

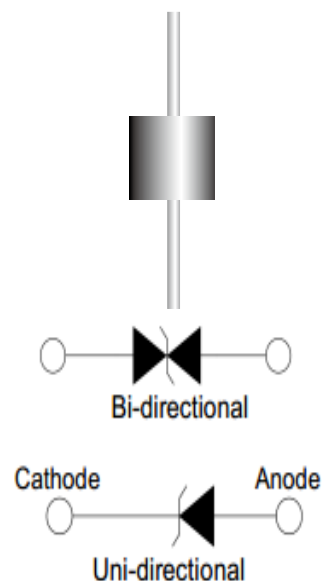
Description

30KPA Series 30000W

The 30KPA Series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

Features

- Halogen-free
- Rohs compliant
- Typical maximum temperature coefficient
 $\Delta V_{BR} = 0.1\% \times V_{BR}@25^{\circ}\text{C} \times \Delta T$
- Glass passivated Chip junction in P-600 package
- 30000W peak pulse capability at 10×1000μs waveform, repetition rate (duty cycles):0.01%
- Fast response time: typically less than 1.0ps from 0 Volts to BV min
- Excellent clamping capability
- Low incremental surge resistance
- Typical I_R less than 2μA above 11V
- High temperature soldering guaranteed: 260°C/40 seconds / 0.375", (9.5mm) lead length, 5lbs., (2.3kg) tension
- Plastic package has underwriters laboratory flammability classification 94v-0



Application

- I/O interface
- AC/DC power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

Maximum Ratings and Characteristics (Ta=25°C unless otherwise specified)

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation by 10x1000μs test waveform (Fig.1)(Note 1)	P_{PPM}	30000	Watts
Steady State Power Dissipation on infinite heat sink at TL=75°C (Fig. 5)	P_D	8.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Unidirectional only (Note 2)	I_{FSM}	400	Amps
Maximum Instantaneous Forward Voltage at 25A for Unidirectional only (Note 3)	V_F	3.5/5.0	V
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-55 to 175	°C
Typical Thermal Resistance Junction to Lead	R_{uJL}	8.0	°C/W
Typical Thermal Resistance Junction to Ambient	R_{uJA}	40	°C/W

Notes:

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, duty cycle=4 per minute maximum.
3. $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$.

Electrical Characteristics

30KPA PART NUMBER UNI/BID-DIRECTION	REVERSE STAND-OFF VOLTAGE $V_{RWM}(V)$	BREAKDOWN VOLTAGE $V_{BR}(V)$ Min.@ I_T	BREAKDOWN VOLTAGE $V_{BR}(V)$ Max.@ I_T	TEST CURRENT $I_T(mA)$	MAXIMUM CLAMPING VOLTAGE @ $I_{PP} V_C(V)$	PEAK PULSE CURRENT $I_{PP}(A)$	REVERSE LEAKAGE @ $V_{RWM} I_R$ (μA)
30KPA28A/CA	28	31.28	34.24	50	52.0	610.0	5000
30KPA30A/CA	30	33.51	36.69	50	55.2	552.0	5000
30KPA33A/CA	33	36.9	40.4	50	58.5	521.4	2000
30KPA36A/CA	36	40.2	44.0	50	61.8	493.5	1000
30KPA39A/CA	39	43.6	47.7	20	67.2	453.9	250
30KPA42A/CA	42	46.8	51.4	10	72.0	423.6	150
30KPA45A/CA	45	50.3	55.0	5	77.4	394.1	50
30KPA48A/CA	48	53.5	58.7	5	81.6	373.8	20
30KPA51A/CA	51	56.9	62.4	5	86.4	353.0	15
30KPA54A/CA	54	60.2	66.0	5	91.4	333.7	10
30KPA58A/CA	58	64.7	70.9	5	92.4	330.1	10
30KPA60A/CA	60	66.9	73.4	5	102.0	299.0	10
30KPA64A/CA	64	71.4	78.3	5	104.0	293.3	10
30KPA66A/CA	66	73.6	80.7	5	107.0	285.0	10
30KPA70A/CA	70	78.1	85.6	5	109.0	279.8	10
30KPA72A/CA	72	80.3	88.1	5	114.0	267.5	10
30KPA75A/CA	75	83.6	91.7	5	119.4	255.4	10
30KPA78A/CA	78	87.0	95.4	5	129.0	236.4	10
30KPA84A/CA	84	93.7	102.7	5	139.2	219.1	10
30KPA90A/CA	90	100.4	110.1	5	146.4	208.3	10
30KPA96A/CA	96	107.0	117.4	5	156.0	198.5	10
30KPA102A/CA	102	113.7	124.7	5	165.6	184.2	10
30KPA108A/CA	108	120.4	132.1	5	175.2	174.1	10
30KPA120A/CA	120	133.8	146.8	5	194.4	156.9	10
30KPA132A/CA	130	147.2	161.4	5	213.0	142.2	10
30KPA144A/CA	144	160.6	176.1	5	223.2	136.6	10
30KPA150A/CA	150	167.3	183.5	5	233.4	130.7	10
30KPA156A/CA	156	173.9	190.8	5	245.0	124.5	10
30KPA160A/CA	160	178.4	195.7	5	252.6	120.7	10
30KPA168A/CA	168	187.3	205.5	5	272.4	112.0	10
30KPA170A/CA	170	189.6	207.9	5	275.0	110.9	10
30KPA180A/CA	180	200.7	220.1	5	290.4	105.0	10
30KPA198A/CA	198	220.8	242.2	5	319.8	95.4	10
30KPA216A/CA	216	240.8	264.2	5	348.6	87.5	10
30KPA240A/CA	240	267.6	293.5	5	387.0	78.8	10
30KPA258A/CA	258	287.7	315.5	5	416.4	73.2	10
30KPA260A/CA	260	289.9	318.0	5	416.0	73.3	10
30KPA270A/CA	270	301.1	330.2	5	436.2	69.9	10
30KPA280A/CA	280	312.2	342.4	5	464.0	65.7	10
30KPA2288A/CA	288	321.1	352.2	5	519.8	58.8	10

Notes: For bidirectional type having V_{RWM} of 30V and less, the I_R limit is double.

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

Figure 1 - Peak Pulse Power Rating Curve

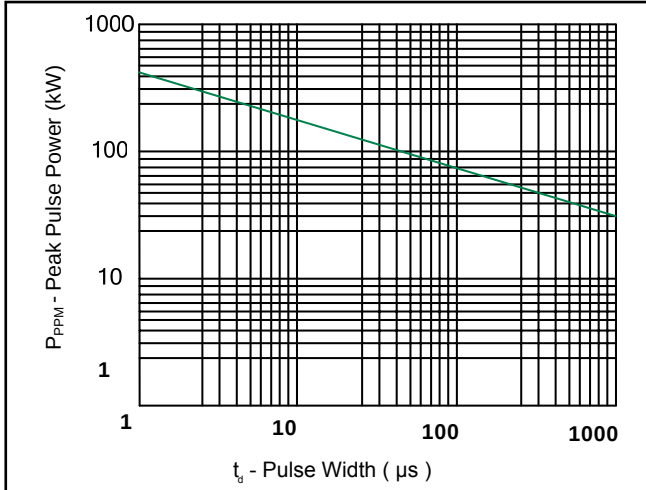


Figure 2 - Pulse Derating Curve

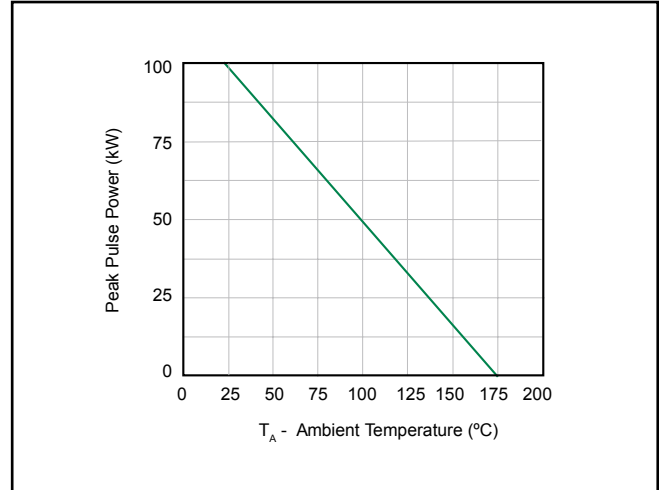


Figure 3 - Pulse Waveform

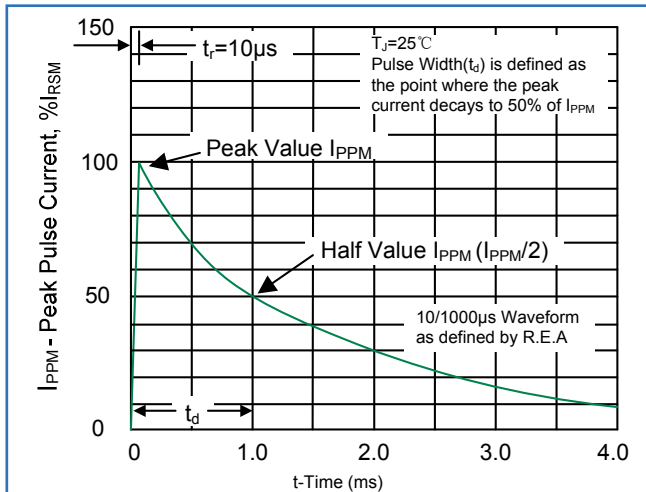


Figure 4 - Typical Junction Capacitance

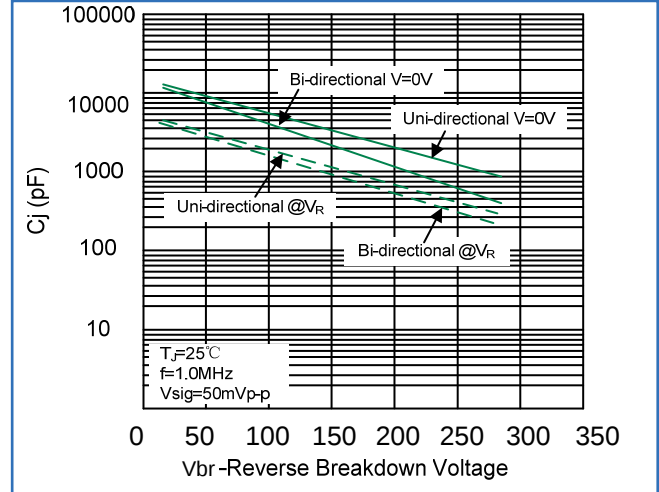


Figure 5 - Steady State Power Derating Curve

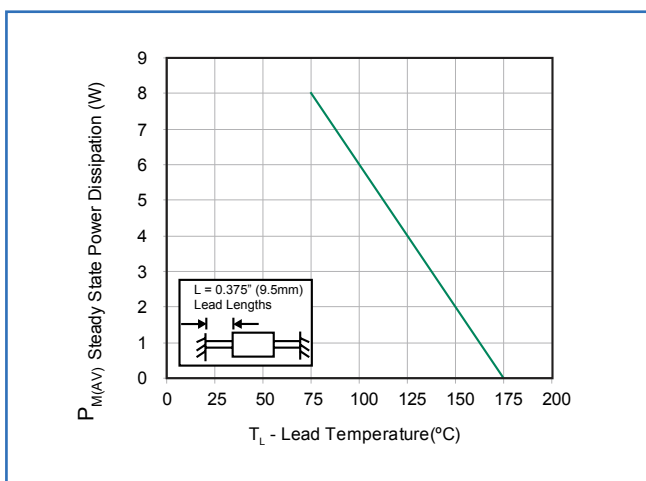
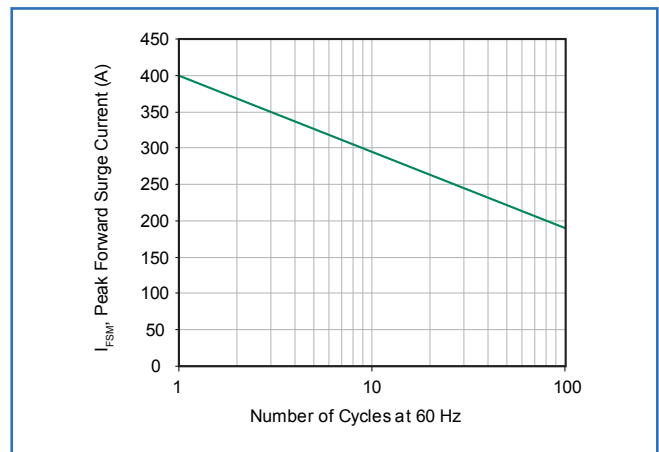
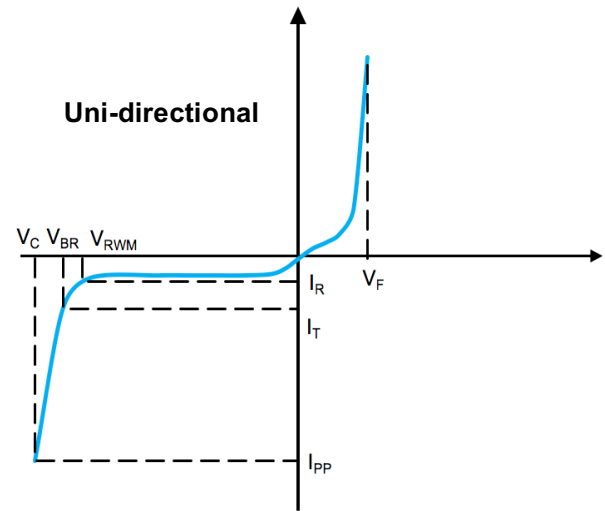
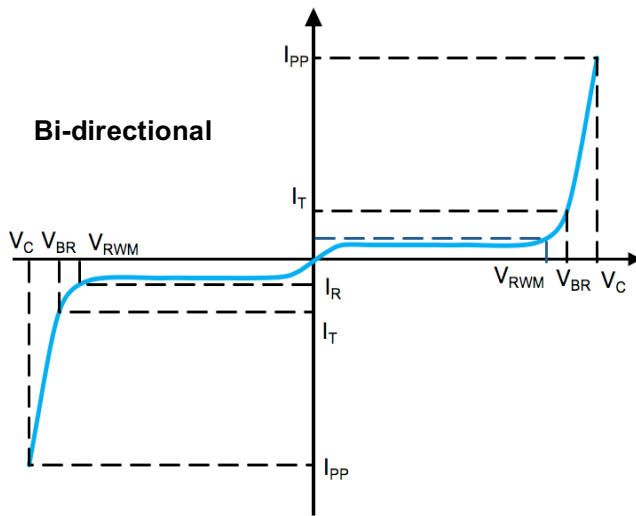


Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

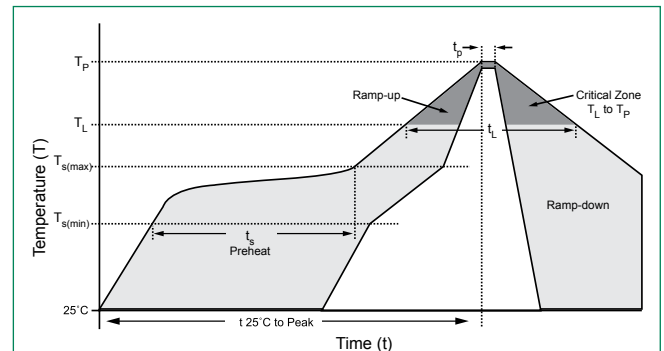


I-V Curve Characteristics



Recommended Soldering Conditions

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 (min to max) (t_s)	60 – 150 seconds
Peak Temperature (T_p)		260 ^{+0/-5} °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 (T_p)		8 minutes Max.
Do not exceed		280°C



Flow/Wave Soldering(Solder Dipping)

Peak Temperature :	265°C
Dipping Time :	10 seconds
Soldering :	1 time

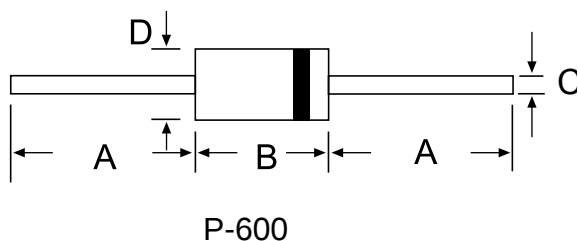
Physical Specifications

Weight	0.015oz., 0.4g
Case	JEDEC DO-204AC (DO-15) molded plastic body over passivated junction.
Polarity	Color band denotes the cathode except Bipolar.
Terminal	Matte Tin axial leads, solderable per JESD22-B102D.

Environmental Specifications

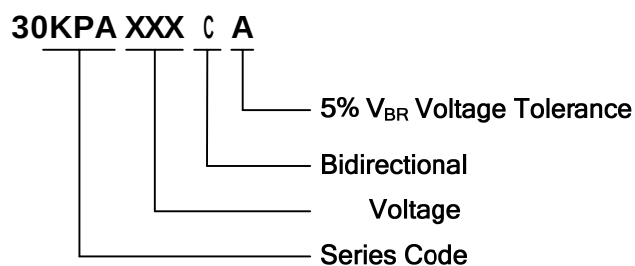
Temperature Cycle	JESD22-A104
Pressure Cooker	JESD 22-A102
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Thermal Shock	JESD22-A106

Dimensions

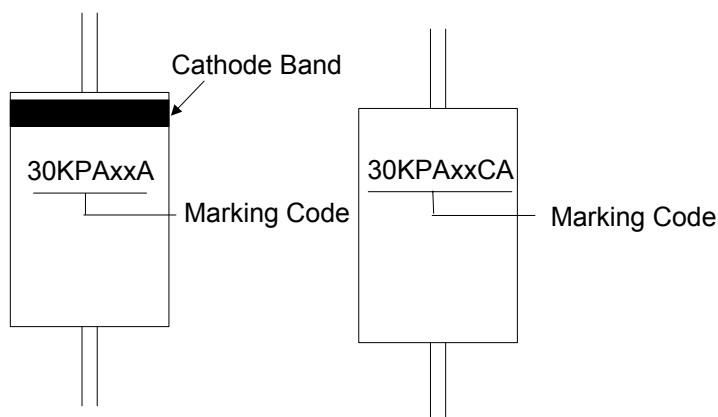


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	1.000	-	25.40	-
B	0.340	0.360	8.60	9.10
C	0.048	0.052	1.22	1.32
D	0.340	0.360	8.60	9.10

Part Number Code



Marking Code



Packaging

Part Number	Component Package	Quantity	Packing Option
30KPAxxxxxx	P-600	300	Box

Packaging Dementions Unit:Inches(Millimeters)

