



DFN-2-3KW PACKAGE

## DESCRIPTION

The SM3KWxxA/C 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-2-3KW surface mount package configuration provides a lower profile at a reduce cost.

These devices provide 3,000 Watts 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
- IEC Compatibility 61000-4-5 (Surge): 48A, 8/20 $\mu$ s - L3(Line-Ground), L4(Line-Line) & L1 (Power)
- 3,000 Watts Peak Pulse Power per Line (tp = 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 DFN2-3KW
- Approximate Weight: 2.5 grams
- Lead-Free Silver Plating
- Solder Reflow Temperature: 260-270°C
- 12mm Tape and Reel Per EIA Standard 481
- Flammability Rating UL 94V-0

## CIRCUIT DIAGRAMS

Unidirectional



Bidirectional



## TYPICAL DEVICE CHARACTERISTICS

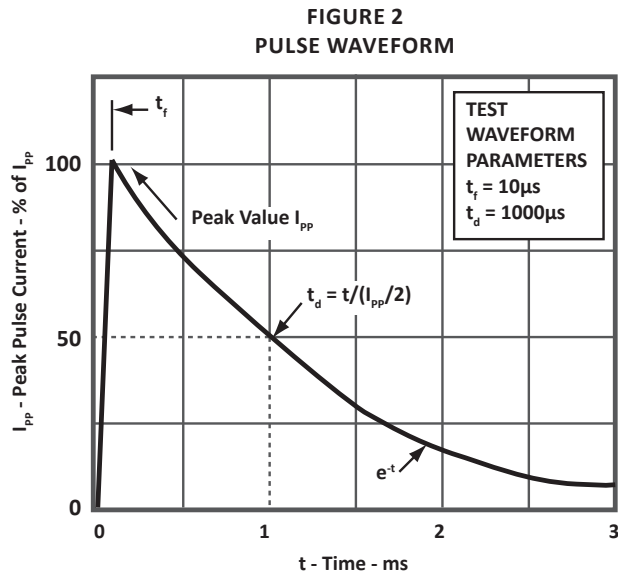
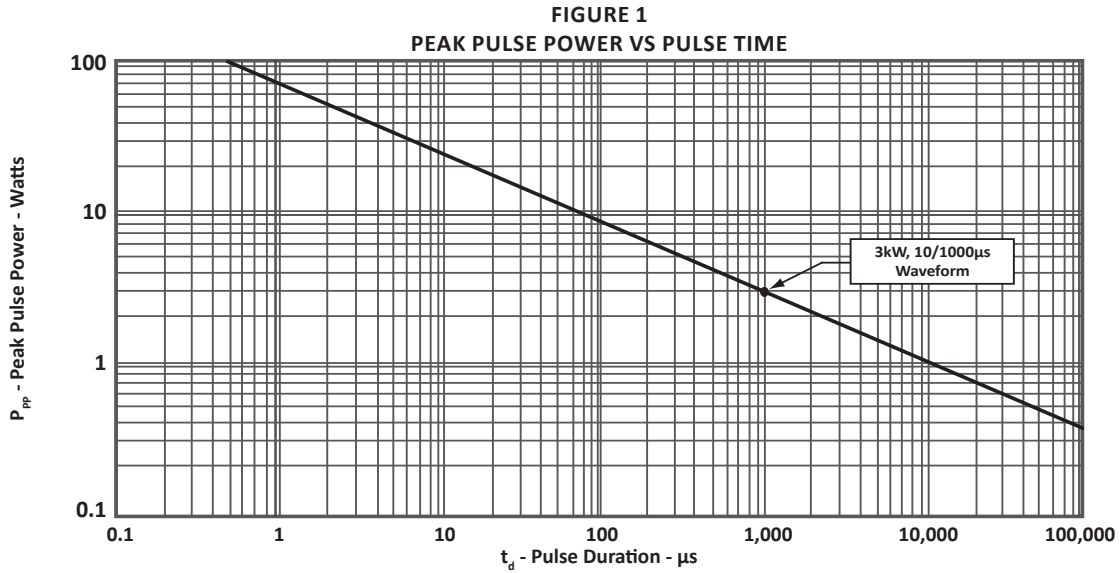
## RTCA DO-160G COMPLIANT PRODUCT

## MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

| PARAMETER  | SYMBOL    | VALUE      | UNITS |
|--|-----------|------------|-------|
| Peak Pulse Power (tp = 10/1000µs) - See Figure 1 | $P_{PP}$  | 3,000      | 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 | MARKING CODE | RATED STAND-OFF VOLTAGE<br><br>$V_{WM}$<br>VOLTS | MINIMUM BREAKDOWN VOLTAGE  |              | MAXIMUM LEAKAGE CURRENT<br><br>$@V_{WM}$<br>$I_D$<br>µA | MAXIMUM CLAMPING VOLTAGE (Fig. 2)<br><br>$@ 10/1000\mu s$<br>$V_C @ I_{PP}$ |
|-------------|--------------|--|----------------------------|--------------|---|---|
|             |              |  | MIN<br>$V_{(BR)}$<br>VOLTS | $@I_T$<br>mA |   |   |
| SM3KW08A    | 3U08         | 8  | 8.8                        | 1            | 50  | 13.6V @ 220A  |
| SM3KW24A    | 3U24         | 24   | 26.7                       | 1            | 3   | 43.0V @ 69.8A   |
| SM3KW33A    | 3U33         | 33   | 36.7                       | 1            | 3   | 56.3V @ 53.3A   |
| SM3KW08CA   | 3B08         | 8  | 8.8                        | 1            | 50  | 13.6V @ 220A  |
| SM3KW24CA   | 3B24         | 24   | 26.7                       | 1            | 3   | 43.0V @ 69.8A   |
| SM3KW33CA   | 3B33         | 33   | 36.7                       | 1            | 3   | 56.3V @ 53.3A   |



## DFN-2-3KW PACKAGE INFORMATION

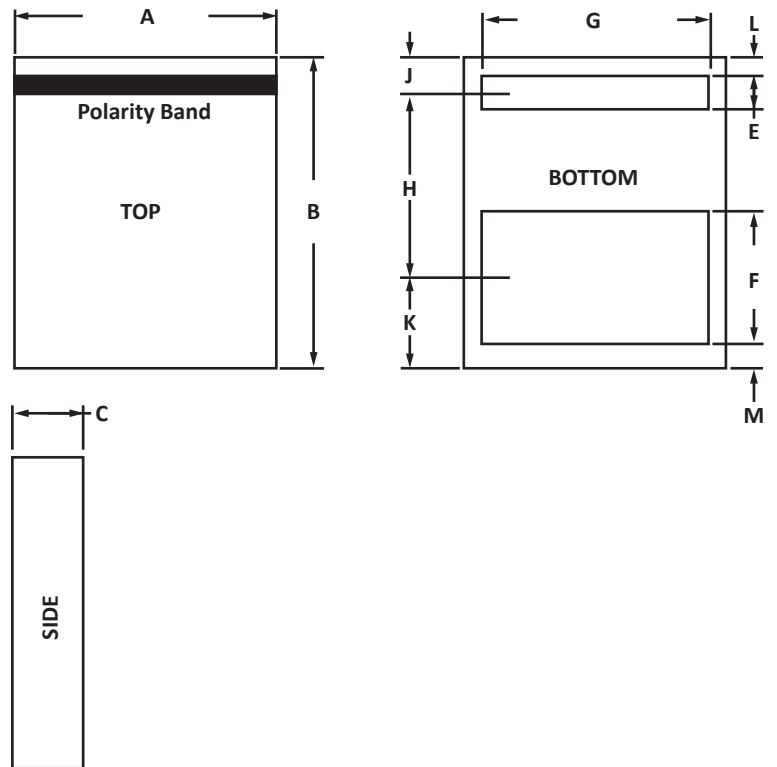
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## OUTLINE DIMENSIONS

| 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.
4. Polarity band - unidirectional only.

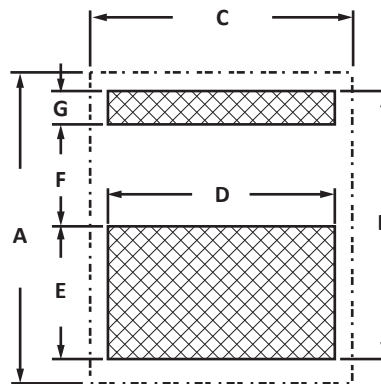


## PAD LAYOUT

| 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   |

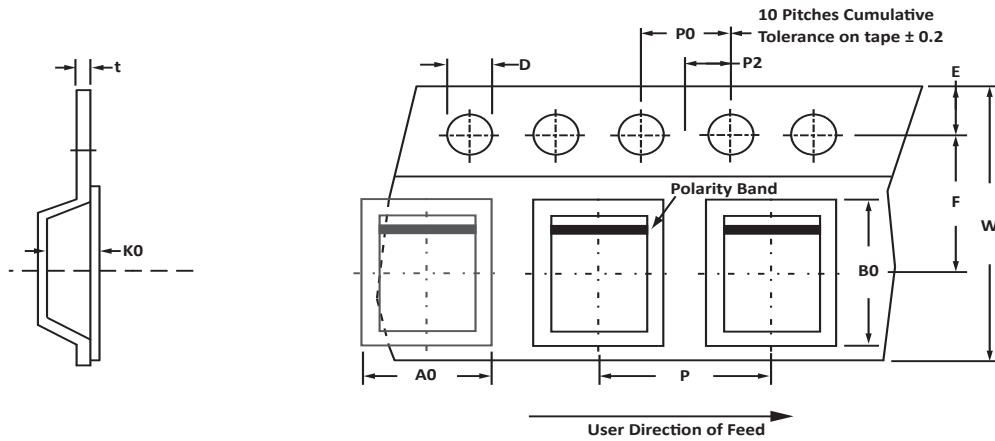
## NOTES

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           | tmax |
|-------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|------|
| 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

1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. Suffix - T13 = 13" Reel - 2,500 pieces per 16mm tape.
4. Marking on Part - marking code (see page 2), date code, logo and polarity band (Unidirectional only).

## ORDERING INFORMATION

| BASE PART NUMBER<br>(XX=VOLTAGE) | LEADFREE SUFFIX | TAPE SUFFIX | QTY/REEL | REEL SIZE | TUBE QTY |
|----------------------------------|-----------------|-------------|----------|-----------|----------|
| SM3KWxxA/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 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 high performance interface and linear products. They include analog switches; multiplexers; LED drivers; LED wafer die for ESD protection; audio control ICs; RF and related high frequency products.

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