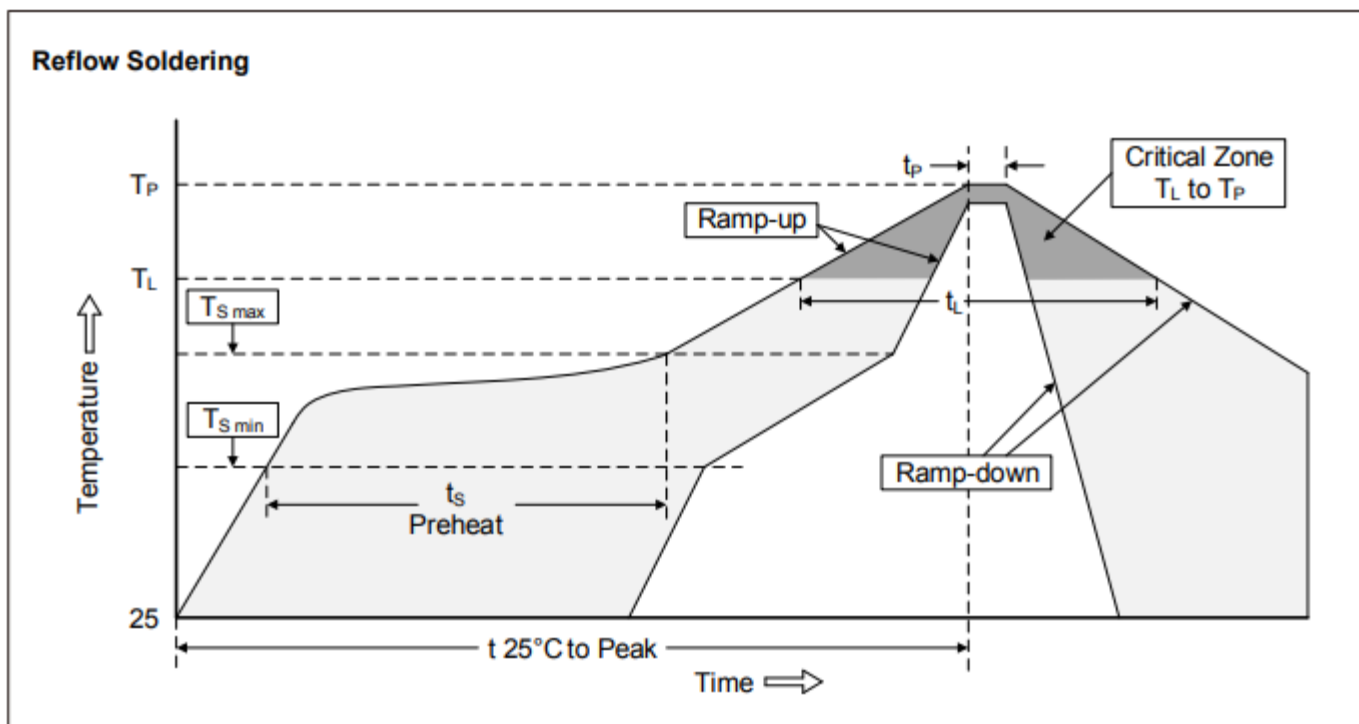


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### ■ Soldering Recommendation



### Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	3°C/second max.
Preheat -Temperature Min ( $T_{S\ min}$ ) -Temperature Max ( $T_{S\ max}$ ) -Time (min to max) ( $t_s$ )	150°C 200°C 60-180 seconds
$T_{S\ max}$ to $T_L$ -Ramp-up Rate	3°C/second max.
Time maintained above: -Temperature ( $T_L$ ) -Time ( $t_L$ )	217°C 60-150 seconds
Peak Temperature ( $T_P$ )	260°C
Time within 5°C of actual Peak Temperature ( $t_p$ )	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

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### ■ Quantity

Series Type	Packaging option	Base quantity	Packaging specification
P4KE	Tape and box	5000pcs / box	EIA STD RS-481

### ■ Warehouse Storage Conditions of product

- Storage Condition:
  1. Storage Temperature:  $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
  2. Relative Humidity:  $\leq 75\%RH$
  3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.