



## DESCRIPTION

The SM15KWExxA/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 DFN-2-KW surface mount package configuration provides a lower profile at a reduce cost.

These devices provide 15 kilowatts of peak pulse power dissipation for an 10/1000 $\mu$ s waveform. Applications include relay drive protection module and secondary lightning protection.

## FEATURES

- RTCA DO-160G COMPLIANT PRODUCT
- Compatible with IEC 61000-4-2 (ESD): Air  $\pm 15$ kV, Contact  $\pm 8$ kV
- Compatible with IEC 61000-4-4 (EFT): 40A, 5/50ns
- Compatible with IEC 61000-4-5 (Surge): 60kW, 8/20 $\mu$ s
- 15 kilowatts Peak Pulse Power per Line ( $t_p = 10/1000\mu$ s)
- Unidirectional & Bidirectional Configurations
- Easy Mounting to Printed Circuit Board
- RoHS Compliant
- REACH Compliant

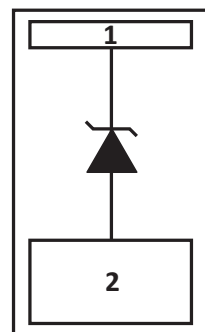
## APPLICATIONS

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

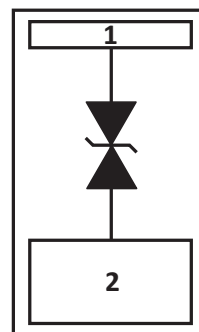
## MECHANICAL CHARACTERISTICS

- Molded Surface Mount Package
- Approximate Weight: 2.5 grams
- Lead-Free Pure-Tin Plating
- Solder Reflow Temperature:  
Pure-Tin - Sn, 100: 260-270°C
- Flammability Rating UL 94V-0

## PIN CONFIGURATIONS



**UNIDIRECTIONAL**



**BIDIRECTIONAL**

## TYPICAL DEVICE CHARACTERISTICS

## RTCA DO-160G COMPLIANT PRODUCT

## MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

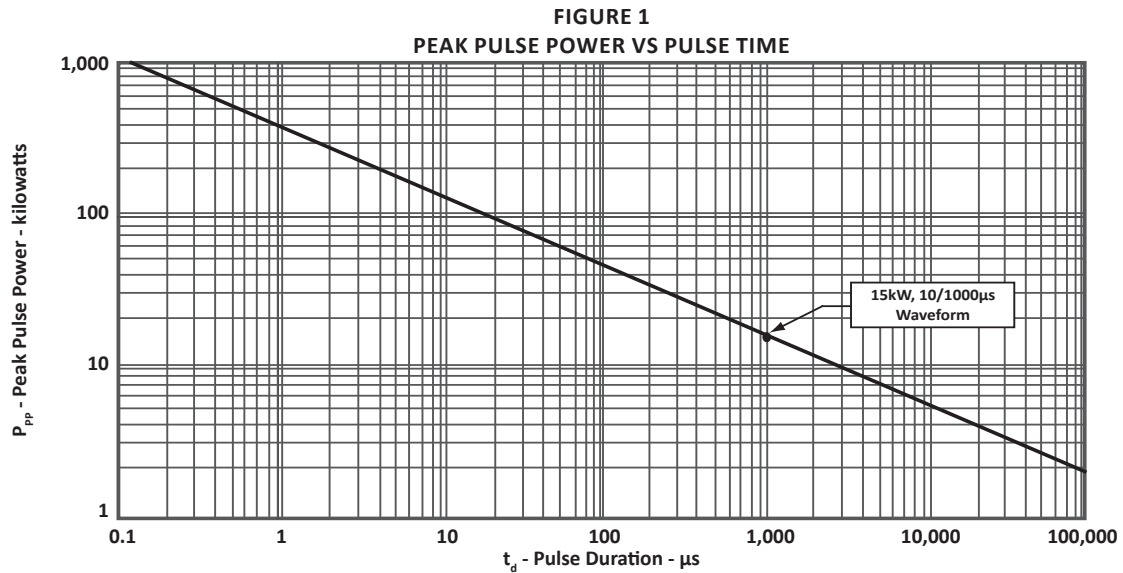
PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power (tp = 10/1000μs) - See Figure 1	P <sub>PP</sub>	15	kilowatts
Storage Temperature	T <sub>STG</sub>	-55 to +150	°C
Operating Temperature	T <sub>J</sub>	-55 to +150	°C

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

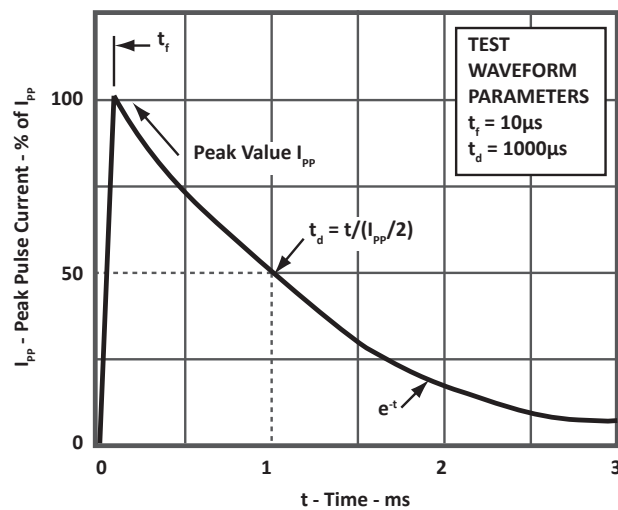
PART NUMBER (Note 1)	MARKING CODE		RATED STAND-OFF VOLTAGE  V <sub>WM</sub> VOLTS	MINIMUM BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT  @V <sub>WM</sub> I <sub>D</sub> μA	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  @ 10/1000μs V <sub>C</sub> @ I <sub>PP</sub>
	UNI	BI		MIN V <sub>(BR)</sub> VOLTS	@I <sub>T</sub> mA		
SM15KWE20A	20A	20C	22.2	24.5	5	10	34.3V @ 437A
SM15KWE24A	24A	24C	24.0	26.7	5	10	38.9V @ 384A
SM15KWE28A	28A	28C	31.1	34.4	5	10	47.5V @ 316A
SM15KWE30A	30A	30C	30.0	33.3	5	10	50.7V @ 296A
SM15KWE33A	33A	33C	36.8	40.4	5	5	54.8V @ 274A
SM15KWE36A	36A	36C	36.0	40.0	5	5	59.7V @ 251A
SM15KWE48A	48A	48C	48.0	53.3	5	5	77.7V @ 193A
SM15KWE54A	54A	54C	60.0	66.3	5	5	87.1V @ 172A
SM15KWE70A	70A	70C	70.0	77.8	5	5	114.0V @ 132A
SM15KWE75A	75A	75C	83.3	92.1	5	5	122.0V @ 123A
SM15KWE78A	78A	78C	86.7	95.8	5	5	126.0V @ 119A
SM15KWE110A	110A	110C	122.0	135.0	5	5	178.0V @ 84A
SM15KWE120A	120A	120C	133.0	147.0	5	5	193.0V @ 78A

## NOTES

1. Part numbers shown are unidirectional devices. Add a "CA" suffix to specify bidirectional devices, such as SM15KWE120CA.

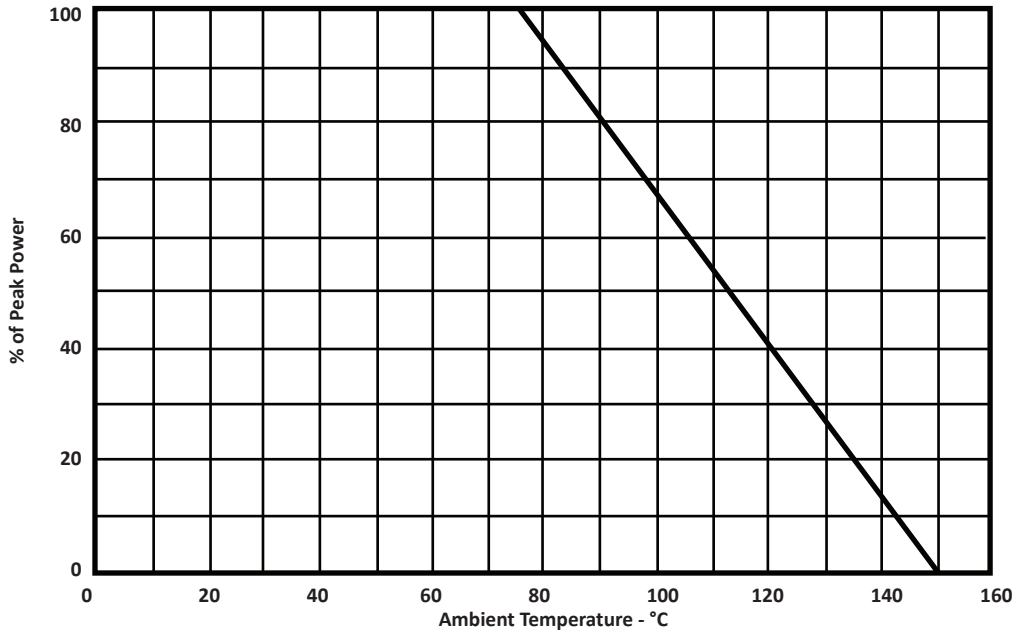


**FIGURE 2**  
PULSE WAVEFORM



**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

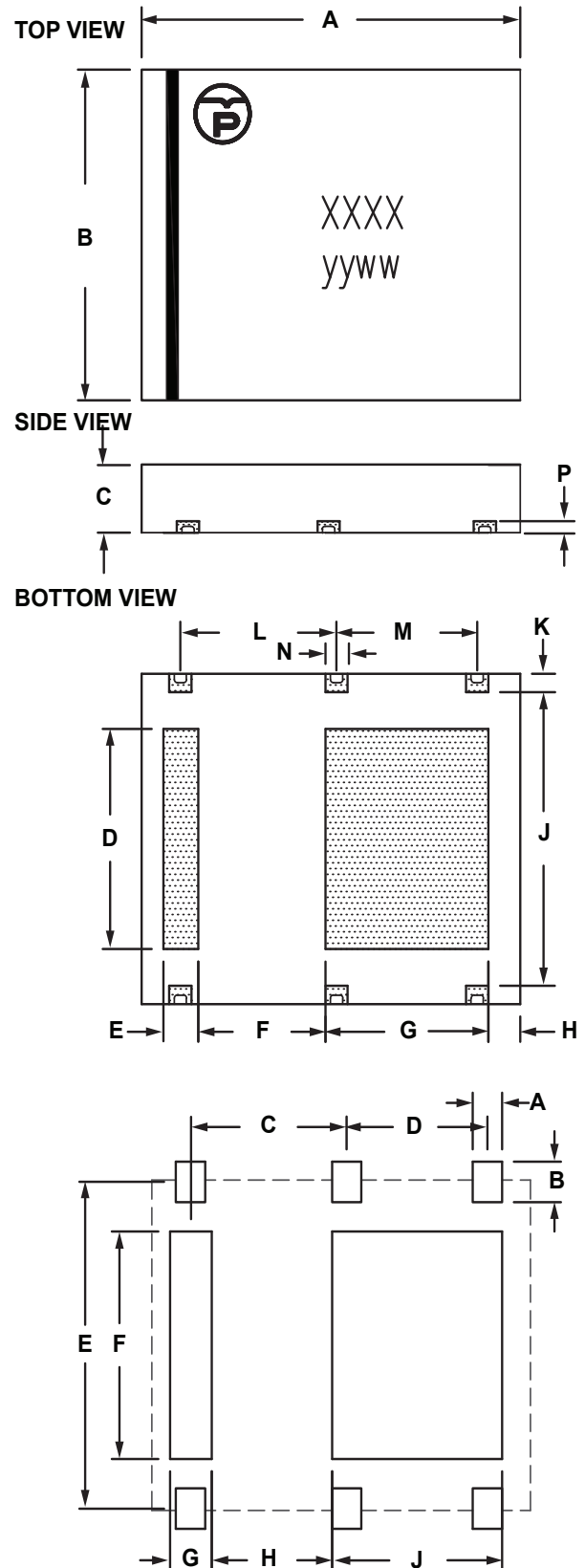
1. Dimensions are exclusive of mold flash and metal burrs.

## PCB PAD LAYOUT DIMENSIONS

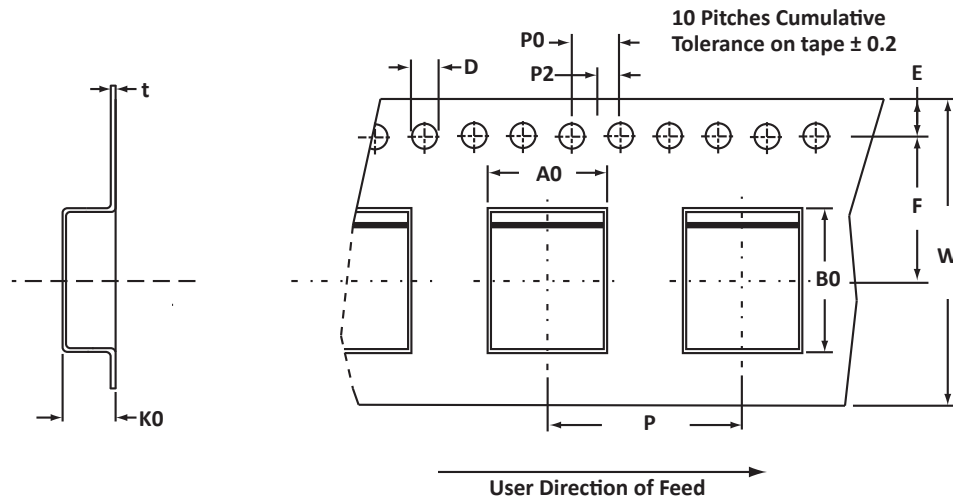
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.80	0.95	0.032	0.038
B	1.07	1.22	0.042	0.048
C	4.54		0.179	
D	4.11		0.162	
E	9.04		0.356	
F	6.25	6.40	0.250	0.252
G	1.17	1.32	0.046	0.052
H	3.46	3.61	0.136	0.143
J	4.91	5.06	0.193	0.199

## 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	$9.40 \pm 0.10$	$11.60 \pm 0.10$	$3.175 \pm 0.10$	$1.50 \pm 0.10$	$1.75 \pm 0.10$	$11.5 \pm 0.10$	$24.00 \pm 0.30$	$4.00 \pm 0.10$	$2.00 \pm 0.10$	$16.00 \pm 0.10$	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
SM15KWExxA/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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