

APPLICATIONS

- ✓ Wireless Communication Circuits
- ✓ RS-422, RS-432 & RS-485
- ✓ Low Voltage ASICs
- ✓ Portable Electronics

IEC COMPATIBILITY (EN61000-4)

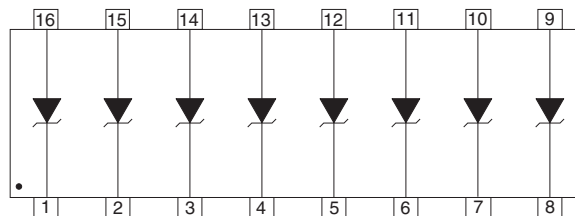
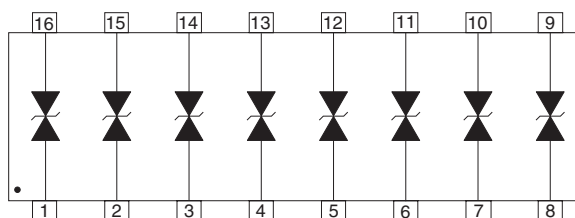
- ✓ 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- ✓ 61000-4-4 (EFT): 40A - 5/50ns
- ✓ 61000-4-5 (Surge): 12A, 8/20 μ s Level 1 (Line-Ground) & Level 2 (Line-Line)

FEATURES

- ✓ 500 Watts Peak Pulse Power per Line ($t_p=8/20\mu$ s)
- ✓ Unidirectional & Bidirectional Configurations
- ✓ ESD Protection > 40 kilovolts
- ✓ Available in Multiple Voltage Types: 3.3V to 24V
- ✓ Protects up to Eight (8) Lines
- ✓ RoHS Compliant

MECHANICAL CHARACTERISTICS

- ✓ Molded JEDEC SO-16 Package
- ✓ Weight 0.15 grams (Approximate)
- ✓ Available in Lead-Free Pure-Tin Plating (Annealed)
- ✓ Solder Reflow Temperature:
Pure-Tin - Sn, 100: 260-270°C
- ✓ Consult Factory for Leaded Device Availability
- ✓ Flammability Rating UL 94V-0
- ✓ 16mm Tape and Reel per EIA Standard 481
- ✓ Packaging: 25 Pieces Per Tube
- ✓ Marking: Logo, Part Number, Date Code & Pin One Defined By Dot on Top of Package


SO-16
PIN CONFIGURATIONS
UNIDIRECTIONAL CONFIGURATION

BIDIRECTIONAL CONFIGURATION


SM1603 thru SM1624C

DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

| PARAMETER | SYMBOL | VALUE | UNITS |
|---|-----------|------------|-------|
| Peak Pulse Power ($t_p = 8/20\mu s$) - See Figure 1 | P_{PP} | 500 | Watts |
| Operating Temperature | T_L | -55 to 150 | °C |
| Storage Temperature | T_{STG} | -55 to 150 | °C |

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

| PART NUMBER (See Note 1) | RATED STAND-OFF VOLTAGE V_{WM} VOLTS | MINIMUM BREAKDOWN VOLTAGE @ 1mA $V_{(BR)}$ VOLTS | MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ $I_p = 1A$ V_c VOLTS | MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ 8/20 μs $V_c @ I_{PP}$ | MAXIMUM LEAKAGE CURRENT @ V_{WM} I_b μA | MAXIMUM CAPACITANCE 0V @ 1 MHz C pF | TEMPERATURE COEFFICIENT OF $V_{(BR)}$ |
|-----------------------------|--|---|---|---|---|--|---------------------------------------|
| | | | | | | | $qV_{(BR)}$ mV/°C |
| SM1603 | 3.3 | 4.0 | 7.0 | 10.9V @ 43A | 125 | 800 | -3 |
| SM1603C | 3.3 | 4.0 | 7.0 | 10.9V @ 43A | 125 | 450 | -3 |
| SM1605 | 5.0 | 6.0 | 9.8 | 13.5V @ 42A | 10 | 550 | 3 |
| SM1605C | 5.0 | 6.0 | 9.8 | 13.5V @ 42A | 10 | 310 | 3 |
| SM1608 | 8.0 | 8.5 | 13.4 | 16.9V @ 34A | 10 | 500 | 9 |
| SM1608C | 8.0 | 8.5 | 13.4 | 16.9V @ 34A | 10 | 280 | 9 |
| SM1612 | 12.0 | 13.3 | 19.0 | 25.9V @ 21A | 2 | 185 | 16 |
| SM1612C | 12.0 | 13.3 | 19.0 | 25.9V @ 21A | 2 | 105 | 16 |
| SM1615 | 15.0 | 16.7 | 25.5 | 30.0V @ 17A | 2 | 140 | 17 |
| SM1615C | 15.0 | 16.7 | 25.5 | 30.0V @ 17A | 2 | 80 | 17 |
| SM1624 | 24.0 | 26.7 | 40.0 | 49.0V @ 12A | 2 | 88 | 26 |
| SM1624C | 24.0 | 26.7 | 40.0 | 49.0V @ 12A | 2 | 50 | 26 |

Note 1: Part numbers with a "C" suffix are bidirectional devices.

Note 2: $V_F = 1.5$ Volts @ 100mA, 300 μs (square wave) unidirectional devices only.

GRAPHS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

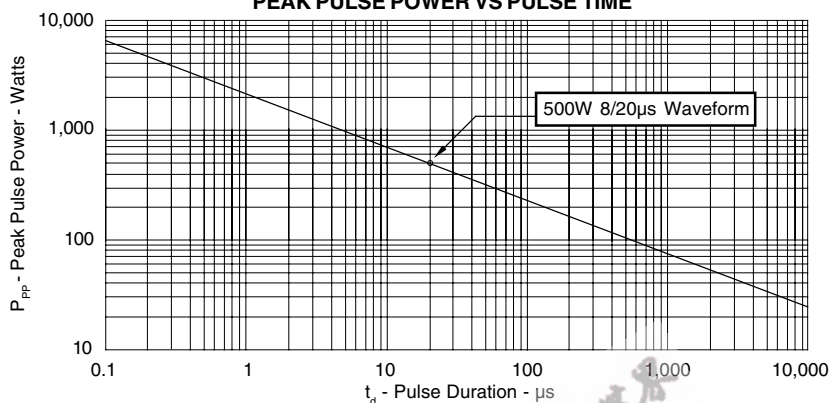


FIGURE 2
PULSE WAVE FORM

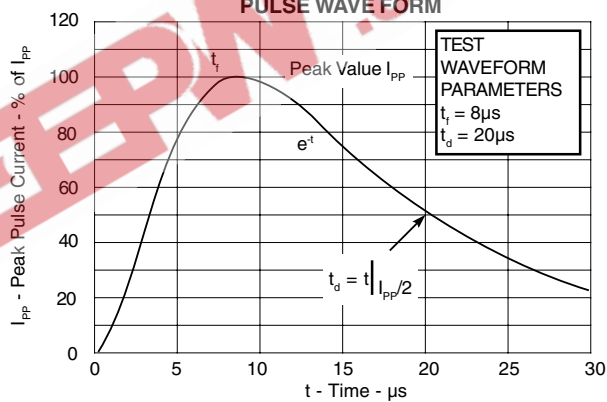
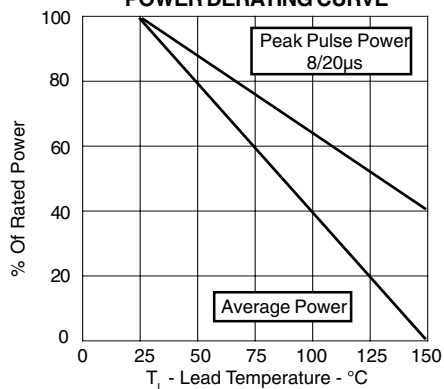
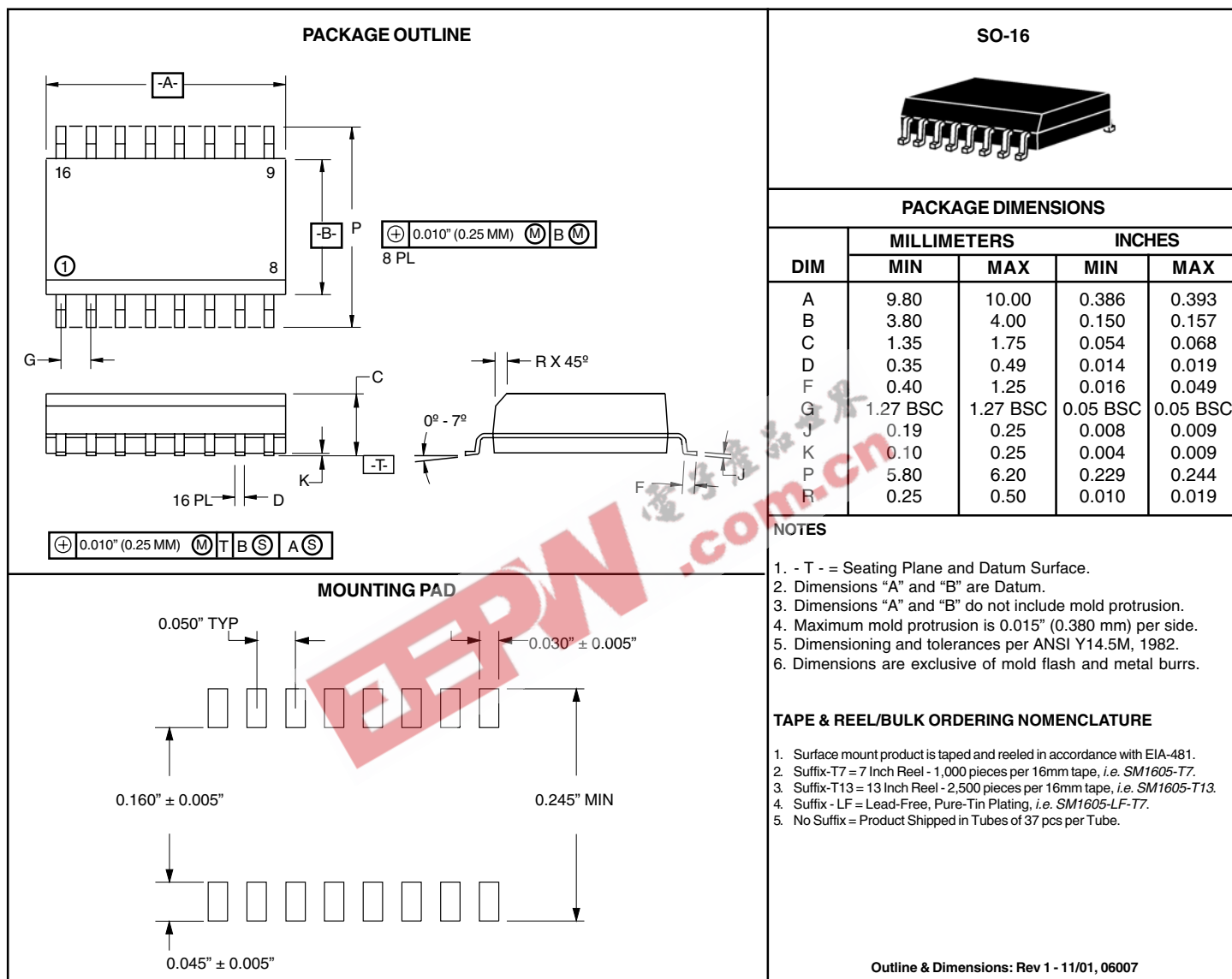


FIGURE 3
POWER DERATING CURVE



SM1603 thru SM1624C

SO-16 PACKAGE OUTLINE & DIMENSIONS



Outline & Dimensions: Rev 1 - 11/01, 06007

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