

Transient Voltage Suppression Diodes: 5KP Series

Axial Leaded Type 5000 W



■ Features

1. Reliable low cost construction utilizing molded plastic technique
2. Both bi-directional and uni-directional devices are available
3. Fast response time
4. Excellent clamping capacity
5. 5000 W peak pulse power capability with a 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%



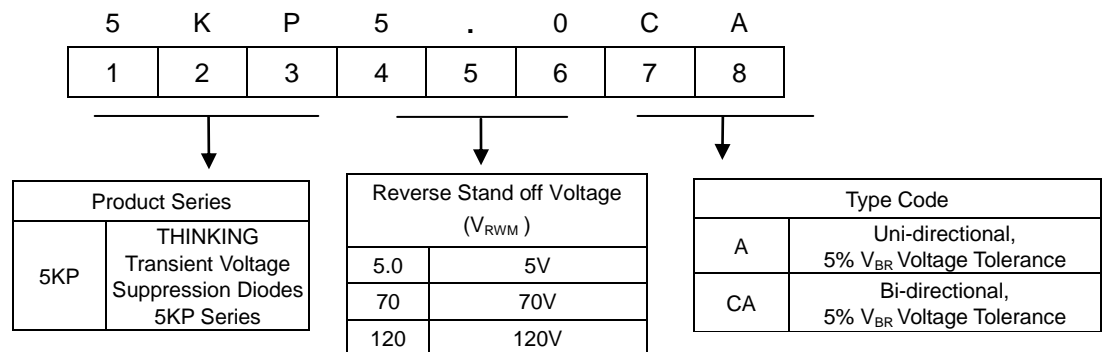
■ Recommended Applications

1. Telecommunication
2. Computer
3. Industrial device
4. Consumer electronic device

■ Mechanical Data

1. Package: P600
2. Terminal: Matte Tin-plated leads, solderable per MIL-STD-750, Method 2026.
3. Polarity: The band denotes cathode (Note: no polarity indicator for bi-directional devices)

■ Part Number Code



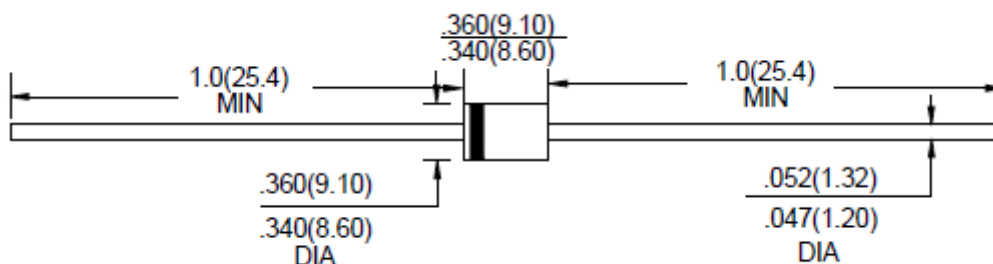
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■ Structures and Dimensions

P600



Unit: inch (millimeter)

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

Parameter	Symbol	Value	Unit
Peak pulse power dissipation at $T_A=25^{\circ}\text{C}$ by 10/1000 μs waveform.	P_{PPM}	5000	W
Peak pulse current of on 10/1000 μs waveform.	I_{PPM}	See Table	A
Peak forward surge current, 8.3ms single half sine wave on rated load.	I_{FSM}	400	A
Steady state power dissipation at $T_L=75^{\circ}\text{C}$	$P_{\text{M(AV)}}$	8.0	W
Operating junction and storage temperature range.	T_J, T_{STG}	-55~+175	$^{\circ}\text{C}$

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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} @ IT		Test Current	Maximum Clamping Voltage V _C @ I _{pp}	Maximum Peak Pulse Current	Maximum Reverse Leakage I _R @VRWM
		V _{RWM} (V)	Min(V)	Max(V)	IT(mA)	V _C (V)	I _{pp} (A)	I _R (μA)
5KP5.0A	5KP5.0CA	5	6.4	7	50	9.2	554.3	5000
5KP6.0A	5KP6.0CA	6	6.67	7.37	50	10.3	495.1	5000
5KP6.5A	5KP6.5CA	6.5	7.22	7.98	50	11.2	455.4	2000
5KP7.0A	5KP7.0CA	7	7.78	8.6	50	12	425	1000
5KP7.5A	5KP7.5CA	7.5	8.33	9.21	5	12.9	395.3	250
5KP8.0A	5KP8.0CA	8	8.89	9.83	5	13.6	375	150
5KP8.5A	5KP8.5CA	8.5	9.44	10.4	5	14.4	354.2	50
5KP9.0A	5KP9.0CA	9	10	11.1	5	15.4	331.2	20
5KP10A	5KP10CA	10	11.1	12.3	5	17	300	15
5KP11A	5KP11CA	11	12.2	13.5	5	18.2	280.2	2
5KP12A	5KP12CA	12	13.3	14.7	5	19.9	256.3	2
5KP13A	5KP13CA	13	14.4	15.9	5	21.5	237.2	2
5KP14A	5KP14CA	14	15.6	17.2	5	23.2	219.8	2
5KP15A	5KP15CA	15	16.7	18.5	5	24.4	209	2
5KP16A	5KP16CA	16	17.8	19.7	5	26	196.2	2
5KP17A	5KP17CA	17	18.9	20.9	5	27.6	184.8	2
5KP18A	5KP18CA	18	20	22.1	5	29.2	174.7	2
5KP20A	5KP20CA	20	22.2	24.5	5	32.4	157.4	2
5KP22A	5KP22CA	22	24.4	26.9	5	35.5	143.7	2
5KP24A	5KP24CA	24	26.7	29.5	5	38.9	131.1	2
5KP26A	5KP26CA	26	28.9	31.9	5	42.1	121.1	2
5KP28A	5KP28CA	28	31.1	34.4	5	45.4	112.3	2
5KP30A	5KP30CA	30	33.3	36.8	5	48.4	105.4	2
5KP33A	5KP33CA	33	36.7	40.6	5	53.3	95.7	2
5KP36A	5KP36CA	36	40	44.2	5	58.1	87.8	2
5KP40A	5KP40CA	40	44.4	49.1	5	64.5	79.1	2
5KP43A	5KP43CA	43	47.8	52.8	5	69.4	73.5	2
5KP45A	5KP45CA	45	50	55.3	5	72.7	70.2	2
5KP48A	5KP48CA	48	53.3	58.9	5	77.4	65.9	2

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Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage	Breakage Voltage V _{BR} @ IT		Test Current	Maximum Clamping Voltage V _C @ I _{pp}	Maximum Peak Pulse Current	Maximum Reverse Leakage I _R @VRWM
		V _{RWM} (V)	Min(V)	Max(V)	IT(mA)	V _C (V)	I _{pp} (A)	I _R (μA)
5KP51A	5KP51CA	51	56.7	62.7	5	82.4	61.9	2
5KP54A	5KP54CA	54	60	66.3	5	87.1	58.6	2
5KP58A	5KP58CA	58	64.4	71.2	5	93.6	54.5	2
5KP60A	5KP60CA	60	66.7	73.7	5	96.8	52.7	2
5KP64A	5KP64CA	64	71.1	78.6	5	103	49.5	2
5KP70A	5KP70CA	70	77.8	86	5	113	45.1	2
5KP75A	5KP75CA	75	83.3	92.1	5	121	42.1	2
5KP78A	5KP78CA	78	86.7	95.8	5	126	40.5	2
5KP85A	5KP85CA	85	94.4	104	5	137	37.2	2
5KP90A	5KP90CA	90	100	111	5	146	34.9	2
5KP100A	5KP100CA	100	111	123	5	162	31.5	2
5KP110A	5KP110CA	110	122	135	5	177	28.8	2
5KP120A	5KP120CA	120	133	147	5	193	26.4	2
5KP130A	5KP130CA	130	144	159	5	209	24.4	2
5KP150A	5KP150CA	150	167	185	5	243	21	2
5KP160A	5KP160CA	160	178	197	5	259	19.7	2
5KP170A	5KP170CA	170	189	209	5	275	18.5	2
5KP180A	5KP180CA	180	201	222	5	292	17.5	2
5KP190A	5KP190CA	190	211	233	5	308	16.5	2
5KP200A	5KP200CA	200	224	247	5	324	15.5	2
5KP210A	5KP210CA	210	237	263	5	340	14.6	2
5KP220A	5KP220CA	220	246	272	5	356	13.7	2
5KP250A	5KP250CA	250	279	309	5	425	12	2
5KP300A	5KP300CA	300	335	371	5	486	10.5	2
5KP350A	5KP350CA	350	391	432	5	567	9	2
5KP400A	5KP400CA	400	447	494	5	658	7.75	2
5KP440A	5KP440CA	440	492	543	5	742.2	6.85	2

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■ Rate and Characteristic Curve ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1 - Peak Pulse Power Rating Curve

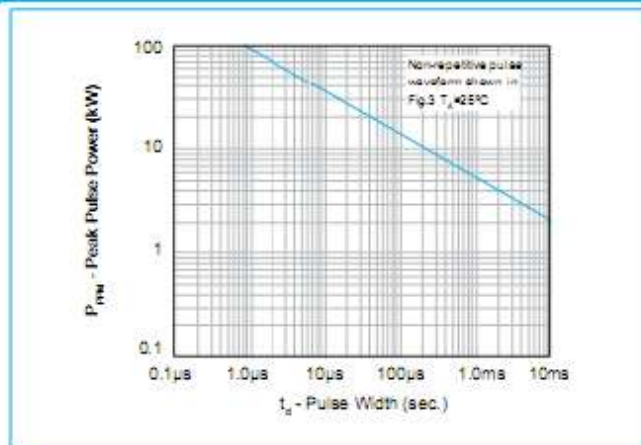


Figure 2 - Pulse Derating Curve

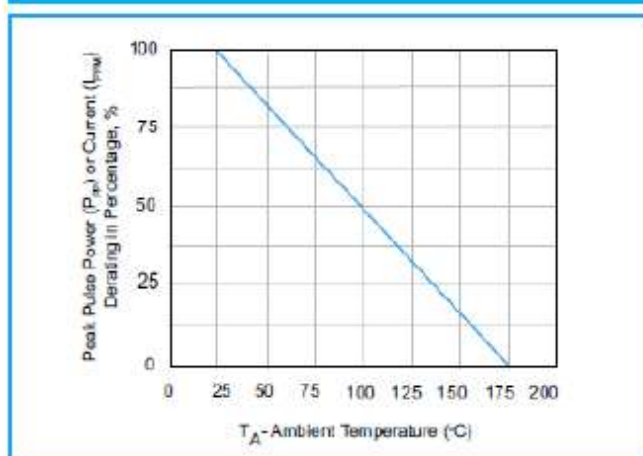


Figure 3 - Pulse Waveform

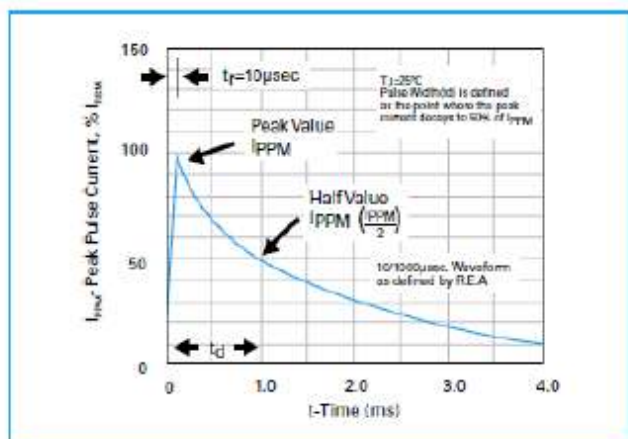


Figure 4 - Typical Junction Capacitance Uni-Directional

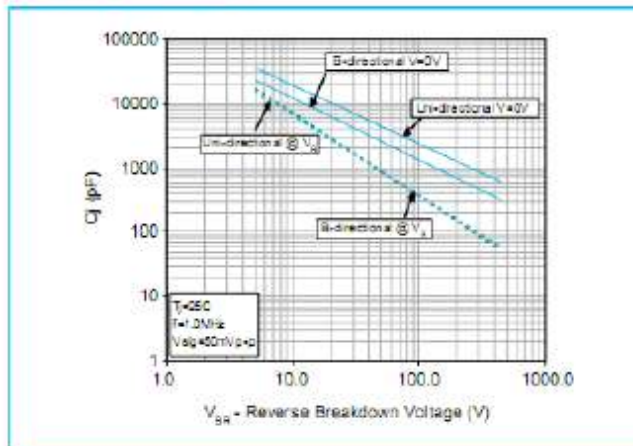


Figure 5 - Steady State Power Dissipation Derating Curve

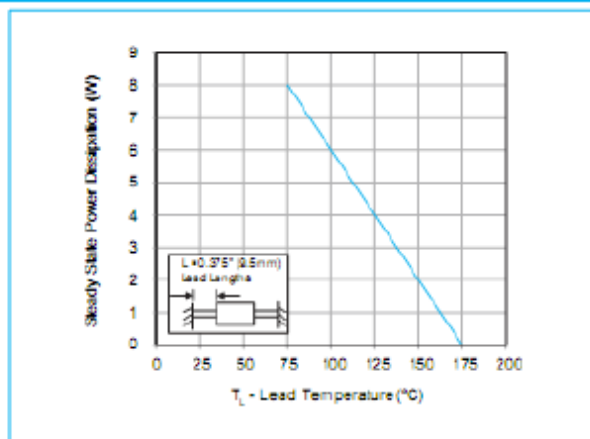
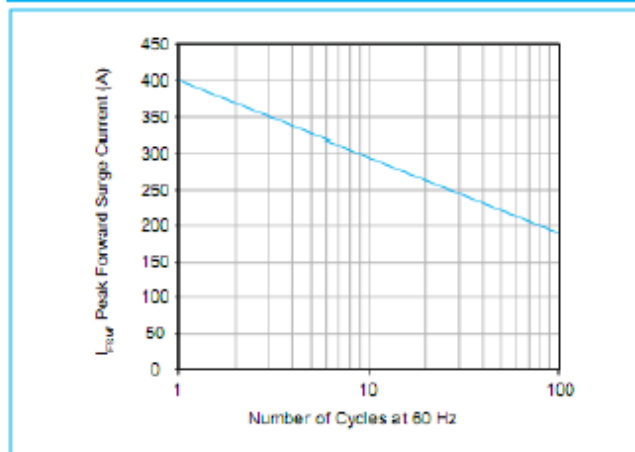


Figure 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

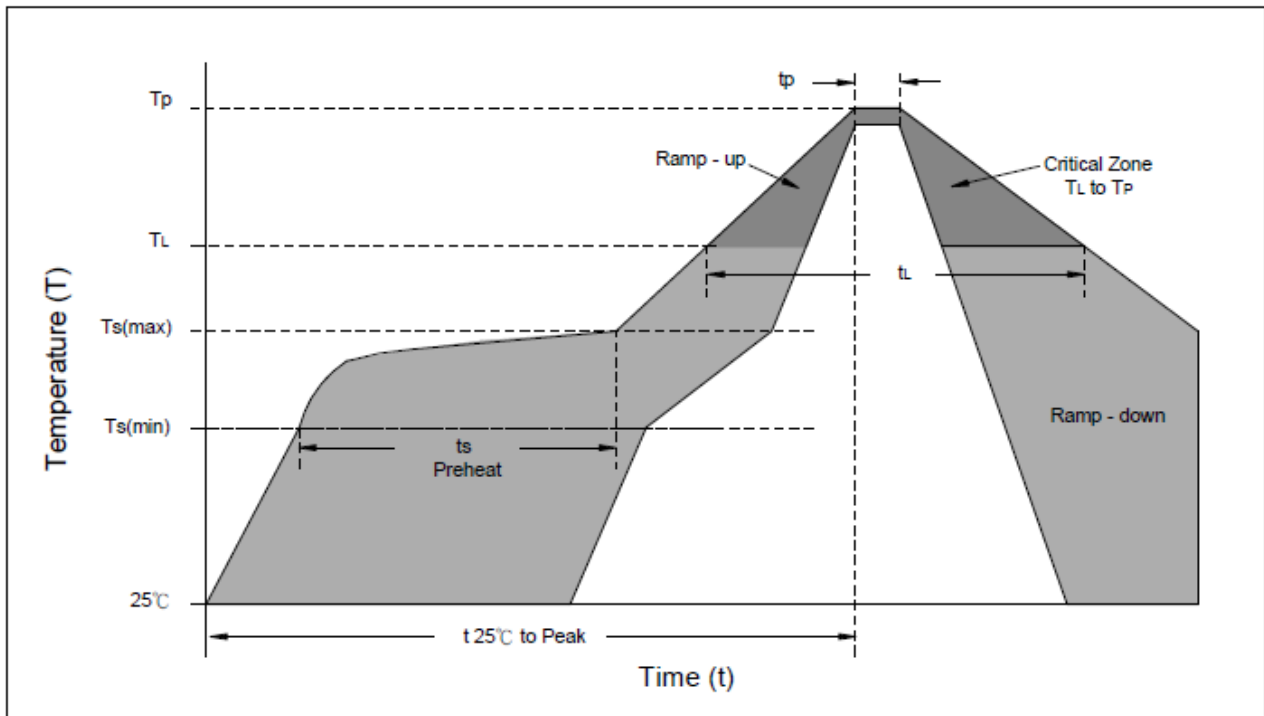


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■ Soldering Recommendation



Reflow Condition	Lead-free assembly
Preheat -Temperature Min(Ts min) -Temperature Min(Ts max) -Time (min to max) (ts)	150°C 200°C 60 – 180 seconds
Average ramp up rate -Temperature Liquidus (TL) to peak	3°C/second max
Ts(max) to TL -Ramp-up Rate	3°C/second max.
Reflow -Temperature Liquidus (TL) -Time (tL)	217°C 60 – 150 seconds
Peak Temperature (TP)	260°C
Time within 5°C of actual peak Temperature(TP)	20 – 40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to peak Temperature(TP)	8 minutes max.
Do not exceed	260°C

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■ Quantity

Package Type	Reel Size inch	Reel Kpcs
P600	13	0.8

■ Warehouse Storage Conditions of product

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