

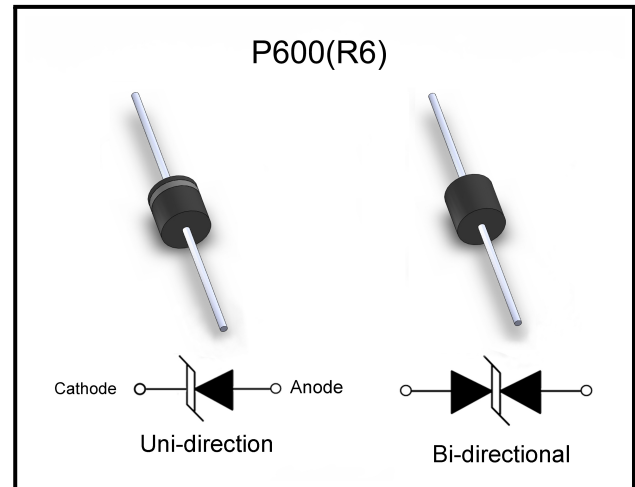
30KP Series

Transient Voltage Suppressor

Features

- Excellent clamping capability
- Low leakage current
- Low capacitance
- High surge capability
- Glass passivated chip
- Epoxy resin package
- Built-in strain relief
- Will not fatigue
- RoHS Compliant
- Fast response time: typically less than 1.0ps from 0 Volts to V_{BR} min

Package



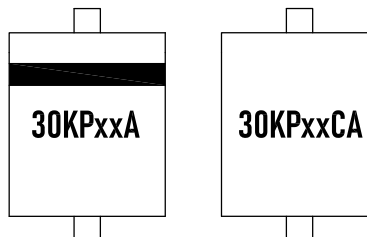
Mechanical Characteristics

- Package: P600 plastic package.
- Lead Finish: Matte Tin
- Case Material: Epoxy Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020

Applications

- Telecom
- Computer
- Industrial electronic
- Consumer electronic

Making Code



Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
P600	Tape/Box, Box	300	BORN SPEC
	Tape/Reel, 13" reel	800	EIA STD RS-296

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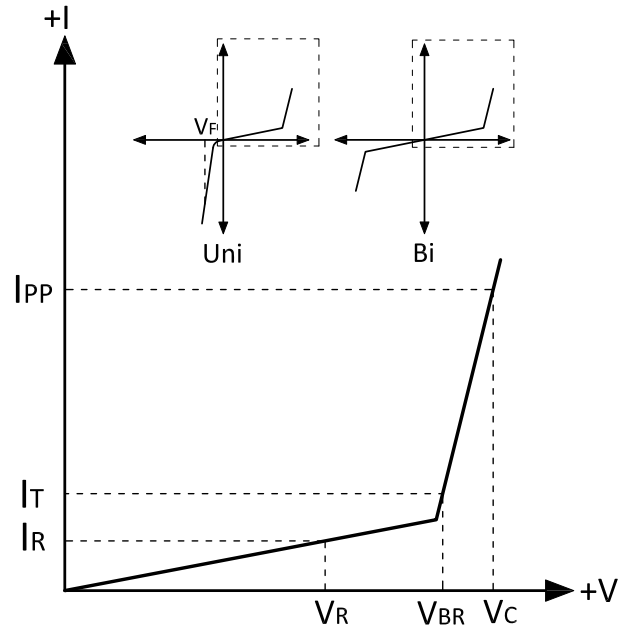


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Electrical Parameters

Parameter	Definition
C_J	Junction Capacitance - typical capacitance measured with 0V or V_R bias
I_{PP}	Peak Pulse Current - maximum rated peak impulse current
V_C	Clamping Voltage - Peak voltage measured across the suppressor at a specified I_{ppm}
V_{BR}	Breakdown Voltage - Maximum voltage that flows though the TVS at a specified test current (I_T)
I_R	Leakage Current - maximum peak off-state current measured at V_R
V_R	Peak Off-state Voltage - maximum voltage that can be applied while maintaining off state



Absolute Maximum Ratings ($T_A=+25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Value	Units
Peak Pulse Power Dissipation(Note1)	P_{PPM}	30000	W
Steady State Power Dissipation (Note2)	P_D	8	W
Peak Forward Surge Current (Note3)	I_{FSM}	400	A
Maximum Instantaneous Forward Voltage at 100A (Note4)	V_{FM}	15	V
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	8	$^{\circ}\text{C/W}$
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	40	$^{\circ}\text{C/W}$
Operating Junction Temperature Range	T_J	-55 to 150	$^{\circ}\text{C}$
Storage Temperature Range	T_{SJG}	-55 to 150	$^{\circ}\text{C}$

Notes:

- (1) Non-repetitive current pulse , 10/1000us Waveform.
- (2) Infinite Heat Sink at $T_L=75^{\circ}\text{C}$, at 0.375"(9.5mm) lead length, P.C.B. mounted.
- (3) Measured on 8.3ms single half sine wave or equivalent square wave, duty cycle=4 per minute maximum.
- (4) For Unidirectional Only.



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Absolute Maximum Ratings ($T_A = +25^\circ\text{C}$, unless otherwise noted)

Part Number		Reverse Stand-Off Voltage V_R	Breakdown Voltage $V_{BR}@ I_T$		Test Current I_T	Maximum Clamping Voltage $V_C@ I_{pp}$	Maximum Peak Pulse Current I_{pp}	Maximum Reverse Leakage $I_R@ V_R$
(Uni)	(Bi)	(V)	Min.(V)	Max.(V)	(mA)	(V)	(A)	(μA)
30KP28A	30KP28CA	28	31.28	34.41	50	50	606	5000
30KP30A	30KP30CA	30	33.51	36.86	50	55.2	548.9	5000
30KP33A	30KP33CA	33	36.9	40.59	50	58.5	517.9	5000
30KP36A	30KP36CA	36	40.2	44.22	50	61.8	490.3	5000
30KP39A	30KP39CA	39	43.6	47.96	20	67.2	450.9	2000
30KP42A	30KP42CA	42	46.9	51.59	10	72	420.8	1000
30KP43A	30KP43CA	43	48	52.8	10	73	415.1	1000
30KP45A	30KP45CA	45	50.3	55.33	5	77.4	391.5	250
30KP48A	30KP48CA	48	53.6	58.96	5	81.6	371.3	150
30KP51A	30KP51CA	51	57	62.7	5	86.4	350.7	50
30KP54A	30KP54CA	54	60.3	66.33	5	91.4	331.5	20
30KP58A	30KP58CA	58	64.8	71.28	5	92.4	327.9	20
30KP60A	30KP60CA	60	67	73.7	5	102	297.1	15
30KP64A	30KP64CA	64	71.5	78.65	5	104	291.3	10
30KP66A	30KP66CA	66	73.7	81.07	5	107	283.2	2
30KP70A	30KP70CA	70	78.2	86.02	5	109	278	2
30KP71A	30KP71CA	71	79.3	87.23	5	111.5	271.7	2
30KP72A	30KP72CA	72	80.4	88.44	5	114	265.8	2
30KP75A	30KP75CA	75	83.8	92.18	5	119.4	253.8	2
30KP78A	30KP78CA	78	87.1	95.81	5	129	234.9	2
30KP84A	30KP84CA	84	93.8	103.18	5	139.2	217.7	2
30KP90A	30KP90CA	90	100.5	110.55	5	146.4	207	2
30KP96A	30KP96CA	96	107.2	117.92	5	156	194.2	2
30KP102A	30KP102CA	102	113.9	125.29	5	165.6	183	2
30KP108A	30KP108CA	108	120.6	132.66	5	175.2	172.9	2
30KP120A	30KP120CA	120	134	147.4	5	194.4	155.9	2
30KP132A	30KP132CA	132	147.4	162.14	5	213	142.3	2
30KP144A	30KP144CA	144	160.8	176.88	5	223.2	135.8	2
30KP150A	30KP150CA	150	167.6	184.36	5	233.4	129.8	2
30KP156A	30KP156CA	156	174.3	191.73	5	245	123.7	2
30KP160A	30KP160CA	160	178.7	196.57	5	252.6	120	2

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Part Number		Reverse Stand-Off Voltage V_R	Breakdown Voltage $V_{BR}@ I_T$		Test Current I_T	Maximum Clamping Voltage $V_C@ I_{PP}$	Maximum Peak Pulse Current I_{PP}	Maximum Reverse Leakage $I_R@ V_R$
(Uni)	(Bi)	(V)	Min.(V)	Max.(V)	(mA)	(V)	(A)	(uA)
30KP168A	30KP168CA	168	187.7	206.47	5	272.4	111.2	2
30KP170A	30KP170CA	170	189.9	208.89	5	275	110.2	2
30KP180A	30KP180CA	180	201.1	221.21	5	290.4	104.3	2
30KP198A	30KP198CA	198	221.2	243.32	5	319.8	86.9	2
30KP216A	30KP216CA	216	241.3	265.43	5	348.6	58	2
30KP240A	30KP240CA	240	268.1	294.91	5	387	78.3	2
30KP258A	30KP258CA	258	288.2	317.02	5	416.4	72.8	2
30KP260A	30KP260CA	260	290.4	319.44	5	416	72.8	2
30KP270A	30KP270CA	270	301.6	331.76	5	436.2	69.5	2
30KP280A	30KP280CA	280	312.8	344.08	5	464	65.3	2
30KP288A	30KP288CA	288	321.7	353.87	5	469.9	64.5	2
30KP300A	30KP300CA	300	335.1	368.6	5	484	62	2
30KP360A	30KP360CA	360	400.0	440.0	5	640.0	47.3	2
30KP400A	30KP400CA	400	440.0	490.0	5	704.0	42.6	2



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Ratings and Characteristic Curves ($T_A = +25^\circ\text{C}$, unless otherwise noted)

Figure 1: Peak Pulse Power Rating

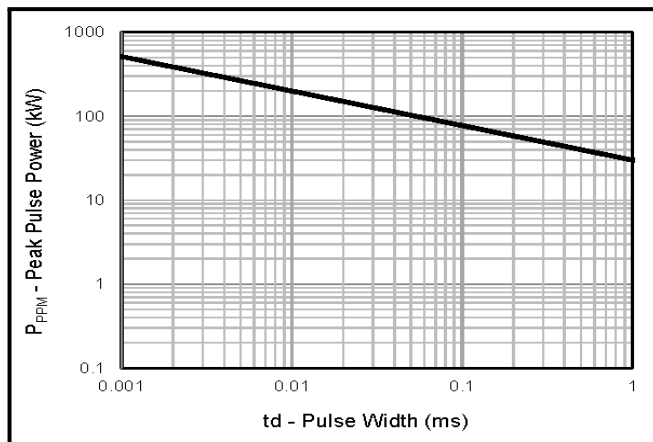


Figure 2: Pulse Derating Curve

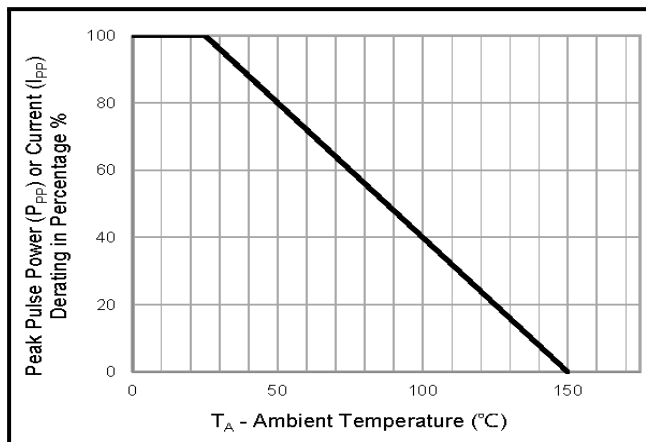


Figure 3: Pulse Waveform

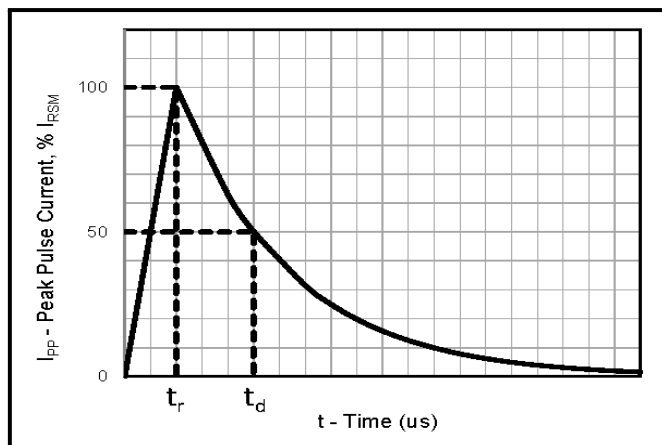


Figure 4 : Typical Junction Capacitance

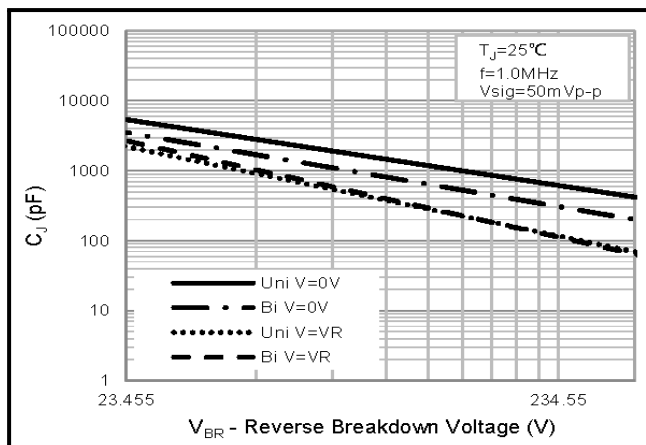


Figure 5: Steady State Power Dissipation Derating

Curve

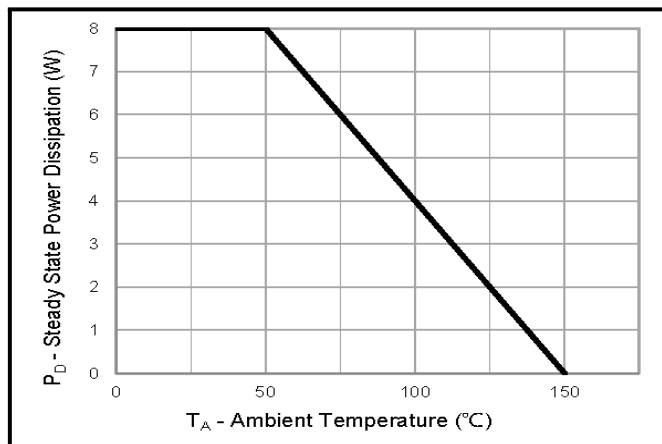
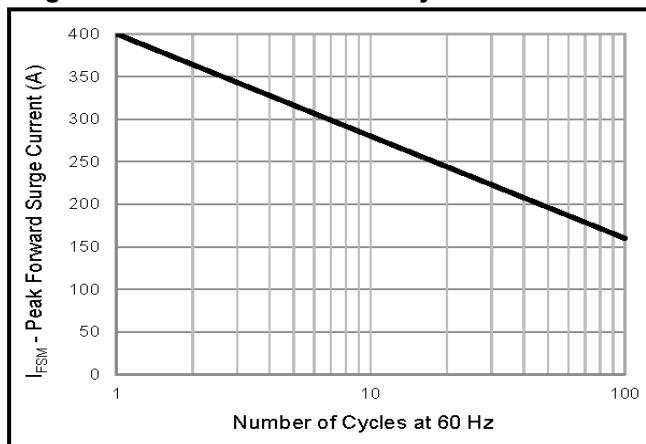


Figure 6 : Maximum Non-Repetitive Peak Forward

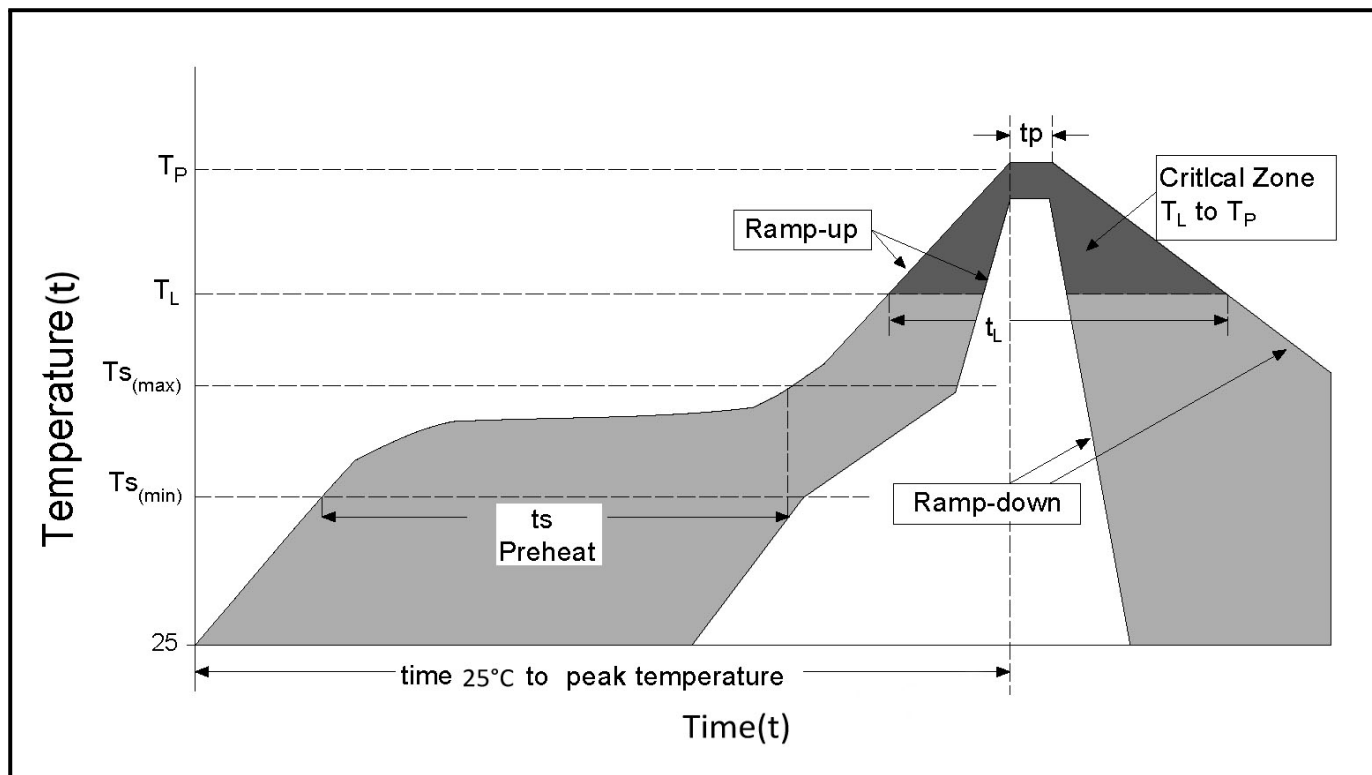
Surge Current Uni-Directional Only



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Soldering Parameters



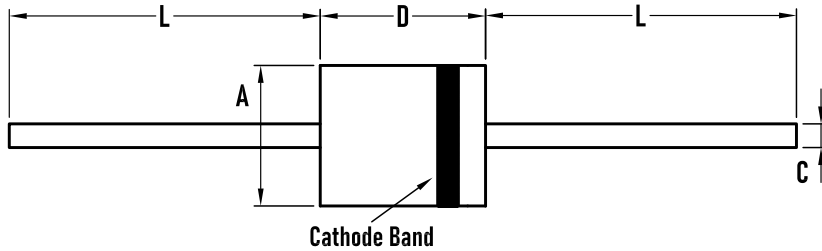
Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{S(min)}$)	150°C
	- Temperature Max ($T_{S(max)}$)	200°C
	- Time (min to max) (t_s)	60 - 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (t_L)	60 - 150 secs
Peak Temperature (T_P)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 - 40 secs
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (t)		8 minutes Max.
Do not exceed		260°C



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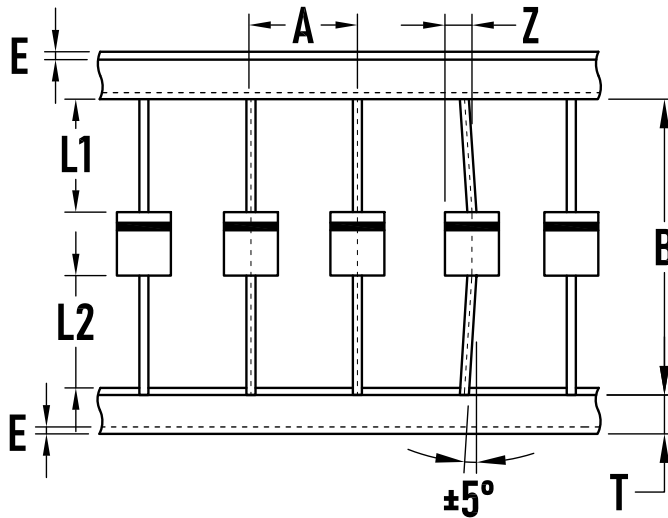
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Package Mechanical Data - P600



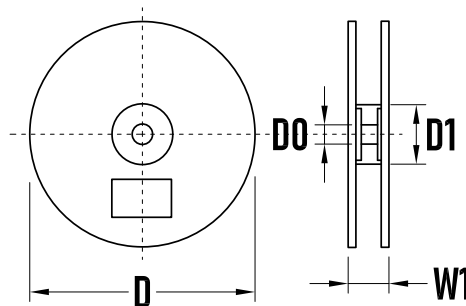
SYMBOL	Inches		MILLIMETER	
	MIN	MAX	MIN	MAX
A	0.339	0.358	8.6	9.1
C	0.048	0.052	1.22	1.32
D	0.339	0.358	8.6	9.1
L	1	—	25.4	—

Packaging Tape-P600



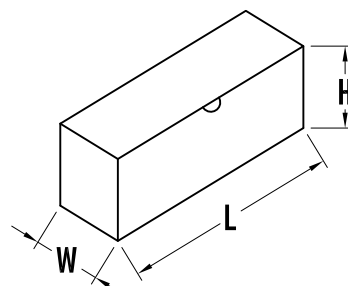
SYMBOL	Dimension(mm)
A	10.0±0.5
B	53.0±1.0
Z	1.2Max.
T	6.0±0.4
E	0.8Max.
L1-L2	1.0Max.

Packaging Reel



SYMBOL	Dimension(mm)
D	330.0±3.0
D0	16.4±2.0
D1	86.0±2.0
W1	76.0±3.0
Quantity	800PCS

Packaging BOX



SYMBOL	Dimension(mm)
L	250.0±5.0
W	75.0±5.0
H	114.0±5.0
Quantity	300PCS

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