



## DESCRIPTION

The SM30KWExxA/CA Series are high-powered surface mount transient voltage suppression components designed to protect equipment and systems from the damaging effects of high voltage spikes. The surface mount package configuration provides a lower profile compared to legacy axial lead package configurations.

These devices provide 30 kilowatts of peak pulse power dissipation for an 10/1000 $\mu$ s waveform. Applications include AC and DC power line protection, terrestrial base station protection as well as module lightning protection.

## FEATURES

- RTCA DO-160G COMPLIANT PRODUCT
- Waveforms (Pin Injection) 3 and 4 - Level 5; Waveform 5A - Level 4
- Low Clamping Voltage
- 30 kilowatts Peak Pulse Power per Line ( $t_p = 10/1000\mu s$ )
- Unidirectional & Bidirectional Configurations
- Easy Mounting to Printed Circuit Board
- Available in Multiple Voltages
- RoHS Compliant
- REACH Compliant

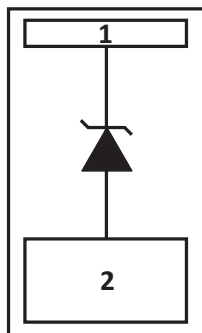
## APPLICATIONS

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

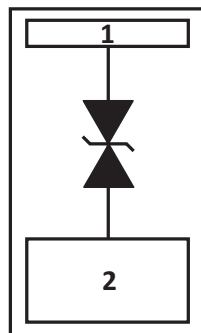
## MECHANICAL CHARACTERISTICS

- Molded Surface Mount Package
- Approximate Weight: 4 grams
- Lead-Free 100%Tin Plating
- Solder Reflow Temperature: 260-270°C, 10 seconds
- Flammability Rating UL 94V-0

## CIRCUIT DIAGRAMS



**UNIDIRECTIONAL**



**BIDIRECTIONAL**

## TYPICAL DEVICE CHARACTERISTICS

## RTCA DO-160G COMPLIANT PRODUCT

## MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

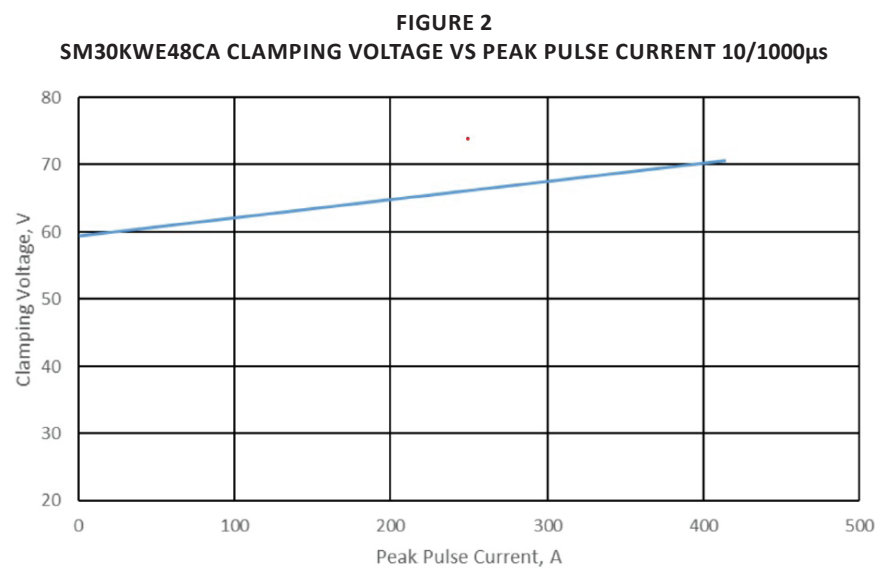
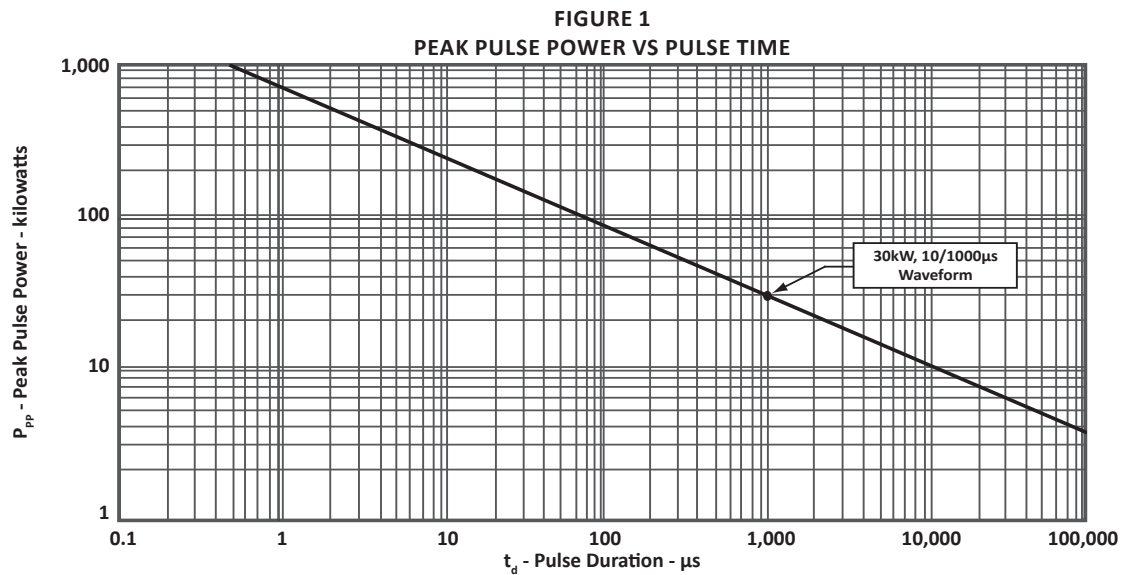
PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power (tp = 10/1000μs) - See Figure 1	P <sub>PP</sub>	30	kilowatts
Forward Surge Rating (Unidirectional Only)	I <sub>F</sub>	200	Amps
Steady Power Dissipation	P <sub>P</sub>	1.0	Amps
Storage Temperature	T <sub>STG</sub>	-55 to +150	°C
Operating Temperature	T <sub>J</sub>	-55 to +150	°C

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

PART NUMBER	MARKING CODE		RATED STAND-OFF VOLTAGE  V <sub>WM</sub> VOLTS	MINIMUM BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT  @V <sub>WM</sub> I <sub>D</sub> μA	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  @ 10/1000μs V <sub>C</sub> @ I <sub>PP</sub>
	UNI	BI		MIN V <sub>(BR)</sub> VOLTS	@I <sub>T</sub> mA		
SM30KWE16A	E3U16	E3B16	16.0	19.5	5	100	26.0V @ 1150A
SM30KWE20A	E3U20	E3B20	22.2	24.5	5	15	34.3V @ 874A
SM30KWE24A	E3U24	E3B24	26.7	29.5	5	15	40.7V @ 738A
SM30KWE28A	E3U28	E3B28	31.1	34.4	5	15	47.5V @ 632A
SM30KWE30A	E3U30	E3B30	30.0	33.3	5	10	50.7V @ 592A
SM30KWE33A	E3U33	E3B33	36.8	40.4	5	10	54.8V @ 548A
SM30KWE36A	E3U36	E3B36	40.0	44.2	5	10	59.7V @ 502A
SM30KWE48A	E3U48	E3B48	48.0	53.3	5	10	73.2V @ 410A
SM30KWE54A	E3U54	E3B54	60.0	66.3	5	10	87.1V @ 344A
SM30KWE70A	E3U70	E3B70	77.8	86.0	5	10	114.0V @ 264A
SM30KWE75A	E3U75	E3B75	83.3	92.1	5	10	122.0V @ 246A
SM30KWE78A	E3U78	E3B78	86.7	95.8	5	5	126.0V @ 238A
SM30KWE110A	E3U110	E3B110	122.0	135.0	5	5	178.0V @ 168A
SM30KWE120A	E3U120	E3B120	133.0	147.0	5	5	193.0V @ 156A
SM30KWE180A	E3U180	E3B180	200.0	220.0	5	5	291.0V @ 104A
SM30KWE200A	E3U200	E3B200	222.0	244.2	5	5	320.0V @ 94A
SM30KWE220A	E3U220	E3B220	245.0	269.5	5	5	356.0V @ 84A

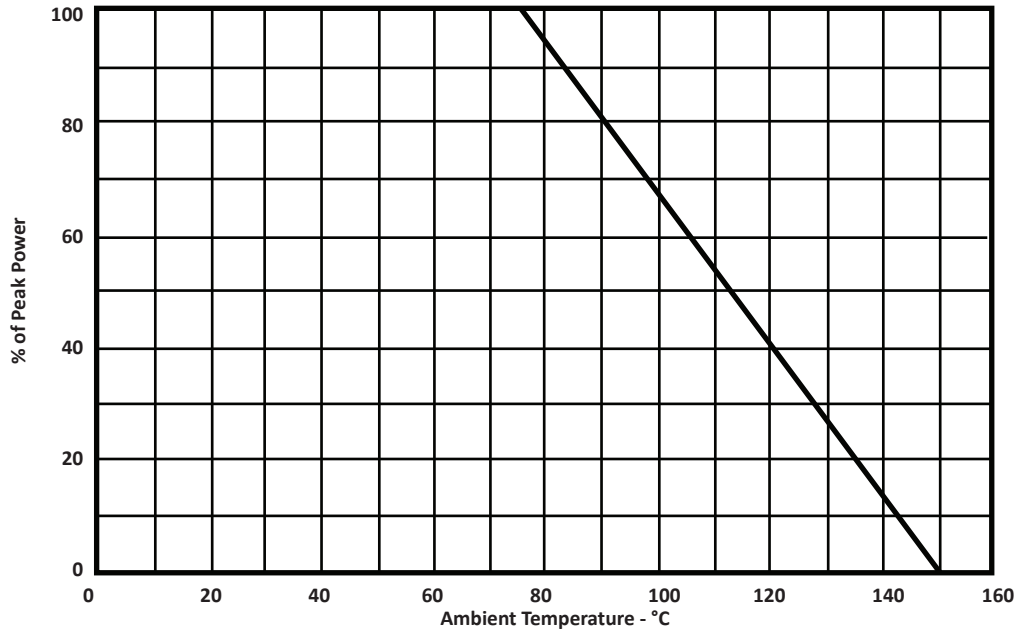
## NOTES

- Part numbers shown are unidirectional devices. Add a "CA" suffix to specify bidirectional devices, such as SM30KWE220CA.



**TYPICAL DEVICE CHARACTERISTICS**

**FIGURE 3  
POWER DERATING CURVE**



## PACKAGE INFORMATION

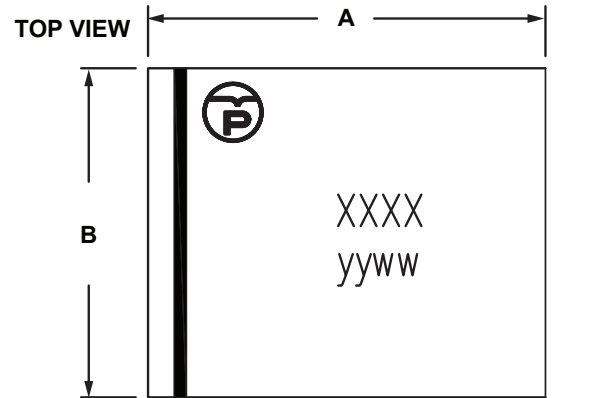
## RTCA DO-160G COMPLIANT PRODUCT

## OUTLINE DIMENSIONS

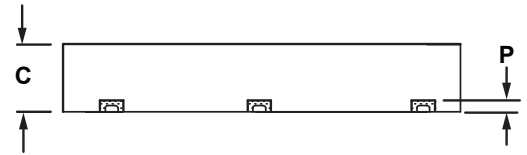
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.95	11.15	0.431	0.439
B	9.04	9.24	0.356	0.364
C	3.00	3.10	0.116	0.126
D	6.05	6.15	0.238	0.242
E	0.97	1.07	0.038	0.042
F	3.61	3.81	0.142	0.150
G	4.62	4.72	0.185	0.189
H	0.83	1.03	0.033	0.041
J	8.03	8.23	0.316	0.324
K	0.46	0.56	0.018	0.022
L	4.46	4.66	0.174	0.184
M	4.01	4.21	0.158	0.166
N	0.60	0.70	0.024	0.028
P	0.20	0.30	0.008	0.012

## NOTES

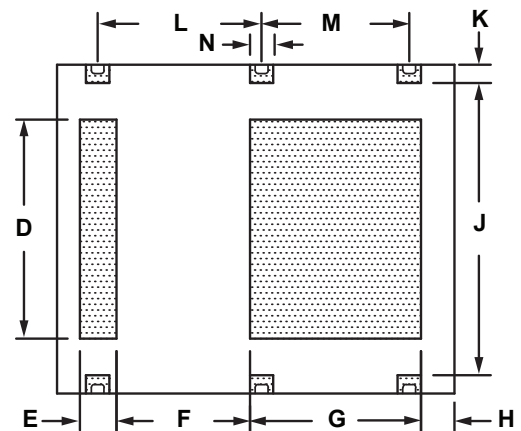
1. Dimensions are exclusive of mold flash and metal burrs.



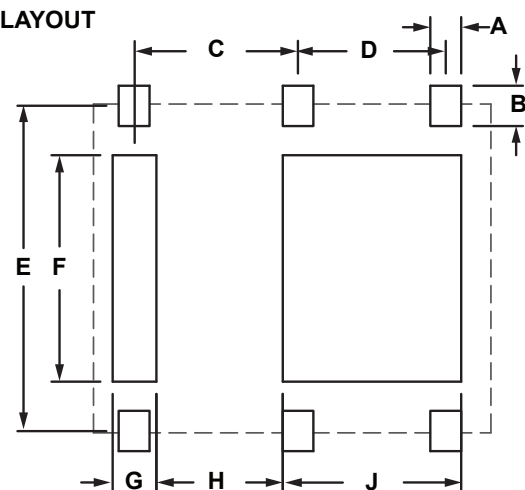
## SIDE VIEW



## BOTTOM VIEW



## PAD LAYOUT



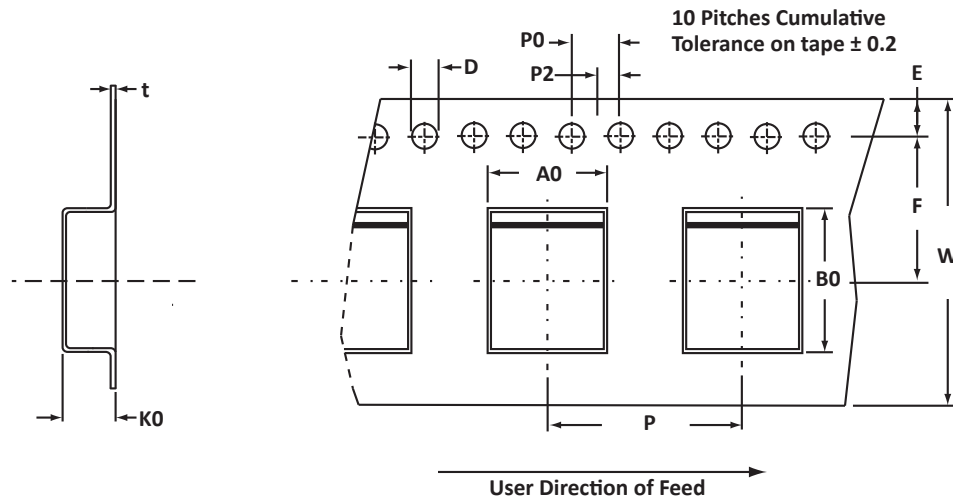
## PCB PAD LAYOUT DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.80	0.95	0.032	0.038
B	1.07	1.22	0.042	0.048
C	4.54		0.179	
D	4.11		0.162	
E	9.04		0.356	
F	6.25	6.40	0.250	0.252
G	1.17	1.32	0.046	0.052
H	3.46	3.61	0.136	0.143
J	4.91	5.06	0.193	0.199

## NOTES

1. Suggested solder print uses some dimensions as PCB pad layout.

## TAPE AND REEL



## SPECIFICATIONS

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
330mm (13")	24mm	9.40 ± 0.10	11.60 ± 0.10	3.175 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	11.5 ± 0.10	24.00 ± 0.30	4.00 ± 0.10	2.00 ± 0.10	16.00 ± 0.10	0.30

## NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Marking on Part - marking code (see page 2), date code, logo and polarity band.

## ORDERING INFORMATION

BASE PART NUMBER (xx = Voltage)	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
SM30KWExxA/CA	n/a	-T13	1000	13"	n/a

This device is only available in a Lead-Free configuration.

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

In business more than 25 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. ProTek Devices is an ISO 9001 certified company.

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