

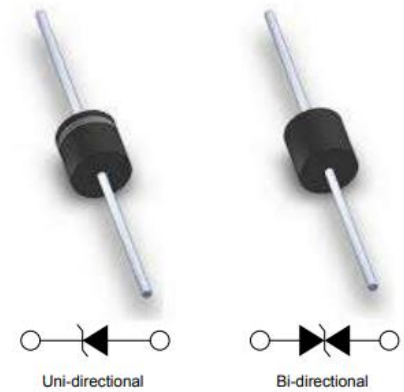
TVS Diode: 3KP Series

Axial Leded Type 3000 W



■ Features

1. Glass passivated chip
2. Excellent clamping capability
3. Low clamping voltage
4. Very fast response time
5. Low leakage current
6. RoHS compliant
7. 3000W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%



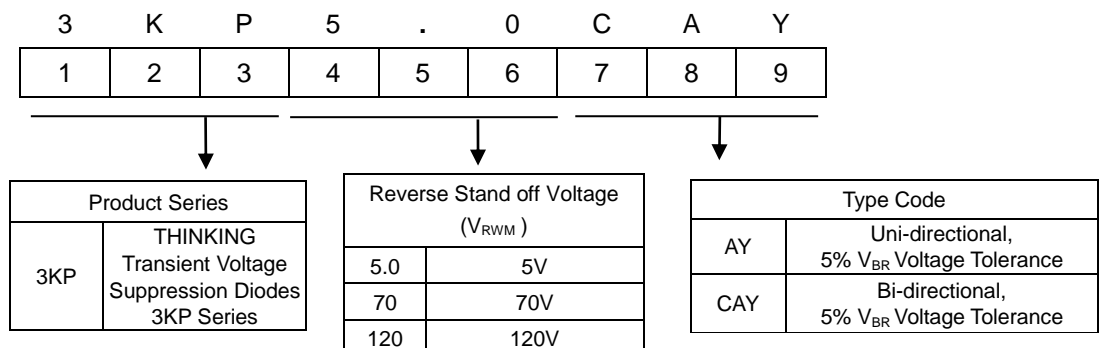
■ Recommended Applications

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

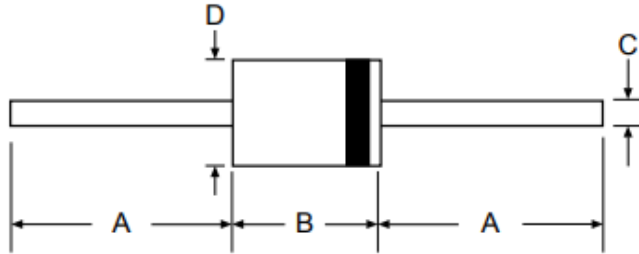


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Structures and Dimensions



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}	3000	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}	300	A
Power dissipation on infinite heatsink at $T_L=75^\circ\text{C}$	P_D	7	W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	40	$^\circ\text{C/W}$
Typical thermal resistance junction to lead	$R_{\theta JL}$	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 V _{RWM} (V)	Breakage Voltage V _{BR} @ I _T		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{pp}	Maximum Peak Pulse Current I _{pp} (A)	Maximum Reverse Leakage I _R @ V _{RWM}
			Min(V)	Max(V)				
3KP5.0AY	3KP5.0CAY	5	6.4	7	50	9.2	326.1	5000
3KP6.0AY	3KP6.0CAY	6	6.67	7.37	50	10.3	291.3	5000
3KP6.5AY	3KP6.5CAY	6.5	7.22	7.98	50	11.2	267.9	2000
3KP7.0AY	3KP7.0CAY	7	7.78	8.6	50	12	250	1000
3KP7.5AY	3KP7.5CAY	7.5	8.33	9.21	5	12.9	232.6	250
3KP8.0AY	3KP8.0CAY	8	8.89	9.83	5	13.6	220.6	150
3KP8.5AY	3KP8.5CAY	8.5	9.44	10.4	5	14.4	208.3	50
3KP9.0AY	3KP9.0CAY	9	10	11.4	5	15.4	194.8	20
3KP10AY	3KP10CAY	10	11.1	12.3	5	17	176.5	15
3KP11AY	3KP11CAY	11	12.2	13.5	5	18.2	164.8	2
3KP12AY	3KP12CAY	12	13.3	14.7	5	19.9	150.8	2
3KP13AY	3KP13CAY	13	14.4	15.9	5	21.5	139.5	2
3KP14AY	3KP14CAY	14	15.6	17.2	5	23.2	129.3	2
3KP15AY	3KP15CAY	15	16.7	18.5	5	24.4	123	2
3KP16AY	3KP16CAY	16	17.8	19.7	5	26	115.4	2
3KP17AY	3KP17CAY	17	18.9	20.9	5	27.6	108.7	2
3KP18AY	3KP18CAY	18	20	22.1	5	29.2	102.7	2
3KP20AY	3KP20CAY	20	22.2	24.5	5	32.4	92.6	2
3KP22AY	3KP22CAY	22	24	26.9	5	35.5	84.5	2
3KP24AY	3KP24CAY	24	26.7	29.5	5	38.9	77.1	2
3KP26AY	3KP26CAY	26	28.9	31.9	5	42.1	71.3	2
3KP28AY	3KP28CAY	28	31.1	34.4	5	45.4	66.1	2
3KP30AY	3KP30CAY	30	33.3	36.8	5	48.4	62	2
3KP33AY	3KP33CAY	33	36.7	40.6	5	53.3	56.3	2
3KP36AY	3KP36CAY	36	40	44.2	5	58.1	51.6	2
3KP40AY	3KP40CAY	40	44.4	49.1	5	64.5	46.5	2
3KP43AY	3KP43CAY	43	47.8	52.8	5	69.4	43.2	2
3KP45AY	3KP45CAY	45	50	55.3	5	72.7	41.3	2

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■ Electrical Characteristics (T_A=25°C unless otherwise noted)

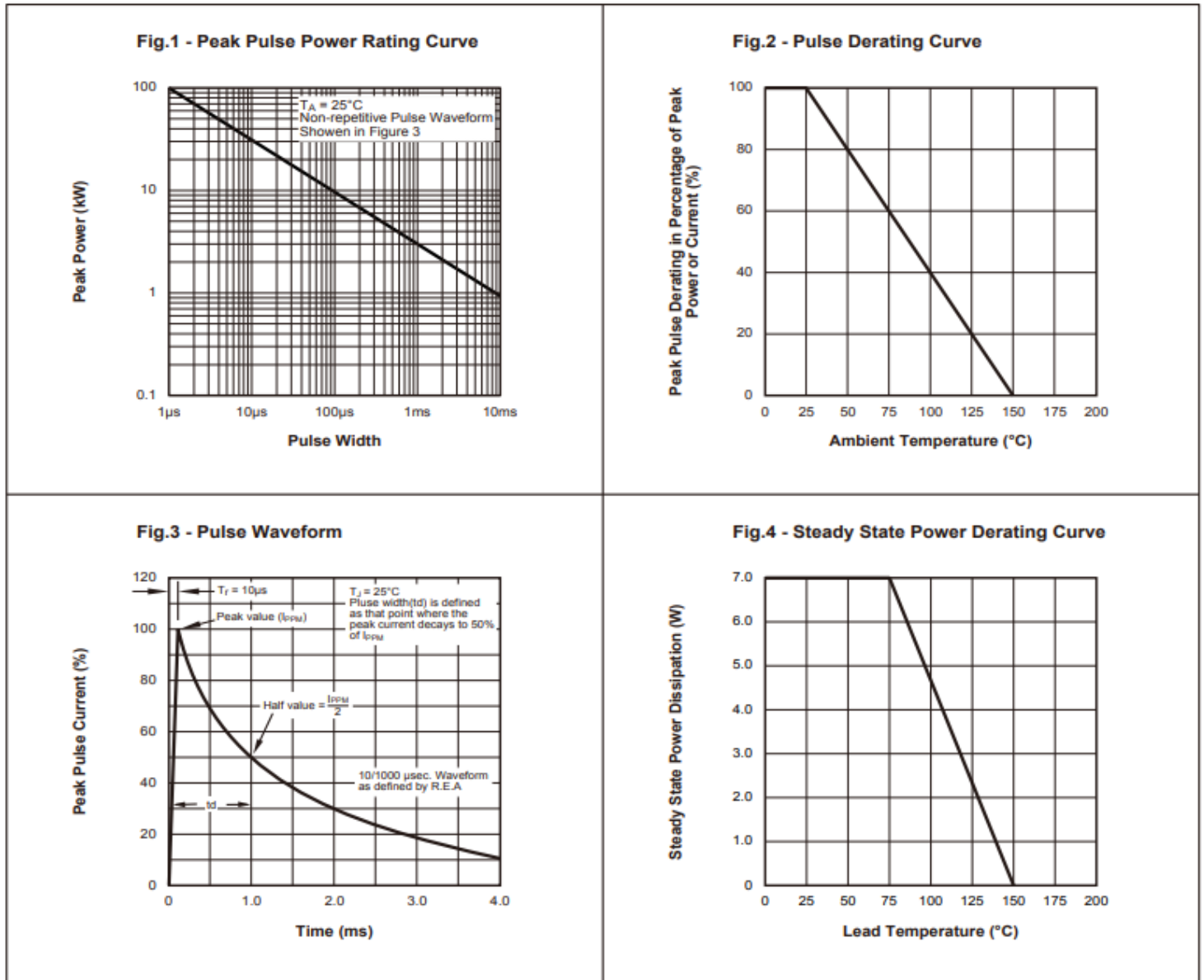
Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage	Breakage Voltage V _{BR} @ I _T		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{pp}	Maximum Peak Pulse Current	Maximum Reverse Leakage I _R @ V _{RWM}
			V _{RWM} (V)	Min(V)		Max(V)	V _C (V)	I _{pp} (A)
3KP48AY	3KP48CAY	48	53.3	58.9	5	77.4	38.8	2
3KP51AY	3KP51CAY	51	56.7	62.7	5	82.4	36.4	2
3KP54AY	3KP54CAY	54	60	66.3	5	87.1	34.4	2
3KP58AY	3KP58CAY	58	64.4	71.2	5	93.6	32.1	2
3KP60AY	3KP60CAY	60	66.7	73.7	5	96.8	31	2
3KP64AY	3KP64CAY	64	71.1	78.6	5	103	29.1	2
3KP70AY	3KP70CAY	70	77.8	86	5	113	26.5	2
3KP75AY	3KP75CAY	75	83.3	92.1	5	121	24.8	2
3KP78AY	3KP78CAY	78	86.7	95.8	5	126	23.8	2
3KP85AY	3KP85CAY	85	94.4	104	5	137	21.9	2
3KP90AY	3KP90CAY	90	100	111	5	146	20.5	2
3KP100AY	3KP100CAY	100	110	123	5	162	18.5	2
3KP110AY	3KP110CAY	110	122	135	5	177	16.9	2
3KP120AY	3KP120CAY	120	133	147	5	193	15.5	2
3KP130AY	3KP130CAY	130	144	159	5	209	14.4	2
3KP150AY	3KP150CAY	150	167	185	5	243	12.3	2
3KP160AY	3KP160CAY	160	178	197	5	259	11.6	2
3KP170AY	3KP170CAY	170	189	209	5	275	10.9	2
3KP180AY	3KP180CAY	180	200	221	5	292	10.4	2
3KP190AY	3KP190CAY	190	211	233	5	310	9.7	2
3KP200AY	3KP200CAY	200	222	246	5	329.2	9.1	2
3KP210AY	3KP210CAY	210	233	258	5	349.5	8.6	2
3KP220AY	3KP220CAY	220	244	270	5	371.1	8.1	2
3KP250AY	3KP250CAY	250	277	306	5	425	7.05	2

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

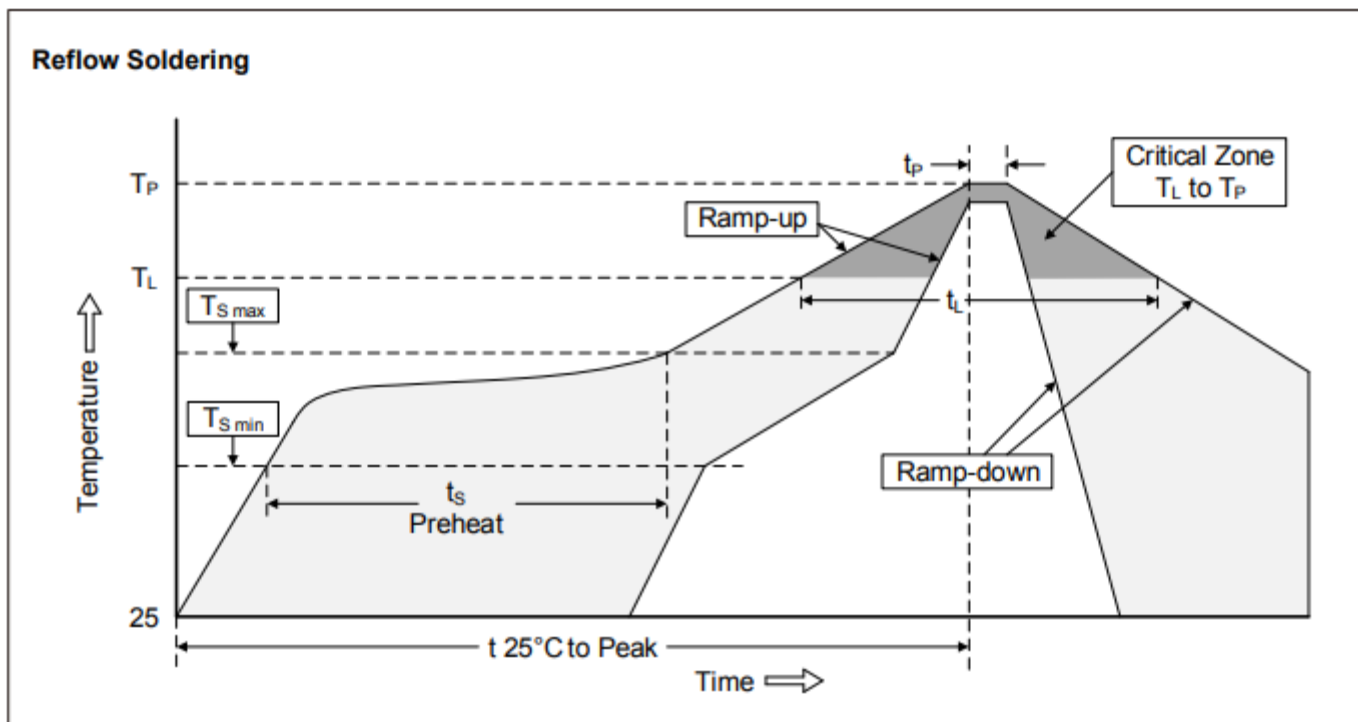


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■ Soldering Recommendation



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
3KP	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.