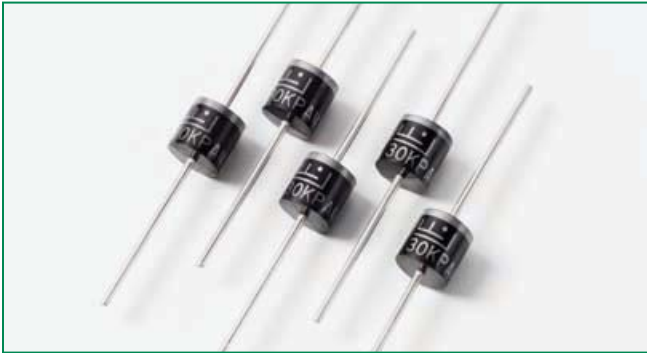



RoHS 30KPA Series

Agency Approvals

AGENCY	AGENCY FILE NUMBER
	E230531

**Maximum Ratings and Thermal Characteristics
(T_A=25°C unless otherwise noted)**

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation by 10x1000µs test waveform (Fig.1) (Note 1)	P _{PPM}	30000	W
Steady State Power Dissipation on infinite heat sink at T _L =75°C (Fig. 5)	P _D	8.0	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Unidirectional only (Note 2)	I _{FSM}	400	A
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to 175	°C
Typical Thermal Resistance Junction to Lead	R _{θJL}	8.0	°C/W
Typical Thermal Resistance Junction to Ambient	R _{θJA}	40	°C/W

Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Measured on 8.3ms single half sine wave or equivalent square wave, duty cycle=4 per minute maximum.

Description

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


Features

- RoHS compliant
- Typical maximum temperature coefficient $\Delta V_{BR} = 0.1\% \times V_{BR} @ 25^\circ\text{C}$
- Glass passivated chip junction in P600 package
- 30000W peak pulse capability at 10x1000µs 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 73V
- High temperature soldering guaranteed: 265°C./10 seconds/0.375"/(9.5mm) lead length, 5 lbs., (2.3kg) tension
- Plastic package has Underwriters Laboratory Flammability classification 94V-0
- Matte Tin Lead-free plated

Applications

TVS devices are ideal for the protection of I/O interfaces, V_{CC} bus and other vulnerable circuits used in telecom, computer, industrial and consumer electronic applications.

Electrical Characteristics

Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts) @ I_T	Test Current I_T (mA)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_R (μ A)	Maximum Clamping Voltage V_C @ I_{PP} (V)	Agency Approval 
			MIN					
30KPA28A	30KPA28CA	28	31.28	50	606.0	5000	50.0	X
30KPA30A	30KPA30CA	30	33.51	50	548.9	5000	55.2	X
30KPA33A	30KPA33CA	33	36.90	50	517.9	5000	58.5	X
30KPA36A	30KPA36CA	36	40.20	50	490.3	5000	61.8	X
30KPA39A	30KPA39CA	39	43.60	20	450.9	2000	67.2	X
30KPA42A	30KPA42CA	42	46.90	10	420.8	1000	72.0	X
30KPA43A	30KPA43CA	43	48.00	10	415.1	1000	73.0	X
30KPA45A	30KPA45CA	45	50.30	5	391.5	250	77.4	X
30KPA48A	30KPA48CA	48	53.60	5	371.3	150	81.6	X
30KPA51A	30KPA51CA	51	57.00	5	350.7	50	86.4	X
30KPA54A	30KPA54CA	54	60.30	5	331.5	20	91.4	X
30KPA58A	30KPA58CA	58	64.80	5	327.9	20	92.4	X
30KPA60A	30KPA60CA	60	67.00	5	297.1	15	102.0	X
30KPA64A	30KPA64CA	64	71.50	5	291.3	10	104.0	X
30KPA66A	30KPA66CA	66	73.70	5	283.2	2	107.0	X
30KPA70A	30KPA70CA	70	78.20	5	278.0	2	109.0	X
30KPA71A	30KPA71CA	71	79.30	5	271.7	2	111.5	X
30KPA72A	30KPA72CA	72	80.40	5	265.8	2	114.0	X
30KPA75A	30KPA75CA	75	83.80	5	253.8	2	119.4	X
30KPA78A	30KPA78CA	78	87.10	5	234.9	2	129.0	X
30KPA84A	30KPA84CA	84	93.80	5	217.7	2	139.2	X
30KPA90A	30KPA90CA	90	100.50	5	207.0	2	146.4	X
30KPA96A	30KPA96CA	96	107.20	5	194.2	2	156.0	X
30KPA102A	30KPA102CA	102	113.90	5	183.0	2	165.6	X
30KPA108A	30KPA108CA	108	120.60	5	172.9	2	175.2	X
30KPA120A	30KPA120CA	120	134.00	5	155.9	2	194.4	X
30KPA132A	30KPA132CA	132	147.40	5	142.3	2	213.0	X
30KPA144A	30KPA144CA	144	160.80	5	135.8	2	223.2	X
30KPA150A	30KPA150CA	150	167.60	5	129.8	2	233.4	X
30KPA156A	30KPA156CA	156	174.30	5	123.7	2	245.0	X
30KPA160A	30KPA160CA	160	178.70	5	120.0	2	252.6	X
30KPA168A	30KPA168CA	168	187.70	5	111.2	2	272.4	X
30KPA170A	30KPA170CA	170	189.90	5	110.2	2	275.0	X
30KPA180A	30KPA180CA	180	201.10	5	104.3	2	290.4	X
30KPA198A	30KPA198CA	198	221.20	5	94.7	2	319.8	X
30KPA216A	30KPA216CA	216	241.30	5	86.9	2	348.6	X
30KPA240A	30KPA240CA	240	268.10	5	78.3	2	387.0	X
30KPA258A	30KPA258CA	258	288.20	5	72.8	2	416.4	X
30KPA260A	30KPA260CA	260	290.40	5	72.8	2	416.0	X
30KPA270A	30KPA270CA	270	301.60	5	69.5	2	436.2	X
30KPA280A	30KPA280CA	280	312.80	5	65.3	2	464.0	X
30KPA288A	30KPA288CA	288	321.70	5	64.5	2	469.9	X

For bidirectional type having V_{RWM} of 60 volts and less, the I_T limit is double.

For parts without A, the V_{BR} is $\pm 10\%$.

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

Figure 1 - Peak Pulse Power Rating Curve

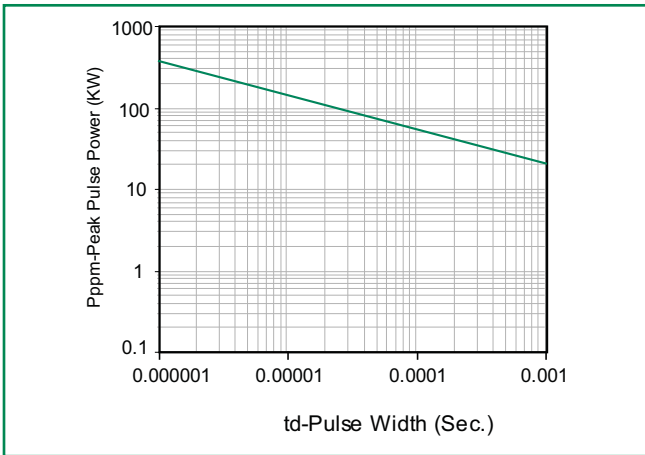


Figure 2 - Pulse Derating Curve

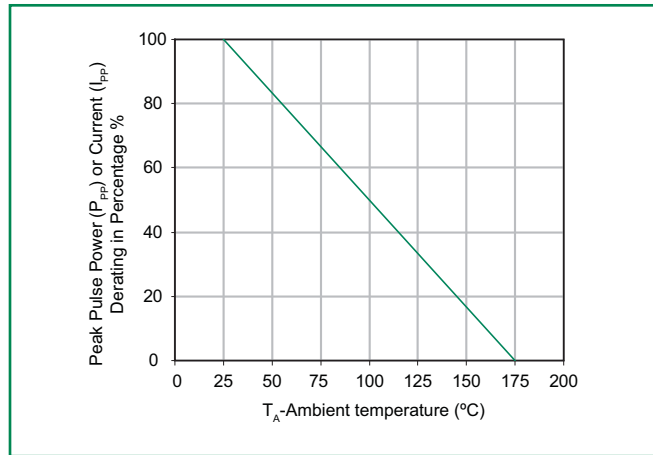


Figure 3 - Pulse Waveform

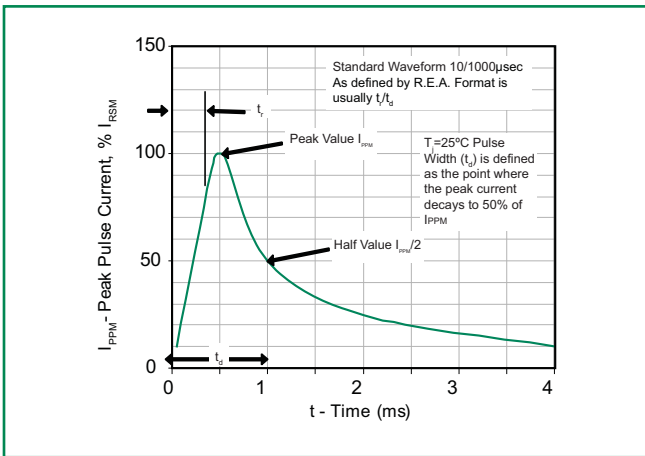


Figure 4 - Typical Junction Capacitance

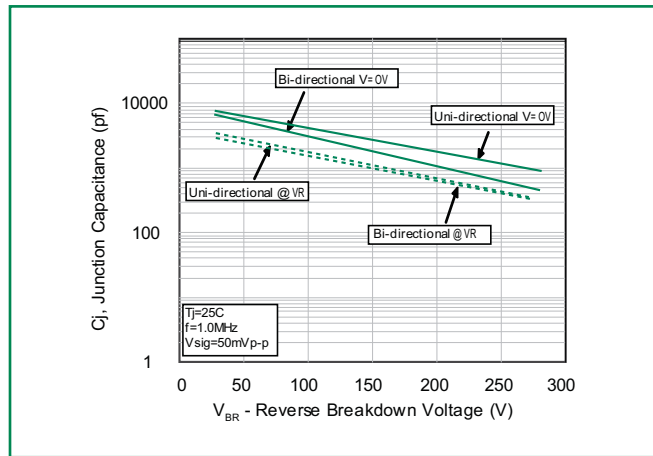


Figure 5 - Steady State Power Derating Curve

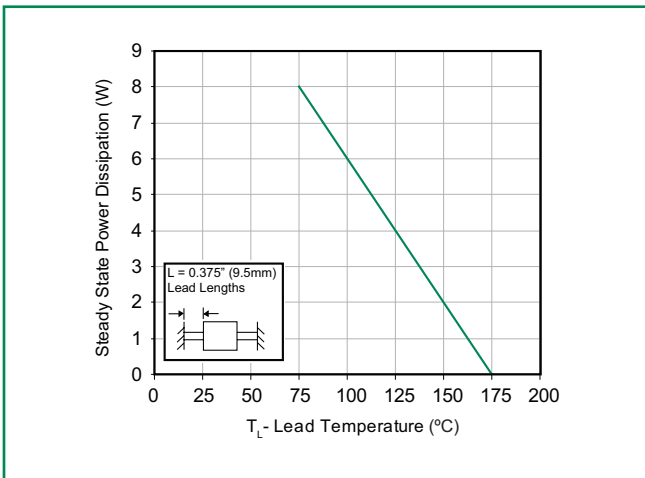
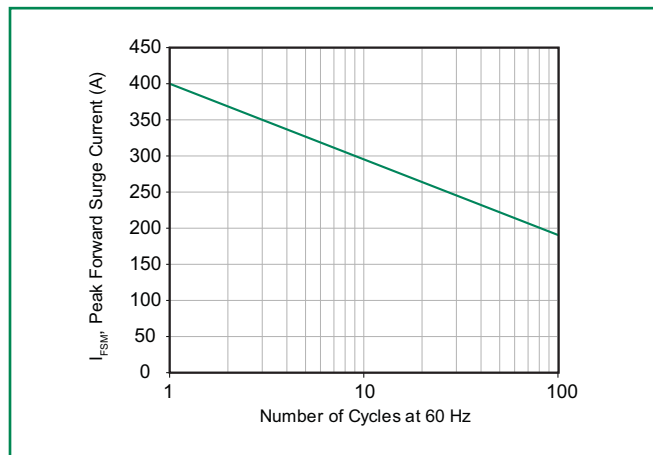
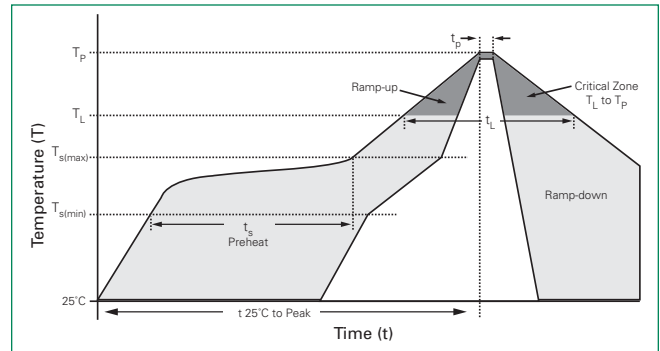


Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current



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)		5°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		5°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (min to max) (t_s)	60 – 150 seconds
Peak Temperature (T_p)		250 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		5°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

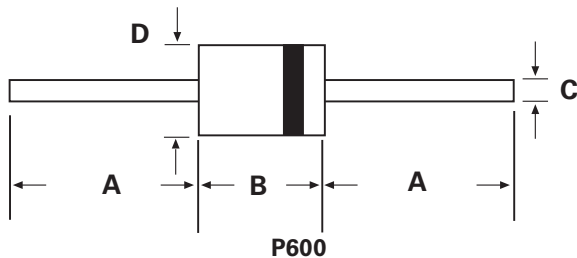
Physical Specifications

Weight	0.07oz., 2.5g
Case	P600 molded plastic body over passivated junction.
Mounting Position	Any
Polarity	Color band denotes the cathode except Bipolar.
Terminal	Matte Tin axial leads, solderable per J-STD-002B and JESD22-B102D.

Environmental Specifications

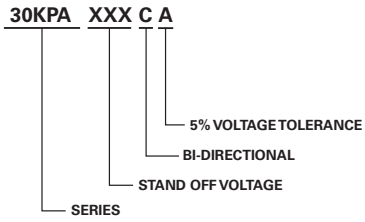
Temperature Cycle	JESD22-A104
Pressure Cooker	JESD 22-A102
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Thermal Shock	JESD22-A106

Dimensions



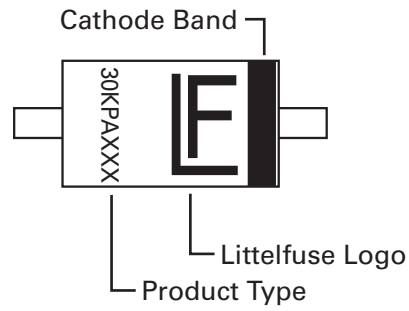
Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	1.000	-	25.40	-
B	0.340	0.360	8.60	9.10
C	0.048	0.052	1.22	1.32
D	0.340	0.360	8.60	9.10

Part Numbering System



Option: Suffix B is for bulk packing.

Part Marking System



Packaging

Part Number	Component Package	Quantity	Packaging Option	Packaging Specification
30KPAxxxXX	P600	800	Tape & Reel	EIA STD RS-296E
30KPAxxxXXB	P600	500	BOX	Littelfuse Concord Packing Spec. DM-0016