

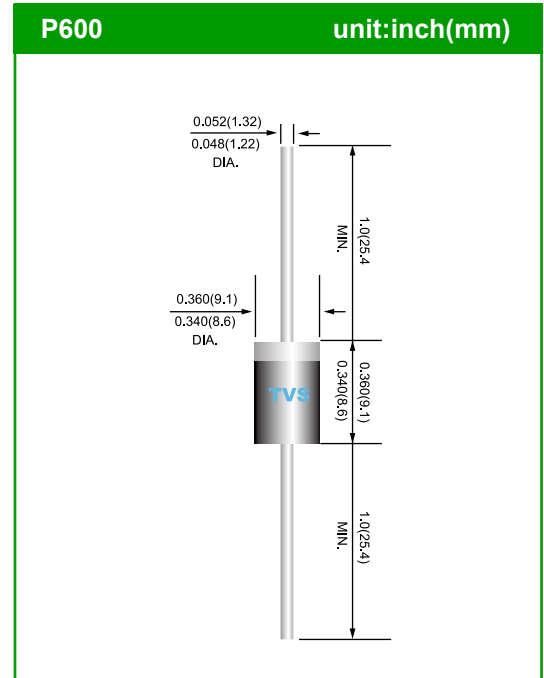


Axial Leaded - 30000W > 30KPA28~288CA Series

The 30KPA Automotive 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 P600 package
- 30000W peak pulse capability at $10 \times 1000\mu\text{s}$ 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 $5\mu\text{A}$ above 12V
- High temperature soldering guaranteed: $260^{\circ}\text{C}/40$ seconds / $0.375''$, (9.5mm) lead length, 5lbs., (2.3kg) tension
- Plastic package has underwriters laboratory flammability classification 94v-0



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.

Maximum Ratings And Characteristics (TA=25°C unless otherwise noted)

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation by $10 \times 1000\mu\text{s}$ test waveform (Fig.1)(Note 1)	P_{PPM}	30000	Watts
Steady State Power Dissipation on infinite heat sink at $T_L=75^{\circ}\text{C}$ (Fig. 5)	P_D	8	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	$^{\circ}\text{C}$
Typical Thermal Resistance Junction to Lead	R_{uJL}	8.0	$^{\circ}\text{C}/\text{W}$
Typical Thermal Resistance Junction to Ambient	R_{uJA}	40	$^{\circ}\text{C}/\text{W}$

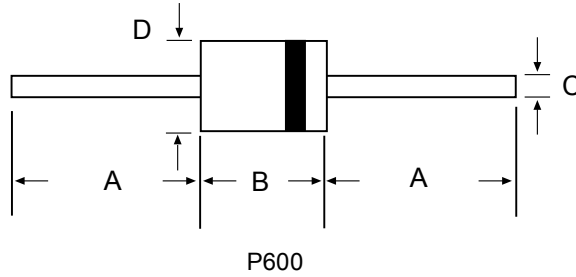
Notes:

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.



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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

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage NIN.@I _T	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNT-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR MIN.} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μA)
30KPA28A	30KPA28CA	28.0	31.28	50	50.0	606.0	5000
30KPA30A	30KPA30CA	30.0	33.51	50	55.2	548.9	5000
30KPA33A	30KPA33CA	33.0	36.90	50	58.5	517.9	5000
30KPA36A	30KPA36CA	36.0	40.20	50	61.8	490.3	5000
30KPA39A	30KPA39CA	39.0	43.60	20	67.2	450.9	2000
30KPA42A	30KPA42CA	42.0	46.90	10	72.0	420.8	1000
30KPA43A	30KPA43CA	43.0	48.00	10	73.0	415.1	1000
30KPA45A	30KPA45CA	45.0	50.30	5	77.4	391.5	250
30KPA48A	30KPA48CA	48.0	53.60	5	81.6	371.3	150
30KPA51A	30KPA51CA	51.0	57.00	5	86.4	350.7	50
30KPA54A	30KPA54CA	54.0	60.30	5	91.4	331.5	20
30KPA58A	30KPA58CA	58.0	64.80	5	92.4	327.9	20



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Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage NIN.@I _T	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
UNT-POLAR	BI-POLAR	V _{RWM} (V)	V _{BR MIN.} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μA)
30KPA60A	30KPA60CA	60.0	67.00	5	102.0	297.1	15
30KPA64A	30KPA64CA	64.0	71.50	5	104.0	291.3	10
30KPA66A	30KPA66CA	66.0	73.70	5	107.0	283.2	2
30KPA70A	30KPA70CA	70.0	78.20	5	109.0	278.0	2
30KPA71A	30KPA71CA	71.0	79.30	5	111.5	271.7	2
30KPA72A	30KPA72CA	72.0	80.40	5	114.0	265.8	2
30KPA75A	30KPA75CA	75.0	83.80	5	119.4	253.8	2
30KPA78A	30KPA78CA	78.0	87.10	5	129.0	234.9	2
30KPA84A	30KPA84CA	84.0	93.80	5	139.2	217.7	2
30KPA90A	30KPA90CA	90.0	100.50	5	146.4	207.0	2
30KPA96A	30KPA96CA	96.0	107.20	5	156.0	194.2	2
30KPA102A	30KPA102CA	102.0	113.90	5	165.6	183.0	2
30KPA108A	30KPA108CA	108.0	120.60	5	175.2	172.9	2
30KPA120A	30KPA120CA	120.0	134.00	5	194.4	155.9	2
30KPA132A	30KPA132CA	132.0	147.40	5	213.0	142.3	2
30KPA144A	30KPA144CA	144.0	160.80	5	223.2	135.8	2
30KPA150A	30KPA150CA	150.0	167.60	5	233.4	129.8	2
30KPA156A	30KPA156CA	156.0	174.30	5	245.0	123.7	2
30KPA160A	30KPA160CA	160.0	178.70	5	252.6	120.0	2
30KPA168A	30KPA168CA	168.0	187.70	5	272.4	111.2	2
30KPA170A	30KPA170CA	170.0	189.90	5	275.0	110.2	2
30KPA180A	30KPA180CA	180.0	201.10	5	290.4	104.3	2
30KPA198A	30KPA198CA	198.0	221.20	5	319.8	94.7	2
30KPA216A	30KPA216CA	216.0	241.30	5	348.6	86.9	2
30KPA240A	30KPA240CA	240.0	268.10	5	387.0	78.3	2
30KPA258A	30KPA258CA	258.0	288.20	5	416.4	72.8	2
30KPA260A	30KPA260CA	260.0	290.40	5	416.0	72.8	2
30KPA270A	30KPA270CA	270.0	301.60	5	436.2	69.5	2
30KPA280A	30KPA280CA	280.0	312.80	5	464.0	65.3	2
30KPA288A	30KPA288CA	288.0	321.70	5	469.9	64.5	2

For bidirectional type having V_R of 10 volts and less, the I_R limit is double.
For parts without A, the V_{BR} is ± 10% and V_C is 5% higher than with A parts



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

Figure 1 - Peak Pulse Power Rating Curve

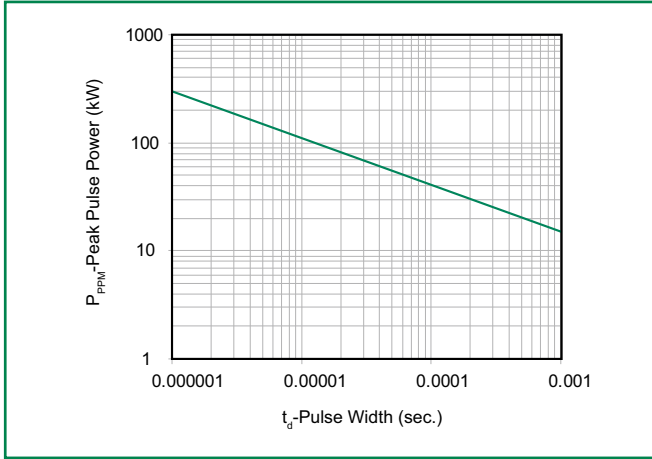


Figure 2 - Pulse Derating Curve

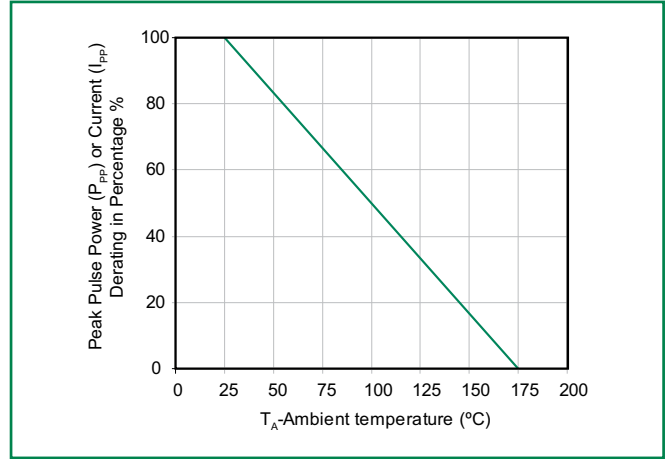


Figure 3 - Test Pulse Waveform

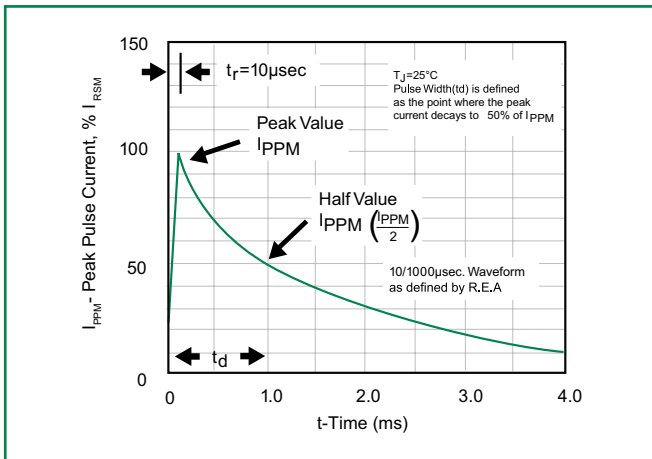


Figure 4 - Typical Junction Capacitance

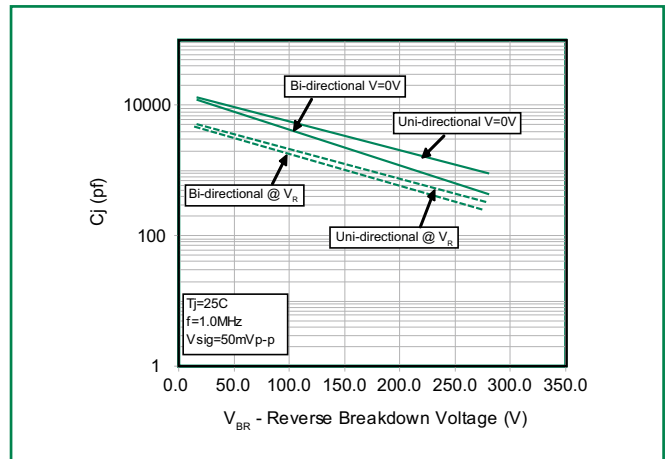


Figure 5 - Steady State Power Derating Curve

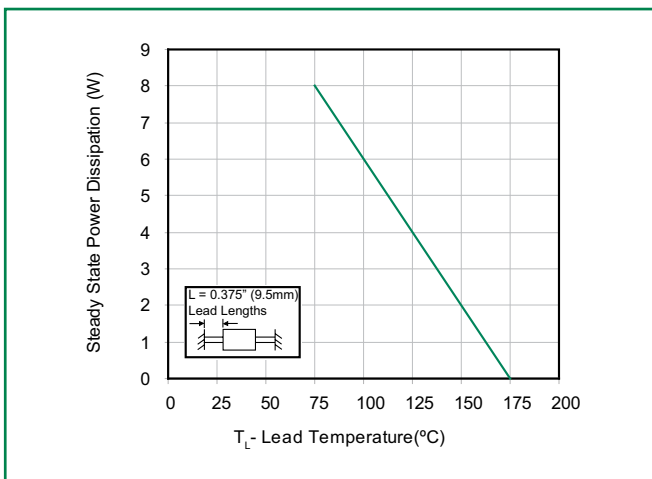
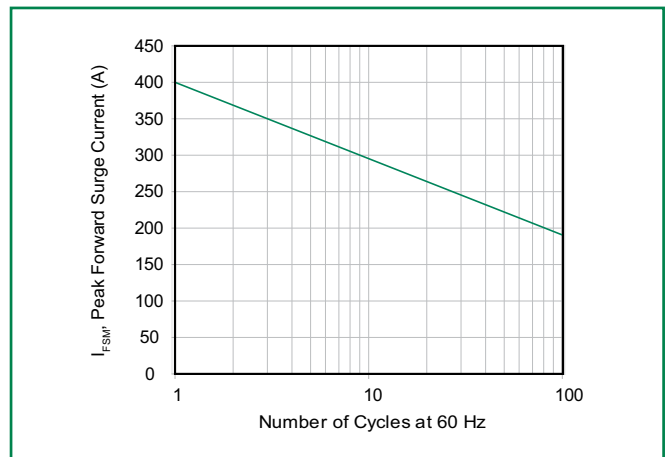


Figure 6 - Maximum Non-Repetitive Forward Surge Current

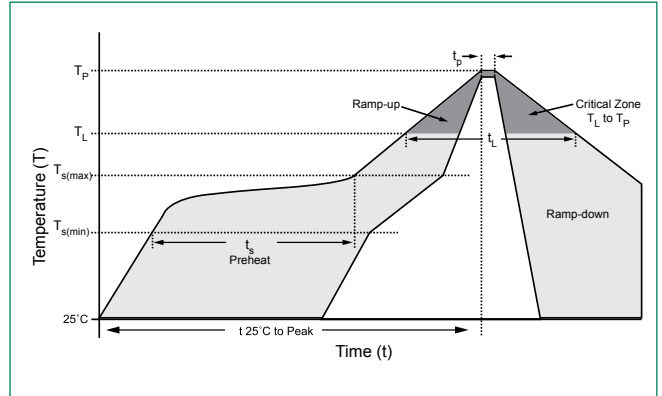




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Soldering Parameters

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 (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

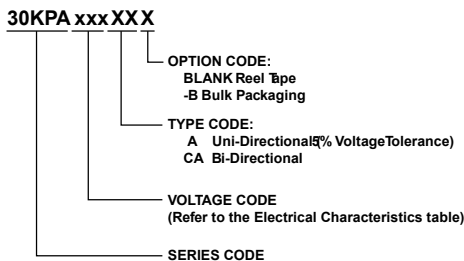
Physical Specifications

Weight	0.045oz., 1.2g
Case	JEDEC DO-201 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

Part Numbering System



Part Marking System

