

## DESCRIPTION

The SM10KWxxA/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 60 kilowatts of peak pulse power dissipation for an 8/20 $\mu$ 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
- 60 kilowatts Peak Pulse Power per Line ( $t_p = 8/20\mu$ s)
- 8.5 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 DFN-2-KW
- 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

## 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 = 8/20μs) - See Figure 1	P <sub>PP</sub>	60	kilowatts
Peak Pulse Power (tp = 10/1000μs) - See Figure 1	P <sub>PP</sub>	8.5	kilowatts
Storage Temperature	T <sub>STG</sub>	-55 to +150	°C
Operating Temperature	T <sub>L</sub>	-55 to +150	°C

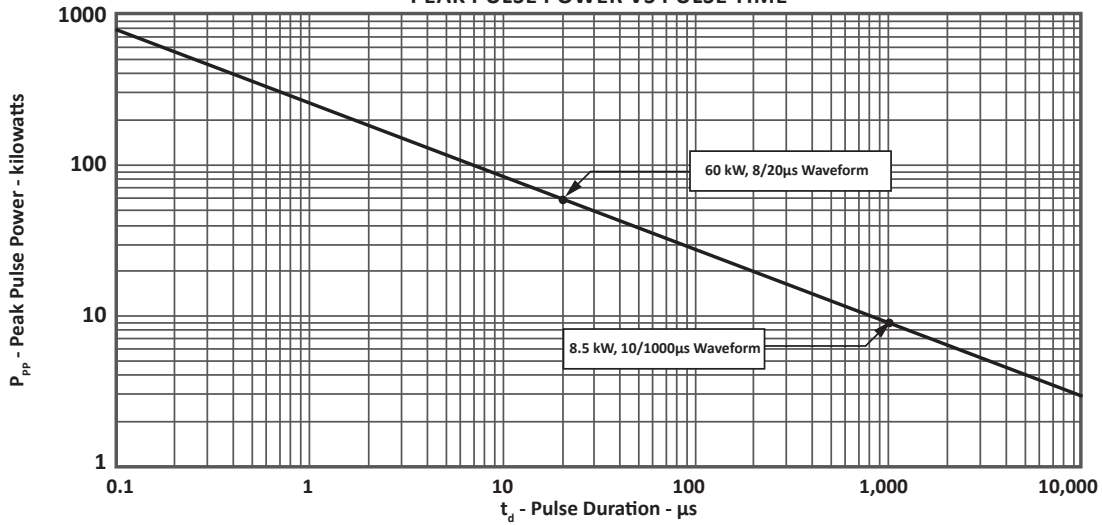
## ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Note 1)	MARKING CODE (Note 2)	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)  @ 8/20μs V <sub>C</sub> @ I <sub>PP</sub>
			MIN V <sub>(BR)</sub> VOLTS	@I <sub>T</sub> mA		
SM10KW10A	10U10	10	11.1	5	15	20.0V @ 3000A
SM10KW12A	10U12	12	13.4	5	8	24.0V @ 2500A
SM10KW15A	10U15	15	16.5	5	8	30.0V @ 2000A
SM10KW22A	10U22	22	24.4	5	8	40.2V @ 1492A
SM10KW24A	10U24	24	26.8	5	8	48.3V @ 1242A
SM10KW28A	10U28	28	31.2	5	8	56.1V @ 1069A
SM10KW30A	10U30	30	33.5	5	8	60.3V @ 995A
SM10KW33A	10U33	33	36.8	5	8	66.0 @ 909A
SM10KW36A	10U36	36	40.0	5	8	72.3V @ 829A
SM10KW48A	10U48	48	53.0	5	8	125.0V @ 480A

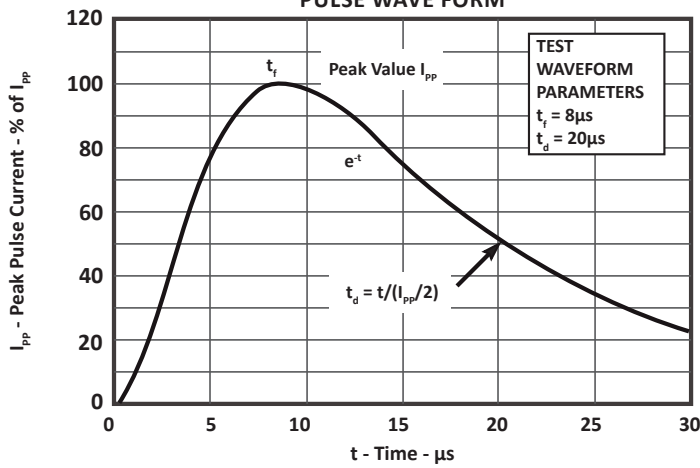
## NOTES

- Part numbers shown are unidirectional devices. Add a "CA" suffix to specify bidirectional devices, such as SM10KW24CA.
- Part marking shown are for unidirectional devices. Replace the "U" with a "B", such as 10B33 for the SM10KW33CA.

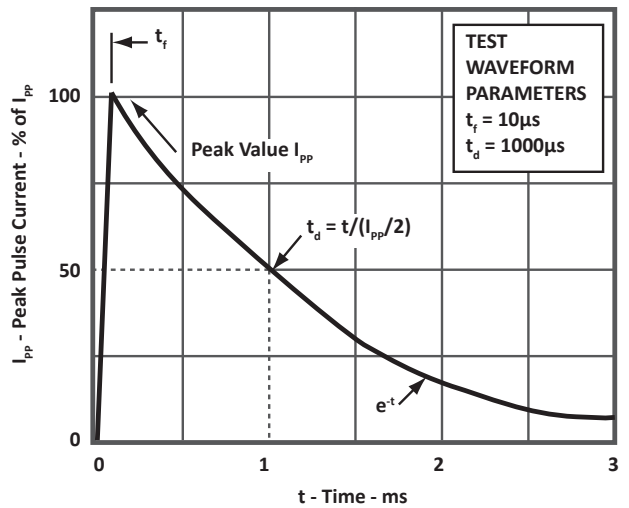
**FIGURE 1**  
**PEAK PULSE POWER VS PULSE TIME**



**FIGURE 2**  
**PULSE WAVE FORM**



**FIGURE 3**  
**PULSE WAVEFORM**



## DFN-2-5KW PACKAGE INFORMATION

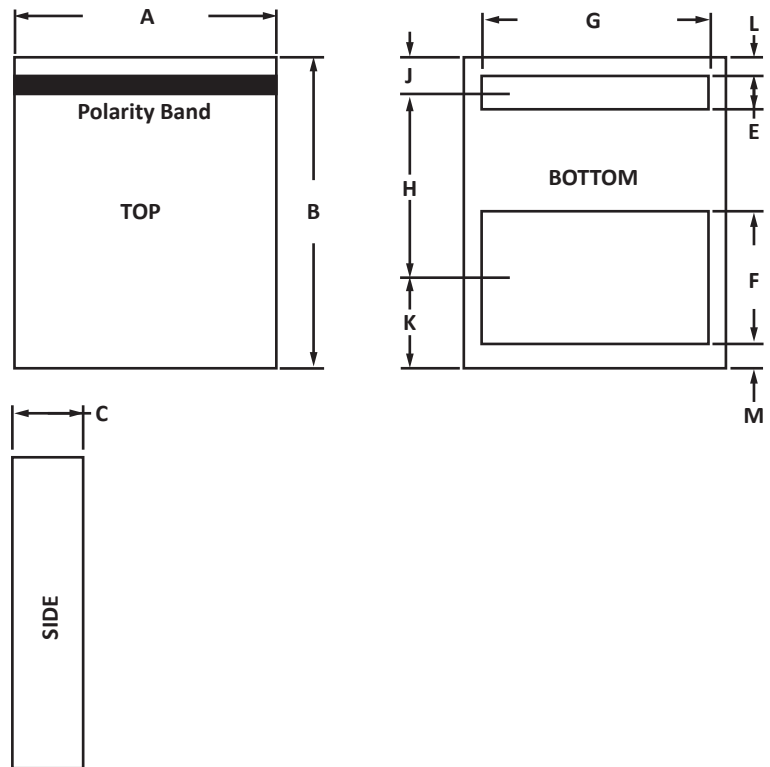
## RTCA DO-160G COMPLIANT PRODUCT

## OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.53	6.68	0.257	0.263
B	7.54	7.70	0.297	0.303
C	1.32	1.48	0.052	0.058
E	0.69	0.84	0.027	0.033
F	3.05	3.30	0.120	0.130
G	5.08	5.33	0.200	0.210
H	4.70	4.88	0.185	0.192
J	0.72	0.80	0.028	0.032
K	2.00	2.10	0.079	0.083
L	0.33	0.43	0.013	0.017
M	0.45	0.55	0.018	0.022

## NOTES

1. Dimensioning and tolerances per ANSI Y14.M, 1985.
2. Controlling dimension: millimeters.
3. Dimensions are exclusive of mold flash and metal burrs.

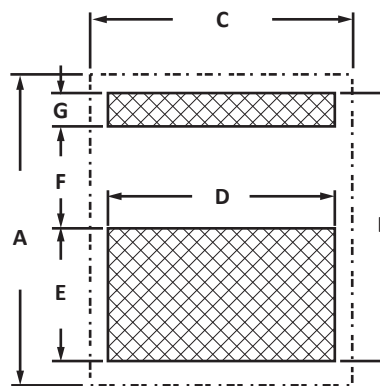


## PAD LAYOUT

DIM	MILLIMETERS	INCHES
	NOMINAL	NOMINAL
A	7.62	0.300
B	6.99	0.275
C	6.60	0.260
D	5.33	0.210
E	3.35	0.132
F	2.62	0.103
G	1.02	0.040

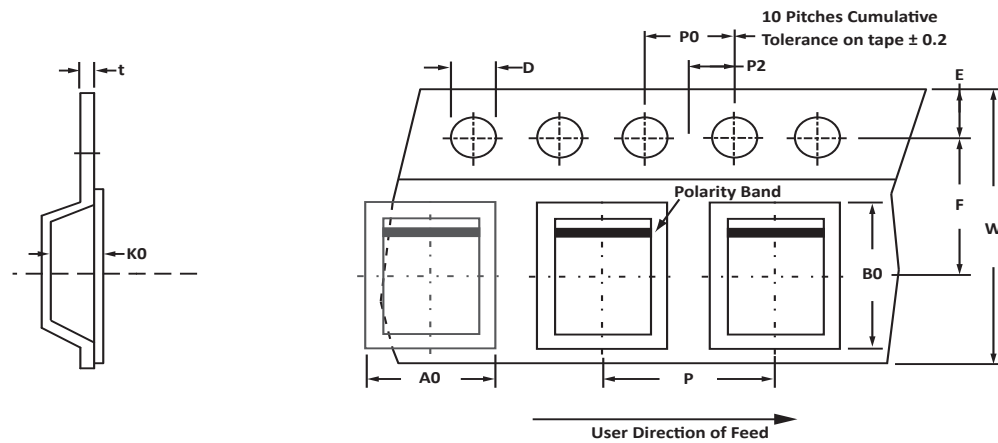
## NOTES

1. Controlling dimension: millimeters.



## TAPE AND REEL

## RTCA DO-160G COMPLIANT PRODUCT



## SPECIFICATIONS

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	t <sub>max</sub>
330mm (13")	16mm	6.98 ± 0.10	8.00 ± 0.10	1.66 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	3.50 ± 0.05	16.00 ± 0.30	4.00 ± 0.10	2.00 ± 0.05	8.00 ± 0.10	0.25

## NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Suffix - T13 = 13" Reel - 2,500 pieces per 16mm tape.
- 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
SM10KWxxA/CA	n/a	-T13	2,500	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 ISO 9001:2015 certified.

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