

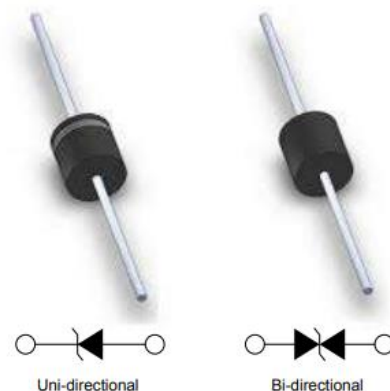
Transient Voltage Suppression Diodes: 5KP Series

Axial Leded Type 5000 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. 5000W 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, P-600
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

5	K	P	5	.	0	C	A	Y
1	2	3	4	5	6	7	8	9

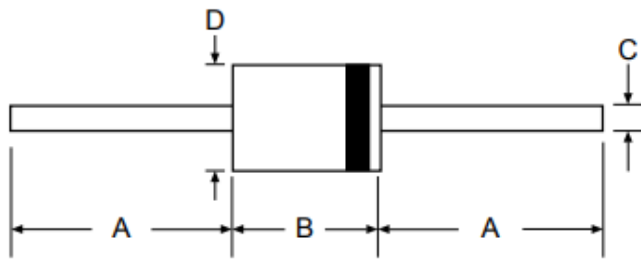
<table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <th colspan="2">Product Series</th> </tr> <tr> <td style="width: 50%;">5KP</td> <td>THINKING Transient Voltage Suppression Diodes 5KP Series</td> </tr> </table>	Product Series		5KP	THINKING Transient Voltage Suppression Diodes 5KP Series	<table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <th colspan="2">Reverse Stand off Voltage (V_{RWM})</th> </tr> <tr> <td style="width: 50%;">5.0</td> <td>5V</td> </tr> <tr> <td>70</td> <td>70V</td> </tr> <tr> <td>120</td> <td>120V</td> </tr> </table>	Reverse Stand off Voltage (V_{RWM})		5.0	5V	70	70V	120	120V	<table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <th colspan="2">Type Code</th> </tr> <tr> <td style="width: 50%;">AY</td> <td>Uni-directional, 5% V_{BR} Voltage Tolerance</td> </tr> <tr> <td>CAY</td> <td>Bi-directional, 5% V_{BR} Voltage Tolerance</td> </tr> </table>	Type Code		AY	Uni-directional, 5% V_{BR} Voltage Tolerance	CAY	Bi-directional, 5% V_{BR} Voltage Tolerance
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■ Structures and Dimensions



Symbol	Dimensions in millimeters	
	Min	Max
A	25.0	-
B	8.6	9.1
C	1.1	1.3
D	8.6	9.1

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

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000 μs waveform (Note 1)	P_{PPM}	5000	W
Peak pulse current with 10/1000 μs waveform (Note 1)	I_{PPM}	See next table	A
Peak forward surge current, 8.3 ms single half sine-wave (Note 2)	I_{FSM}	500	A
Power dissipation on infinite heatsink at $T_L=75^{\circ}\text{C}$	P_D	8	W
Typical thermal resistance junction to ambient	$R_{\theta\text{JA}}$	40	$^{\circ}\text{C/W}$
Typical thermal resistance junction to lead	$R_{\theta\text{JL}}$	8	$^{\circ}\text{C/W}$
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_A=25°C unless otherwise noted)

Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage	Breakage Voltage V _{BR} @ I _T		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{pp}	Maximum Peak Pulse Current	Maximum Reverse Leakage I _R @ V _{RWM}
			V _{RWM} (V)	Min(V)		Max(V)	V _C (V)	I _{pp} (A)
5KP5.0AY	5KP5.0CAY	5	6.4	7	50	9.2	554.3	5000
5KP6.0AY	5KP6.0CAY	6	6.67	7.37	50	10.3	495.1	5000
5KP6.5AY	5KP6.5CAY	6.5	7.22	7.98	50	11.2	455.4	2000
5KP7.0AY	5KP7.0CAY	7	7.78	8.6	50	12	425	1000
5KP7.5AY	5KP7.5CAY	7.5	8.33	9.21	5	12.9	395.3	250
5KP8.0AY	5KP8.0CAY	8	8.89	9.83	5	13.6	375	150
5KP8.5AY	5KP8.5CAY	8.5	9.44	10.4	5	14.4	354.2	50
5KP9.0AY	5KP9.0CAY	9	10	11.1	5	15.4	331.2	20
5KP10AY	5KP10CAY	10	11.1	12.3	5	17	300	15
5KP11AY	5KP11CAY	11	12.2	13.5	5	18.2	280.2	2
5KP12AY	5KP12CAY	12	13.3	14.7	5	19.9	256.3	2
5KP13AY	5KP13CAY	13	14.4	15.9	5	21.5	237.2	2
5KP14AY	5KP14CAY	14	15.6	17.2	5	23.2	219.8	2
5KP15AY	5KP15CAY	15	16.7	18.5	5	24.4	209	2
5KP16AY	5KP16CAY	16	17.8	19.7	5	26	196.2	2
5KP17AY	5KP17CAY	17	18.9	20.9	5	27.6	184.8	2
5KP18AY	5KP18CAY	18	20	22.1	5	29.2	174.7	2
5KP20AY	5KP20CAY	20	22.2	24.5	5	32.4	157.4	2
5KP22AY	5KP22CAY	22	24	26.9	5	35.5	143.7	2
5KP24AY	5KP24CAY	24	26.7	29.5	5	38.9	131.1	2
5KP26AY	5KP26CAY	26	28.9	31.9	5	42.1	121.1	2
5KP28AY	5KP28CAY	28	31.1	34.4	5	45.4	112.3	2
5KP30AY	5KP30CAY	30	33.3	36.8	5	48.4	105.4	2
5KP33AY	5KP33CAY	33	36.7	40.6	5	53.3	95.7	2
5KP36AY	5KP36CAY	36	40	44.2	5	58.1	87.8	2
5KP40AY	5KP40CAY	40	44.4	49.1	5	64.5	79.1	2
5KP43AY	5KP43CAY	43	47.8	52.8	5	69.4	73.5	2
5KP45AY	5KP45CAY	45	50	55.3	5	72.7	70.2	2

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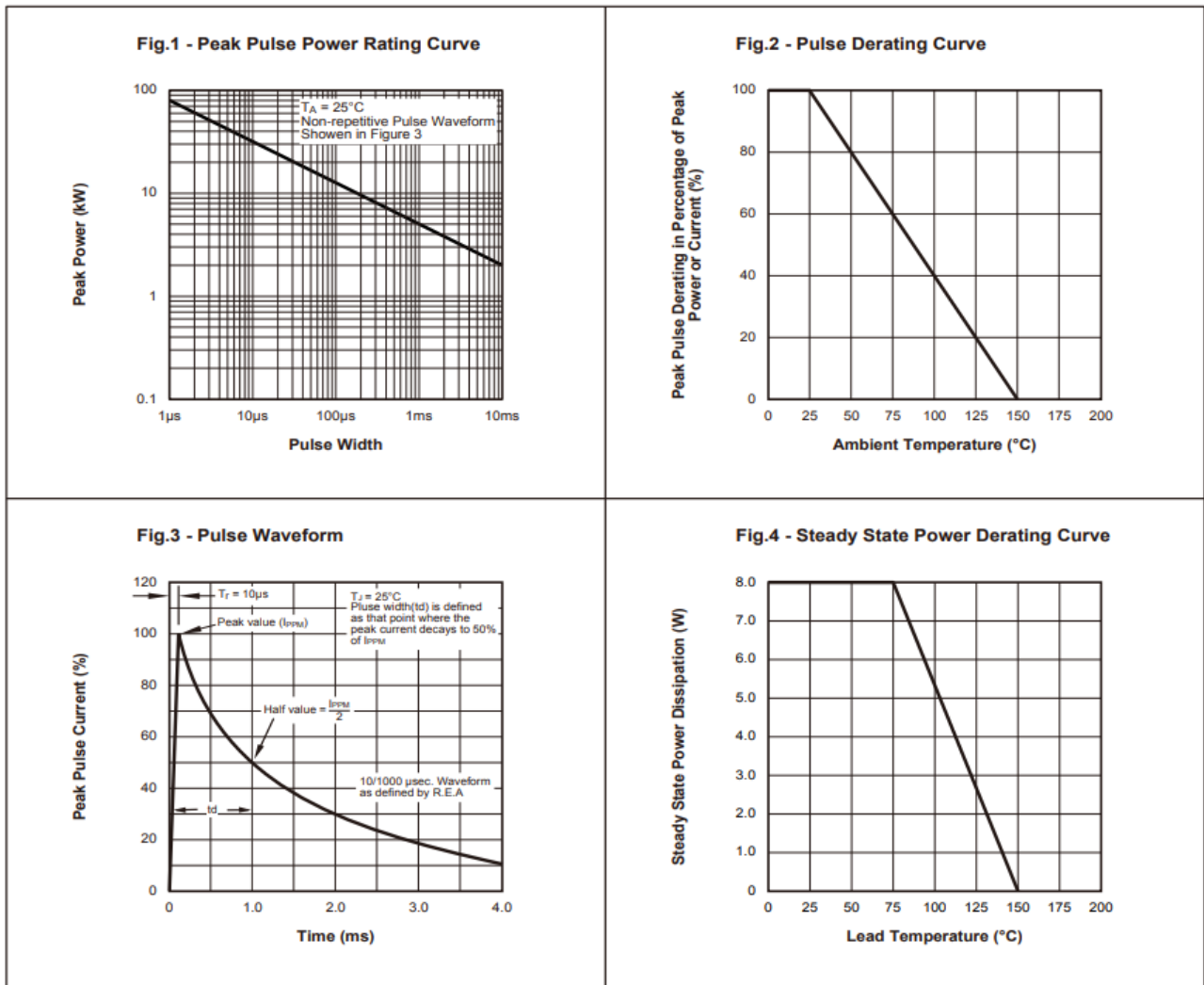
Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage	Breakage Voltage V _{BR} @ I _T		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{pp}	Maximum Peak Pulse Current	Maximum Reverse Leakage I _R @ V _{RWM}
			V _{RWM} (V)	Min(V)		Max(V)	V _C (V)	I _{pp} (A)
5KP48AY	5KP48CAY	48	53.3	58.9	5	77.4	65.9	2
5KP51AY	5KP51CAY	51	56.7	62.7	5	82.4	61.9	2
5KP54AY	5KP54CAY	54	60	66.3	5	87.1	58.6	2
5KP58AY	5KP58CAY	58	64.4	71.2	5	93.6	54.5	2
5KP60AY	5KP60CAY	60	66.7	73.7	5	96.8	52.7	2
5KP64AY	5KP64CAY	64	71.1	78.6	5	103	49.5	2
5KP70AY	5KP70CAY	70	77.8	86	5	113	45.1	2
5KP75AY	5KP75CAY	75	83.3	92.1	5	121	42.1	2
5KP78AY	5KP78CAY	78	86.7	95.8	5	126	40.5	2
5KP85AY	5KP85CAY	85	94.4	104	5	137	37.2	2
5KP90AY	5KP90CAY	90	100	111	5	146	34.9	2
5KP100AY	5KP100CAY	100	110	123	5	162	31.5	2
5KP110AY	5KP110CAY	110	122	135	5	177	28.8	2
5KP120AY	5KP120CAY	120	133	147	5	193	26.4	2
5KP130AY	5KP130CAY	130	144	159	5	209	24.4	2
5KP150AY	5KP150CAY	150	167	185	5	243	21	2
5KP160AY	5KP160CAY	160	178	197	5	259	19.7	2
5KP170AY	5KP170CAY	170	189	209	5	275	18.5	2
5KP180AY	5KP180CAY	180	200	221	5	292	17.5	2
5KP190AY	5KP190CAY	190	211	233	5	310	16.5	2
5KP200AY	5KP200CAY	200	222	246	5	329.2	15.5	2
5KP210AY	5KP210CAY	210	233	258	5	349.5	14.6	2
5KP220AY	5KP220CAY	220	244	270	5	371.1	13.7	2
5KP250AY	5KP250CAY	250	277	306	5	425	12	2

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

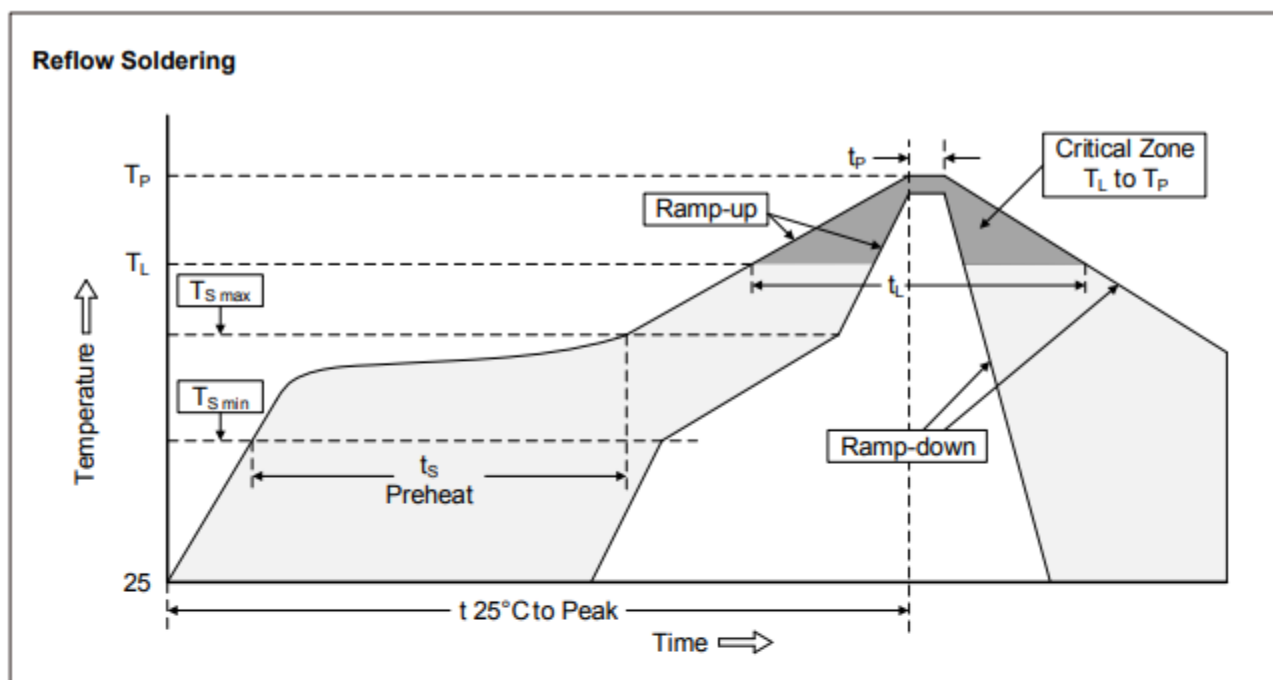


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■ Soldering Recommendation



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat	
-Temperature Min ($T_{S\min}$)	150°C
-Temperature Max ($T_{S\max}$)	200°C
-Time (min to max) (t_s)	60-180 seconds
$T_{S\max}$ to T_L	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (T_L)	217°C
-Time (t_L)	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
5KP	Tape and box	400pcs / 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: $\cong 75\% \text{RH}$
 3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.