

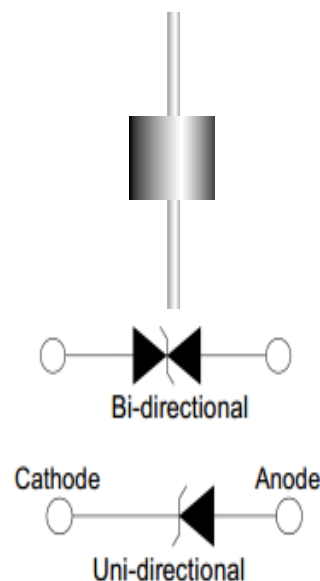
Description

15KPA Series 15000W

The 15KPA 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
- 15000W 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 Characteris (Ta=25°C unless otherwise specified)

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation by 10x1000μs test waveform (Fig.1)(Note 1)	P_{PPM}	8000	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

15KPA PART NUMBER UNI/BIDIRECTION	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)
15KPA17A/CA	17	18.99	20.79	50	29.3	512	5000
15KPA18A/CA	18	20.11	22.02	50	30.9	485	5000
15KPA20A/CA	20	22.34	24.46	20	34.3	437	1500
15KPA22A/CA	22	24.57	26.91	10	37.1	404	500
15KPA24A/CA	24	26.81	29.35	5	40.5	369	150
15KPA26A/CA	26	29.04	31.08	5	44.0	347	50
15KPA28A/CA	28	31.28	34.24	5	47.5	316	25
15KPA30A/CA	30	33.51	36.39	5	50.7	296	15
15KPA33A/CA	33	36.9	40.4	5	54.8	274	2
15KPA36A/CA	36	40.2	44	5	59.7	251	2
15KPA40A/CA	40	44.7	48.9	5	65.8	228	2
15KPA43A/CA	43	48	52.6	5	69.7	215	2
15KPA45A/CA	45	50.3	55	5	73.0	205	2
15KPA48A/CA	48	53.6	58.7	5	77.7	193	2
15KPA51A/CA	51	57	62.4	5	82.8	181	2
15KPA54A/CA	54	60.3	66	5	87.5	171	2
15KPA58A/CA	58	64.8	70.9	5	94.0	160	2
15KPA60A/CA	60	67	73.4	5	97.3	154	2
15KPA64A/CA	64	71.5	78.3	5	104.0	144	2
15KPA70A/CA	70	78.2	85.6	5	114.0	132	2
15KPA75A/CA	75	83.8	91.7	5	122.0	123	2
15KPA78A/CA	78	87.1	95.4	5	126.0	119	2
15KPA85A/CA	85	94.9	104	5	137.0	109	2
15KPA90A/CA	90	100.5	110.1	5	146.0	103	2
15KPA100A/CA	100	111.7	122.3	5	162.0	93	2
15KPA110A/CA	110	122.9	134.5	5	178.0	84	2
15KPA120A/CA	120	134.0	146.8	5	193.0	78	2
15KPA130A/CA	130	145.2	159.0	5	209.0	72	2
15KPA150A/CA	150	167.6	183.5	5	243.0	62	2
15KPA160A/CA	160	178.7	195.7	5	259.0	58	2
15KPA170A/CA	170	189.9	207.9	5	275.0	55	2
15KPA180A/CA	180	201.0	220.1	5	291.0	52	2
15KPA200A/CA	200	223.4	244.6	5	322.0	47	2
15KPA220A/CA	220	245.7	269.1	5	356.0	42	2
15KPA240A/CA	240	268.1	293.5	5	388.0	39	2
15KPA260A/CA	260	290.4	324.4	5	419.0	36	2
15KPA280A/CA	280	312.8	349.5	5	452.0	33	2

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

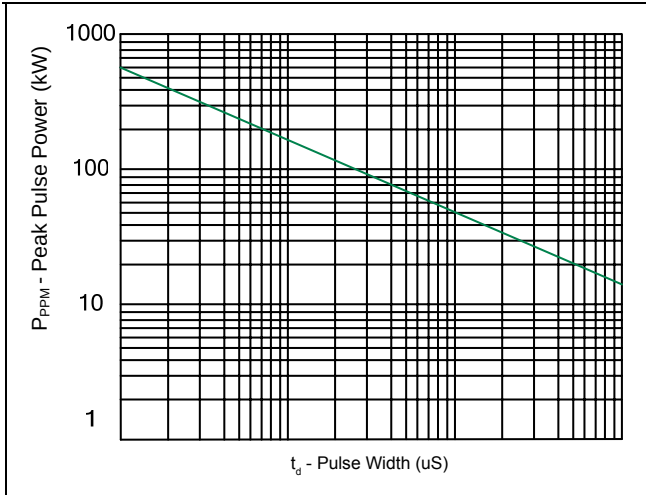


Figure 2 - Pulse Derating Curve

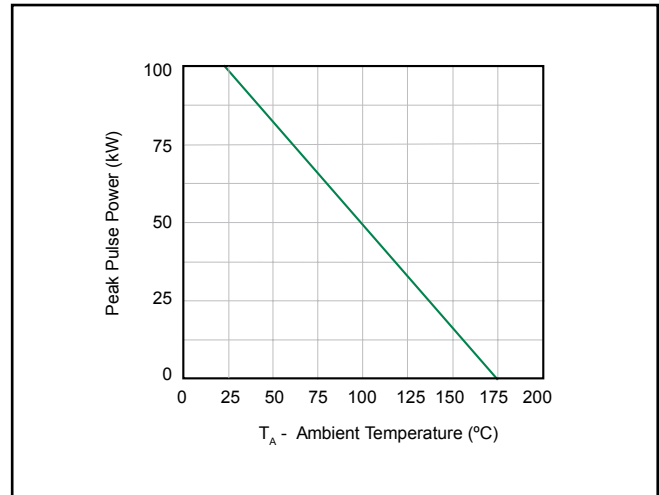


Figure 3 - Pulse Waveform

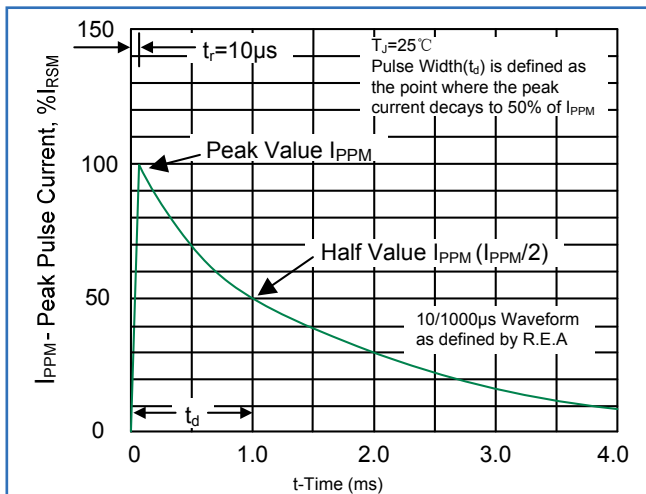


Figure 4 - Typical Junction Capacitance

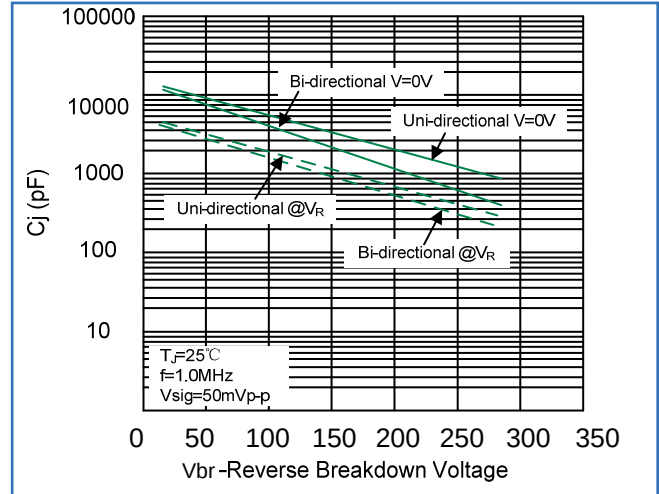


Figure 5 - Steady State Power Derating Curve

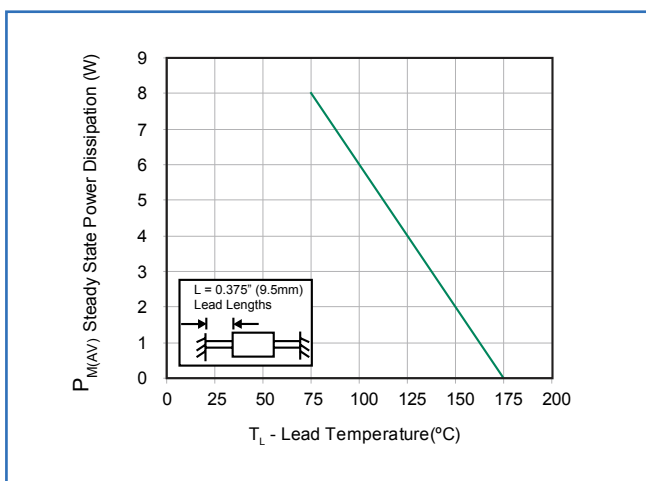
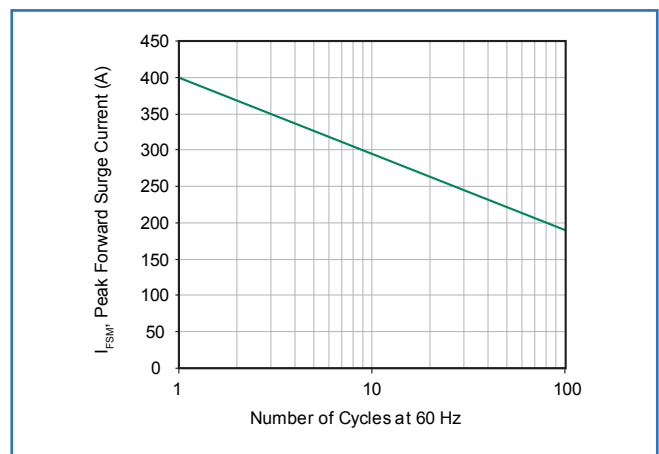
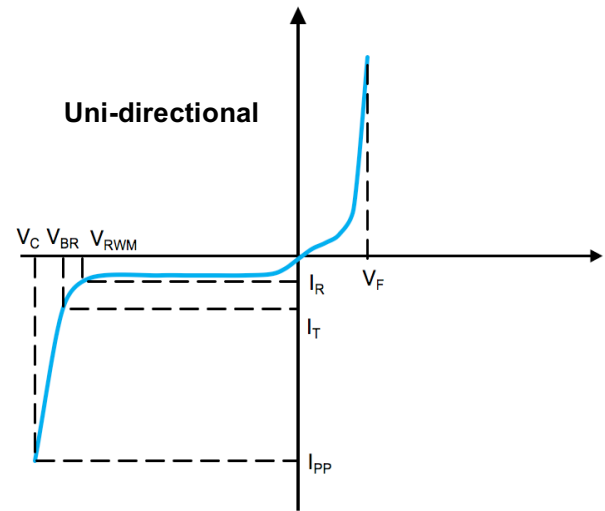
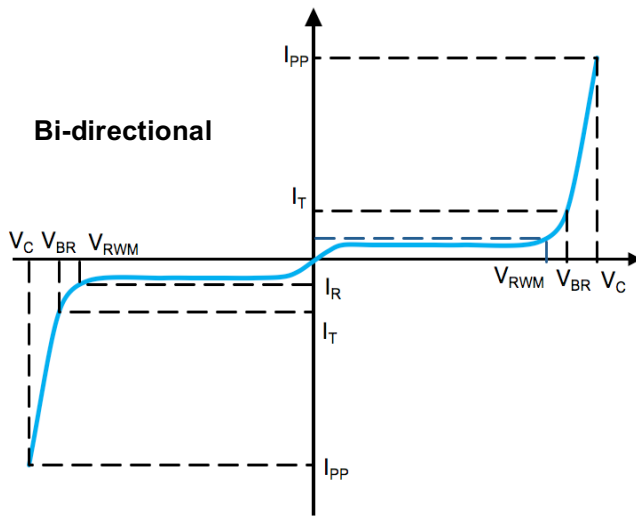


Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

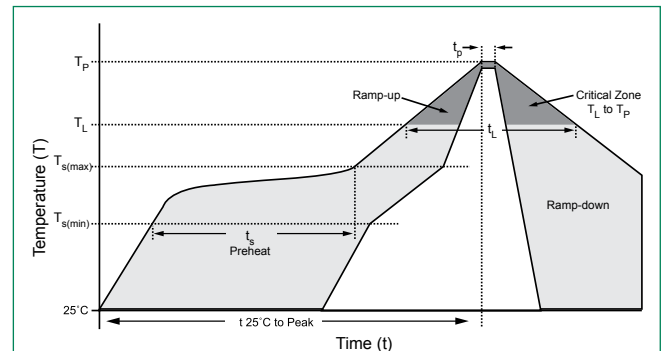


I-V Curve Characteristics



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

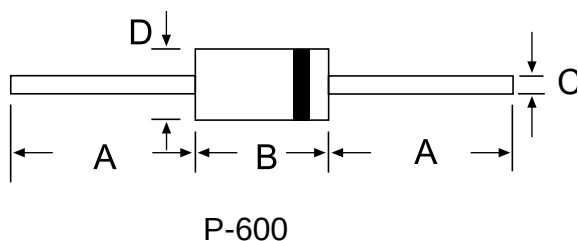
Physical Specifications

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

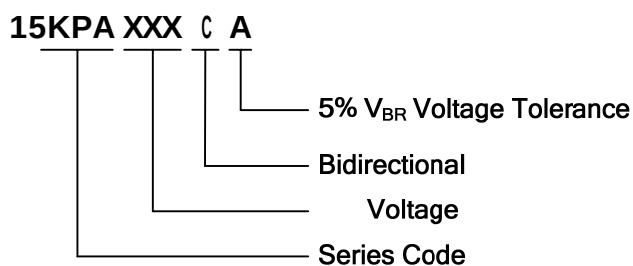
Temperature Cycle	JESD22-A104
Pressure Cooker	JESD 22-A102
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Thermal Shock	JESD22-A106

Dimensions

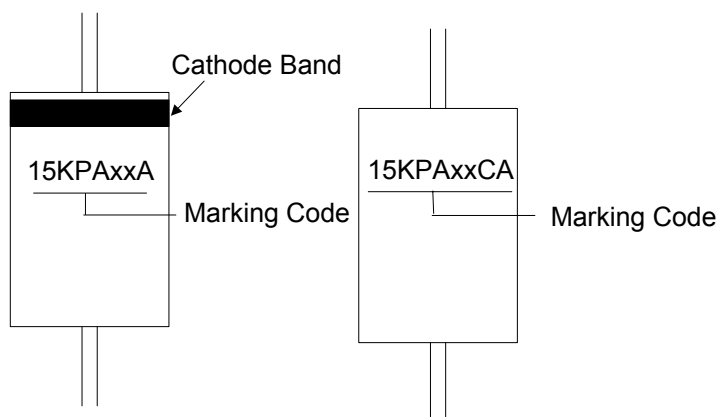


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	1.000	-	25.40	-
B	0.340	0.360	8.60	9.10
C	0.048	0.052	1.22	1.32
D	0.340	0.360	8.60	9.10

Part Number Code



Marking Code



Packaging

Part Number	Component Package	Quantity	Packing Option
15KPAxxxxxx	P-600	300	Box

Packaging Dementions Unit:Inches(Millimeters)

