

AXIAL LEAD PACKAGE

## DESCRIPTION

The P30KP Series, are discrete 30,000 Watt, silicon transient voltage suppressors (TVS) designed for use in applications where large voltage transients can permanently damage voltage sensitive components and equipment.

The P30KP series is available in voltages ranging from 30V to 360V with 5 percent and 10 percent tolerances. Both tolerances are referenced to the power supply output or operating voltage level. This series is compatible with IEC 61000-4-5 (Surge) requirements.

## FEATURES

- RTCA DO-160G COMPLIANT PRODUCT
- Compatible with IEC 61000-4-5 (Surge): 48A, 8/20 $\mu$ s - L3(Line-Ground), L4(Line-Line) & L1 (Power)
- 30,000 Watts Peak Pulse Power per Line (tp = 10/1000 $\mu$ s)
- Unidirectional and Bidirectional Configurations
- Easy Mounting to Printed Circuit Board
- tClamping (0V to V<sub>BR</sub> Min.) < 1 x 10<sup>-12</sup> seconds theoretical
- Available in Multiple Voltages Ranging From 30V to 260V

## APPLICATIONS

- Relay Drives
- Motor (Start/Stop) Back EMF Protection
- Module Lightning Protection
- Secondary Lightning Protection for AC/DC

## MECHANICAL CHARACTERISTICS

- Molded Case
- Approximate Weight: 5 grams
- Leaded Devices: Tin-Lead Plating
- Lead-Free Devices: Pure-Tin Plating
- Solder Reflow Temperature: 240-245°C
- Flammability Rating UL 94V-0

## CIRCUIT DIAGRAMS



UNIDIRECTIONAL



BIDIRECTIONAL

## TYPICAL DEVICE CHARACTERISTICS

## RTCA DO-160G COMPLIANT PRODUCT

## MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power (tp = 10/1000µs) - See Figure 1	$P_{PP}$	30,000	Watts
Forward Surge Rating - 1/120 seconds - See Note 2	$I_F$	200	Amps
Steady State Power Dissipation	$P_P$	1.0	Watts
Storage Temperature	$T_{STG}$	-55 to 150	°C
Operating Temperature	$T_L$	-55 to 150	°C

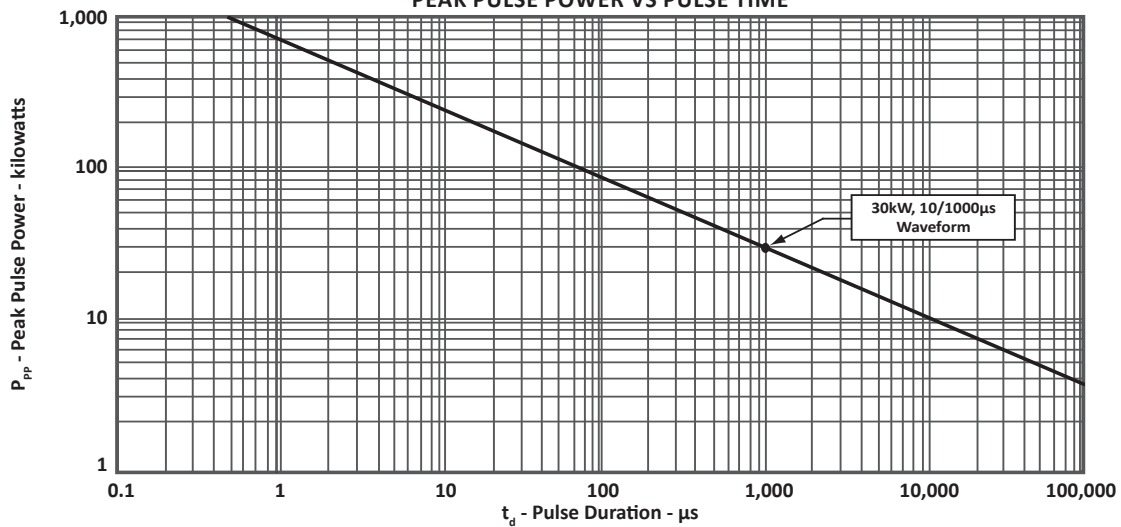
## ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Notes 1 - 2)	RATED STAND-OFF VOLTAGE  $V_{WM}$ VOLTS	BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT  @ $V_{WM}$ $I_D$ µA	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  @ 10/1000µS $V_C$ @ $I_{PP}$	TEMPERATURE COEFFICIENT OF $V_{(BR)}$  $qV_{(BR)}$ mV/°C
		MIN $V_{(BR)}$ VOLTS	@ $I_T$ mA			
P30KP30A	30.0	33.3	50	5000	55.2V @ 543.0A	34
P30KP33A	33.0	36.7	50	5000	58.6V @ 512.0A	39
P30KP36A	36.0	40.0	50	2000	61.8V @ 485.0A	41
P30KP43A	43.0	47.8	50	1000	73.0V @ 410.0A	50
P30KP48A	48.0	53.3	5	250	77.4V @ 388.0A	56
P30KP54A	54.0	60.3	5	20	91.4V @ 331.5A	62
P30KP58A	58.0	64.4	5	20	92.4V @ 325.0A	68
P30KP64A	64.0	71.1	5	10	104.0V @ 294.0A	76
P30KP70A	70.0	77.8	5	10	109.0V @ 274.0A	83
P30KP75A	75.0	83.3	5	10	119.4V @ 251.0A	89
P30KP78A	78.0	87.10	5	10	129.0V @ 234.9A	92
P30KP85A	85.0	94.4	5	10	139.0V @ 216.0A	105
P30KP90A	90.0	100.0	5	10	147.0V @ 206.0A	109
P30KP100	100.0	111.0	5	10	179.0V @ 168.0A	134
P30KP100A	100.0	111.0	5	10	162.0V @ 186.0A	121
P30KP130A	130.0	144.0	5	10	209.0V @ 142.0A	157
P30KP160A	160.0	178.0	5	10	252.6V @ 119.0A	195
P30KP170A	170.0	189.0	5	10	274.0V @ 110.0A	207
P30KP180A	180.0	200.0	5	10	291.0V @ 104.0A	230
P30KP220A	220.0	245.0	5	10	356.0V @ 84.0A	269
P30KP260A	260.0	289.0	5	10	416.0V @ 72.0A	317

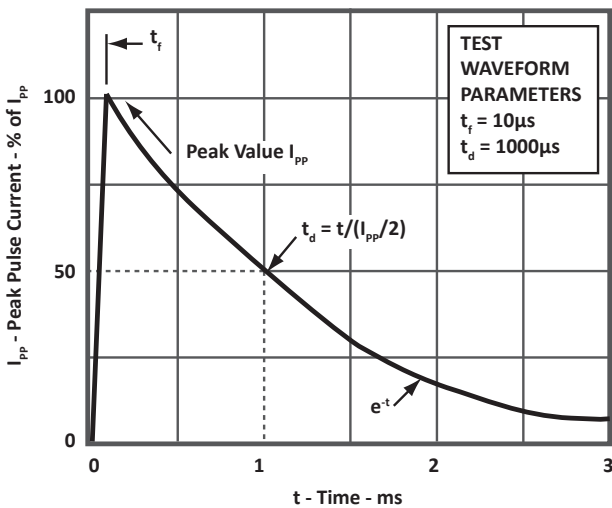
## NOTES

- Part numbers shown are unidirectional devices. Add a "CA" suffix to specify bidirectional devices, such as P30KP30CA. Devices shown are preferred voltages. Contact factory for additional voltages.
- $V_p = 15$  Volts @ 200A, 8.3ms(1/2 Sine Wave) - Unidirectional devices only.

**FIGURE 1  
PEAK PULSE POWER VS PULSE TIME**



**FIGURE 2  
PULSE WAVEFORM**



**FIGURE 3  
POWER DERATING CURVE**

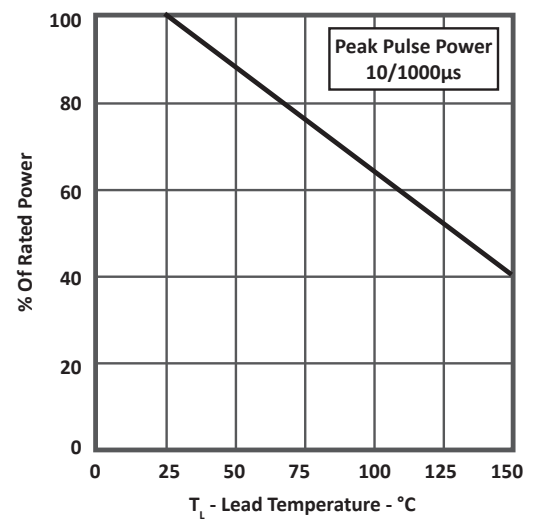
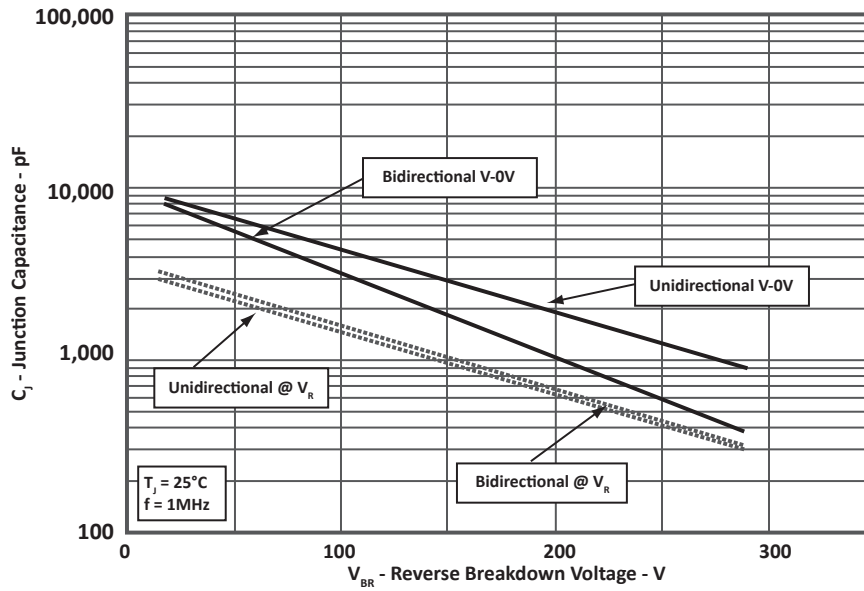


FIGURE 4  
TYPICAL JUNCTION CAPACITANCE



## AXIAL LEAD(MOD) PACKAGE INFORMATION

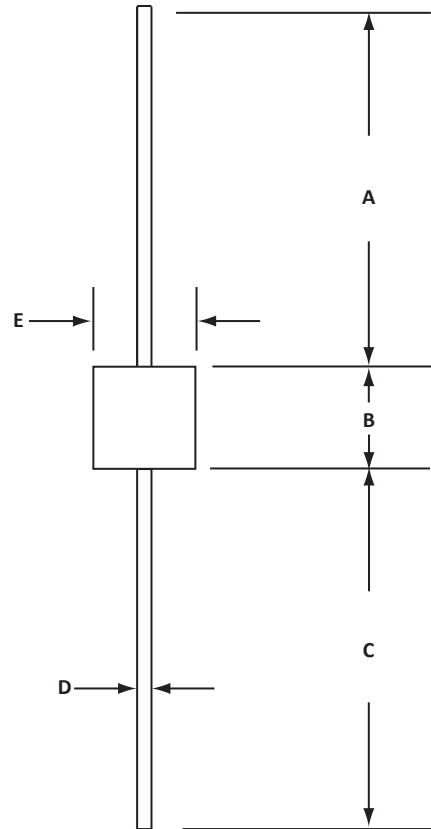
## RTCA DO-160G COMPLIANT PRODUCT

## OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	25.4	-	1.00	-
B	9.27	9.77	0.365	0.385
C	25.4	-	1.00	-
D	1.20 DIA.	1.30 DIA.	0.048 DIA.	0.052 DIA.
E	5.96	6.47	0.235	0.255

## NOTES

- Dimensions are exclusive of mold flash and metal burrs.



## ORDERING INFORMATION

BASE PART NUMBER (xx = Voltage)	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
P30KPxx	-LF	n/a	n/a	n/a	n/a
P30KPxxA	-LF	n/a	n/a	n/a	n/a
P30KPxxCA	-LF	n/a	n/a	n/a	n/a

## NOTES

- Marking on Part - logo, part number, date code and positive terminal marked with band (unidirectional only).
- For lead-free devices, use the -LF suffix when ordering.
- Lead-free: Pure-Tin plating.

## MARKING DIAGRAM



**COMPANY INFORMATION****RTCA DO-160G COMPLIANT PRODUCT****COMPANY PROFILE**

In business more than 20 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection and overcurrent protection components. These include transient voltage suppressor array (TVS arrays) avalanche breakdown diode, steering diode TVS array and electronics SMD chip fuses. These components deliver circuit protection in electronic systems from numerous overvoltage and overcurrent events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices also offers LED wafer die for ESD protection and related high frequency products.

**CONTACT US****Corporate Headquarters**

2929 South Fair Lane  
Tempe, Arizona 85282  
USA

**By Telephone**

General: 602-431-8101  
Sales: & Marketing: 602-414-5109  
Customer Service: 602-414-5114  
Product Technical Support: 602-414-5107

**By Fax**

General: 602-431-2288

**By E-mail:**

Asia Sales: [asiasales@protekdevices.com](mailto:asiasales@protekdevices.com)  
Europe Sales: [europesales@protekdevices.com](mailto:europesales@protekdevices.com)  
U.S. Sales: [ussales@protekdevices.com](mailto:ussales@protekdevices.com)  
Distributor Sales: [distysales@protekdevices.com](mailto:distysales@protekdevices.com)  
Customer Service: [service@protekdevices.com](mailto:service@protekdevices.com)  
Technical Support: [support@protekdevices.com](mailto:support@protekdevices.com)

**ProTek Devices (Asia Pacific) Pte. Ltd.**

8 Ubi Road 2, #06-19  
Zervex  
Singapore - 408538  
Tel: +65-67488312  
Fax: +65-67488313

**Web**

[www.protekdevices.com](http://www.protekdevices.com)

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