



## 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

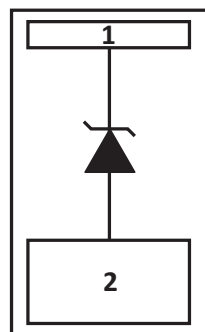
## APPLICATIONS

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

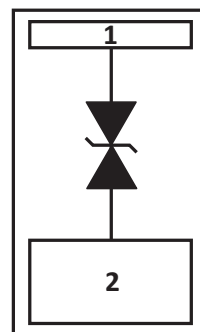
## MECHANICAL CHARACTERISTICS

- Molded Surface Mount Package
- Approximate Weight: 1.2 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

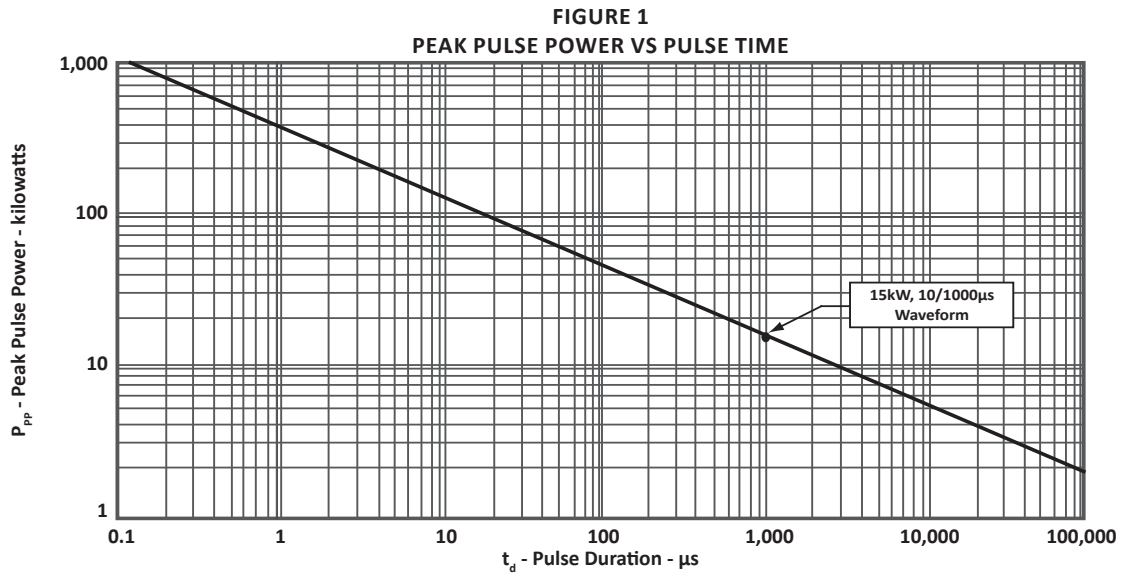
PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power (tp = 10/1000μs) - See Figure 1	P <sub>PP</sub>	15	kilowatts
Storage Temperature	T <sub>STG</sub>	-55 to +150	°C
Operating Temperature	T <sub>J</sub>	-55 to +150	°C

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

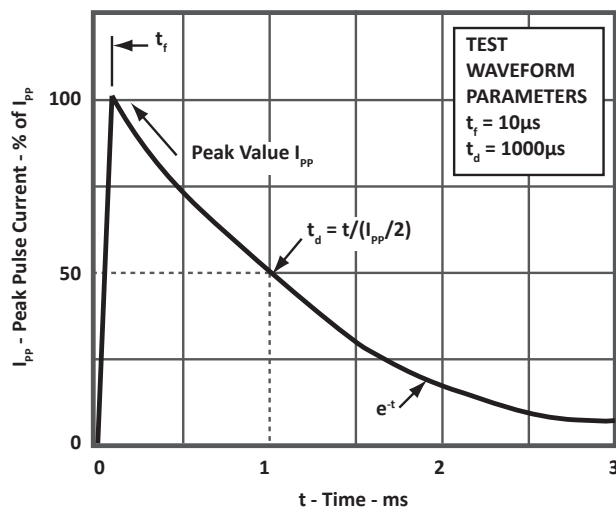
PART NUMBER (Note 1)	MARKING CODE		RATED STAND-OFF VOLTAGE  V <sub>WM</sub> VOLTS	MINIMUM BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT  @V <sub>WM</sub> I <sub>D</sub> μA	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  @ 10/1000μs V <sub>C</sub> @ I <sub>PP</sub>
	UNI	BI		MIN V <sub>(BR)</sub> VOLTS	@I <sub>T</sub> mA		
SM15KWE15A	15A	15C	15.0	16.9	5	10	24.4V @ 618A
SM15KWE20A	20A	20C	20.0	22.2	5	10	34.3V @ 437A
SM15KWE24A	24A	24C	24.0	26.7	5	10	38.9V @ 384A
SM15KWE28A	28A	28C	28.0	31.1	5	10	47.5V @ 316A
SM15KWE30A	30A	30C	30.0	33.3	5	10	50.7V @ 296A
SM15KWE33A	33A	33C	33.0	38.6	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	54.0	60.3	5	5	87.1V @ 172A
SM15KWE70A	70A	70C	70.0	77.8	5	5	114.0V @ 132A
SM15KWE75A	75A	75C	75.0	83.3	5	5	122.0V @ 123A
SM15KWE78A	78A	78C	78.0	87.0	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 SM15KWE30CA.

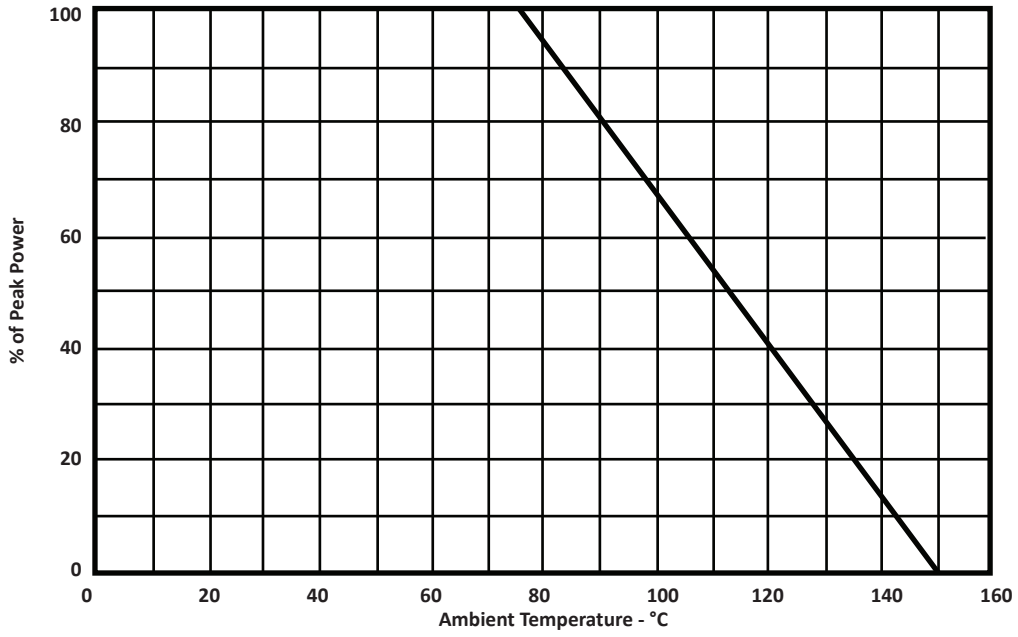


**FIGURE 2**  
PULSE WAVEFORM



**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	2.95	3.15	0.116	0.124
D	7.06	7.16	0.278	0.282
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

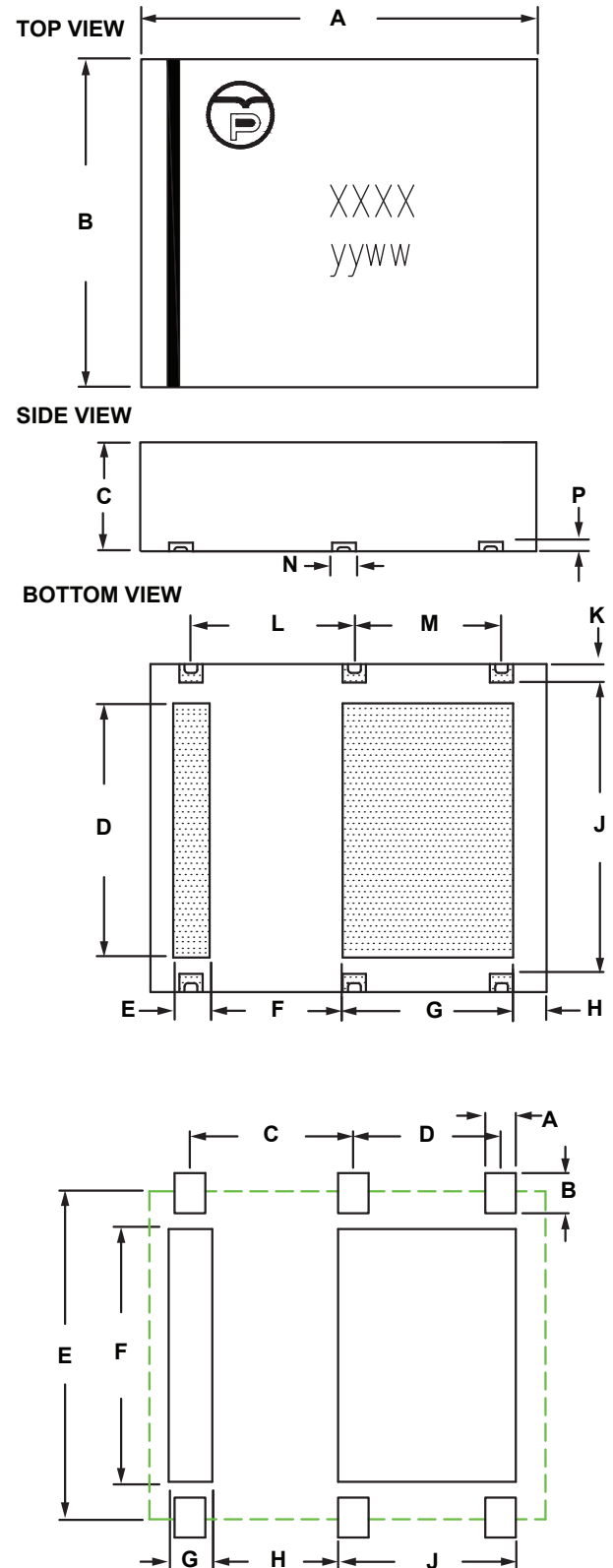
1. Dimensions are exclusive of mold flash and metal burrs.
2. Polarity band for unidirectional parts only.

## PCB PAD LAYOUT DIMENSIONS

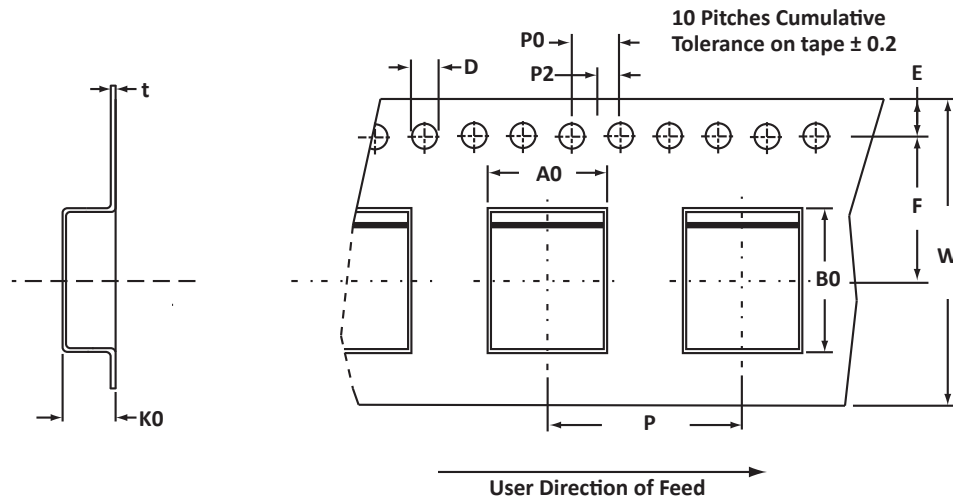
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.80	0.95	0.032	0.038
B	1.07	1.22	0.042	0.048
C	4.54		0.179	
D	4.11		0.162	
E	9.04		0.356	
F	7.26	7.36	0.286	0.290
G	1.17	1.32	0.046	0.052
H	3.46	3.61	0.136	0.143
J	4.91	5.06	0.195	0.199

## 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 (Unidirectional only).

## 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
SM15KWExxA/CA	n/a	-T71	100	7"	n/a
SM15KWExxA/CA	n/a	-T72	200	7"	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 30 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection that include Transient Voltage Suppressor (TVS) Arrays, Steering Diode Array Hybrids, High-power Components and Modules, as well as Steering Diodes, EMI Filter/TVS Arrays and Thyristor Surge Suppressors. These components deliver circuit protection in electronic systems from numerous overvoltage events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices is an ISO 9001 certified company.

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