

Transient Voltage Suppression Diodes: 3KP Series

Axial Leaded Type 3000 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. 3000 W peak pulse power capability with a 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%



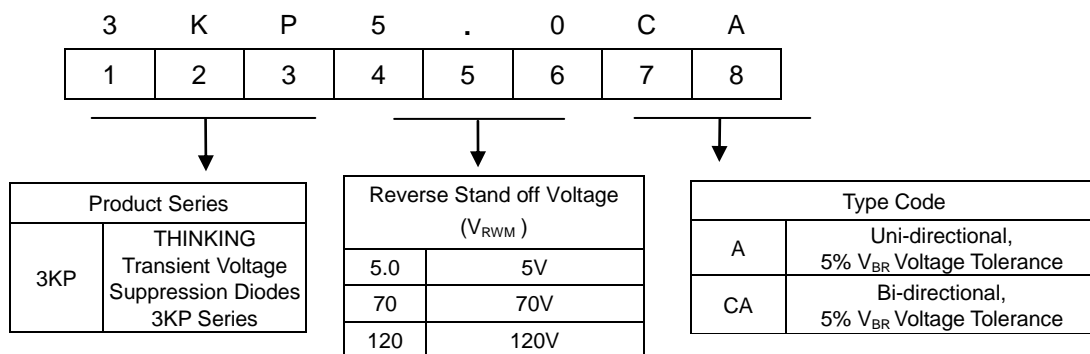
■ Recommended Applications

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



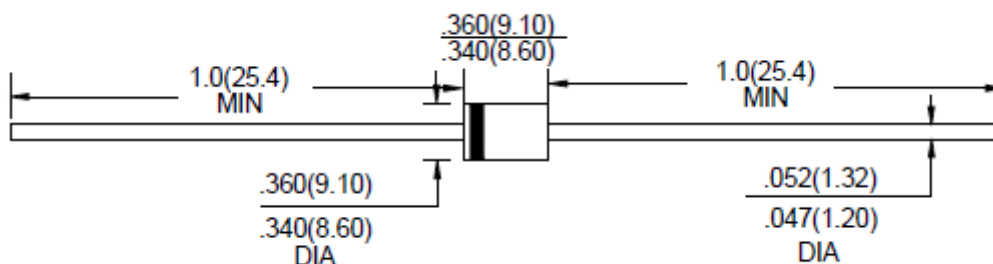
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■ Structures and Dimensions

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}	3000	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}	300	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} @ I _T		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)	I _T (mA)	V _C (V)	I _{pp} (A)	I _R (μA)
3KP5.0A	3KP5.0CA	5	6.4	7	50	9.2	326.1	5000
3KP6.0A	3KP6.0CA	6	6.67	7.37	50	10.3	291.3	5000
3KP6.5A	3KP6.5CA	6.5	7.22	7.98	50	11.2	267.9	2000
3KP7.0A	3KP7.0CA	7	7.78	8.6	50	12	250	1000
3KP7.5A	3KP7.5CA	7.5	8.33	9.21	5	12.9	232.6	250
3KP8.0A	3KP8.0CA	8	8.89	9.83	5	13.6	220.6	150
3KP8.5A	3KP8.5CA	8.5	9.44	10.4	5	14.4	208.3	50
3KP9.0A	3KP9.0CA	9	10	11.1	5	15.4	194.8	20
3KP10A	3KP10CA	10	11.1	12.3	5	17	176.5	15
3KP11A	3KP11CA	11	12.2	13.5	5	18.2	164.8	2
3KP12A	3KP12CA	12	13.3	14.7	5	19.9	150.8	2
3KP13A	3KP13CA	13	14.4	15.9	5	21.5	139.5	2
3KP14A	3KP14CA	14	15.6	17.2	5	23.2	129.3	2
3KP15A	3KP15CA	15	16.7	18.5	5	24.4	123	2
3KP16A	3KP16CA	16	17.8	19.7	5	26	115.4	2
3KP17A	3KP17CA	17	18.9	20.9	5	27.6	108.7	2
3KP18A	3KP18CA	18	20	22.1	5	29.2	102.7	2
3KP20A	3KP20CA	20	22.2	24.5	5	32.4	92.6	2
3KP22A	3KP22CA	22	24.4	26.9	5	35.5	84.5	2
3KP24A	3KP24CA	24	26.7	29.5	5	38.9	77.1	2
3KP26A	3KP26CA	26	28.9	31.9	5	42.1	71.3	2
3KP28A	3KP28CA	28	31.1	34.4	5	45.4	66.1	2
3KP30A	3KP30CA	30	33.3	36.8	5	48.4	62	2
3KP33A	3KP33CA	33	36.7	40.6	5	53.3	56.3	2
3KP36A	3KP36CA	36	40	44.2	5	58.1	51.6	2
3KP40A	3KP40CA	40	44.4	49.1	5	64.5	46.5	2
3KP43A	3KP43CA	43	47.8	52.8	5	69.4	43.2	2
3KP45A	3KP45CA	45	50	55.3	5	72.7	41.3	2
3KP48A	3KP48CA	48	53.3	58.9	5	77.4	38.8	2

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Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage	Breakage Voltage V_{BR} @ I_T		Test Current	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)	I_T (mA)	V_C (V)	I_{pp} (A)	I_R (μ A)
3KP51A	3KP51CA	51	56.7	62.7	5	82.4	36.4	2
3KP54A	3KP54CA	54	60	66.3	5	87.1	34.4	2
3KP58A	3KP58CA	58	64.4	71.2	5	93.6	32.1	2
3KP60A	3KP60CA	60	66.7	73.7	5	96.8	31	2
3KP64A	3KP64CA	64	71.1	78.6	5	103	29.1	2
3KP70A	3KP70CA	70	77.8	86	5	113	26.5	2
3KP75A	3KP75CA	75	83.3	92.1	5	121	24.8	2
3KP78A	3KP78CA	78	86.7	95.8	5	126	23.8	2
3KP85A	3KP85CA	85	94.4	104	5	137	21.9	2
3KP90A	3KP90CA	90	100	111	5	146	20.5	2
3KP100A	3KP100CA	100	111	123	5	162	18.5	2
3KP110A	3KP110CA	110	122	135	5	177	16.9	2
3KP120A	3KP120CA	120	133	147	5	193	15.5	2
3KP130A	3KP130CA	130	144	159	5	209	14.4	2
3KP150A	3KP150CA	150	167	185	5	243	12.3	2
3KP160A	3KP160CA	160	178	197	5	259	11.6	2
3KP170A	3KP170CA	170	189	209	5	275	10.9	2
3KP180A	3KP180CA	180	201	221	5	292	10.4	2
3KP190A	3KP190CA	190	211	233	5	308	9.7	2
3KP200A	3KP200CA	200	224	246	5	324	9.1	2
3KP210A	3KP210CA	210	237	258	5	340	8.6	2
3KP220A	3KP220CA	220	246	270	5	356	8.1	2

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

图1: 最大脉冲功率曲线

FIG1: Peak Pulse Power Rating Curve

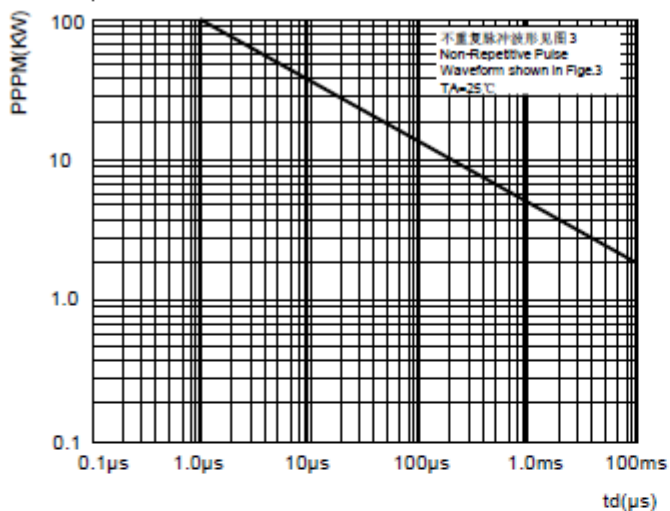


图2: 脉冲功率或电流与结温关系

FIG2: Pulse Power or Current vs. Initial Junction Temperature

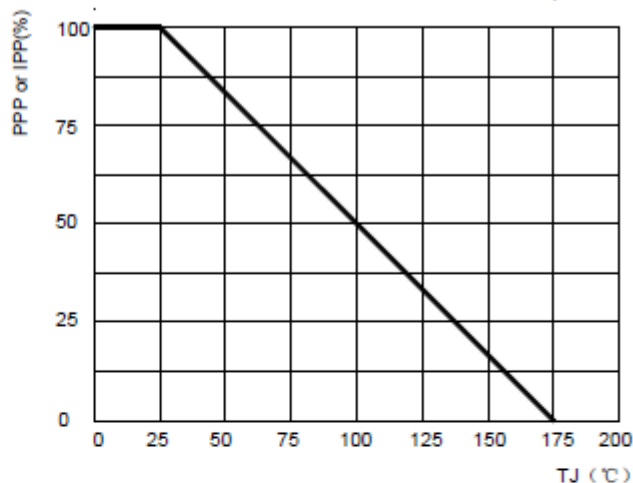


图3: 脉冲波形

FIG3: Pulse Waveform

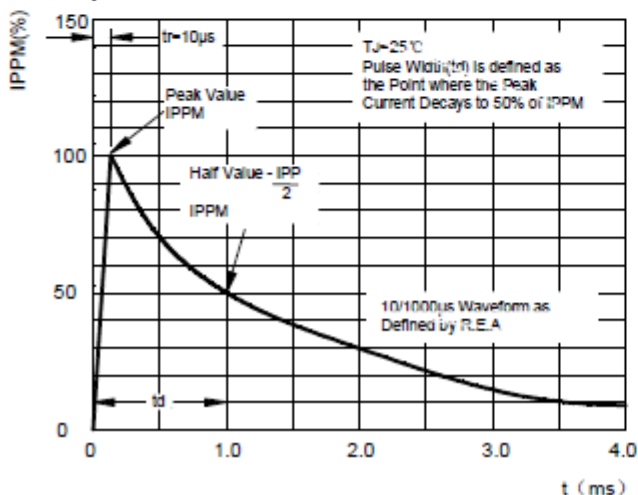


图4: 功率降额曲线

FIG4: Power Derating Curve

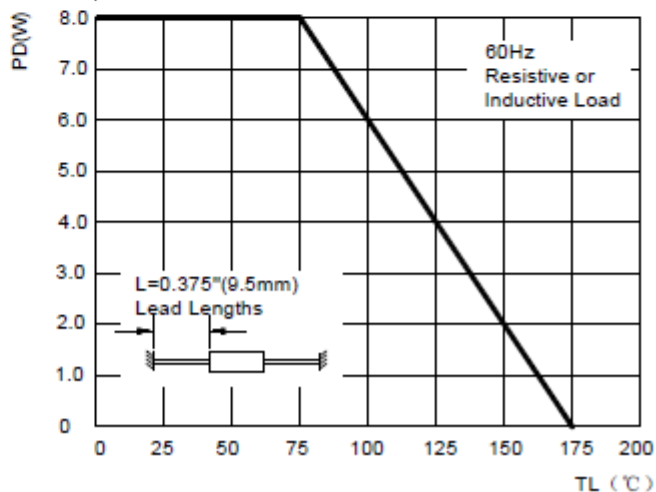
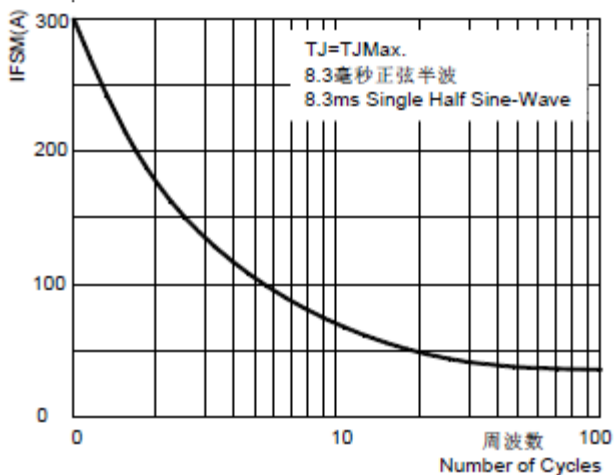


图5: 最大不重复浪涌电流

FIG5: Maximum Non-Repetitive Surge Current

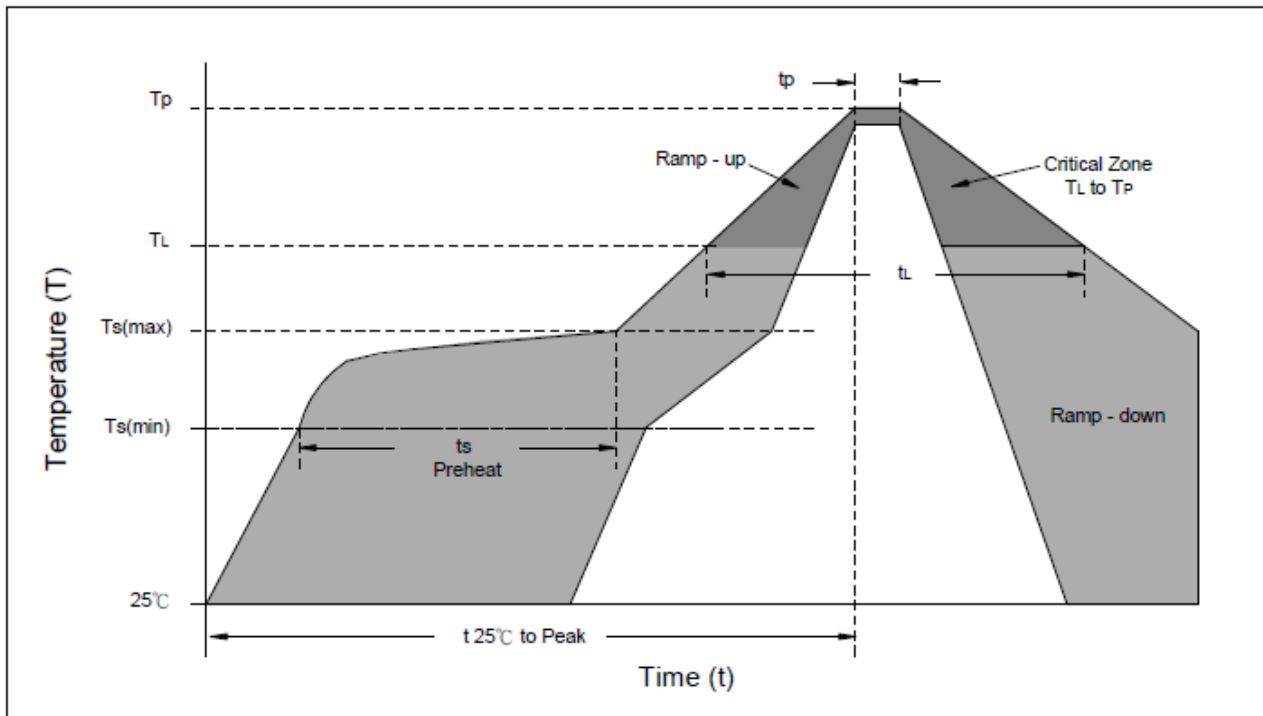


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■ Soldering Recommendation



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.