

**400 WATT TVS COMPONENT****APPLICATIONS**

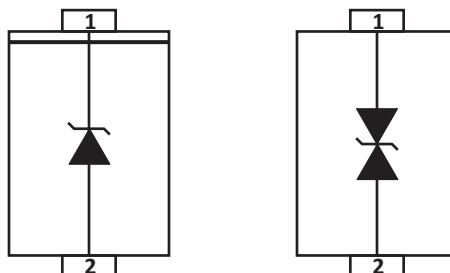
- Power Supply
- AC/DC Applications
- Telecom

**FEATURES**

- UL File Recognition #E208219
- IEC 61000-4-2 (ESD): Level 4 - Air 15kV, Contact 8kV
- IEC 61000-4-4 (EFT): 40A 5/50ns
- IEC 61000-4-5 (Surge): 8/20 $\mu$ s Waveform
- Glass Passivated Chip
- 400 Watts Peak Pulse Power per Line ( $t_p = 10/1000\mu$ s)
- Low Leakage Current
- Bidirectional and Unidirectional Configurations
- Excellent Clamping Capability
- Very Fast Response Time
- Available in Multiple Voltages
- RoHS Compliant
- REACH Compliant

**MECHANICAL CHARACTERISTICS**

- Molded JEDEC DO-214AC Package
- Approximate Weight: 0.06 grams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:  
Pure-Tin - Sn, 100: 260-270°C
- 12mm Tape and Reel Per EIA Standard 481
- Terminal: Solderable per MIL-STD-750, Method 2026
- Flammability Rating UL 94V-0

**PIN CONFIGURATIONS**

## TYPICAL DEVICE CHARACTERISTICS

## MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

| PARAMETER                                                                             | SYMBOL    | VALUE      | UNITS |
|---------------------------------------------------------------------------------------|-----------|------------|-------|
| Operating Temperature                                                                 | $T_A$     | -55 to 150 | °C    |
| Storage Temperature                                                                   | $T_{STG}$ | -55 to 150 | °C    |
| Peak Pulse Power (tp = 10/1000µs) - See Figure 1 and Note 1                           | $P_{PP}$  | 400        | Watts |
| Power Dissipation on Infinite Heatsink at $T_L = 75^\circ\text{C}$                    | $P_D$     | 1.0        | Watts |
| Peak Forward Surge Current, 8.3ms single half sinewave - Unidirectional Only (Note 2) | $I_{FSM}$ | 40         | Amps  |
| Maximum Instantaneous Forward Voltage at 25A - Unidirectional Only (Note 3)           | $V_F$     | 3.5/5.0    | V     |

## NOTE

1. Non-repetitive current pulse per Figure 2 and derated above  $T_A = 25^\circ\text{C}$  per Figure 3.
2. Measured on 8.3ms single half sinewave or equivalent square wave, duty cycle = 4 pulses per minute maximum.
3.  $V_F < 3.5\text{V}$ .

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

| PART NUMBER<br>(Notes 1-3) | DEVICE MARKING |    | REVERSE STAND-OFF VOLTAGE<br><br>$V_{RWM}$ VOLTS | BREAKDOWN VOLTAGE<br><br>$V_{(BR)} @ I_T$ VOLTS |       | TEST CURRENT<br><br>@ $I_T$ mA | MAXIMUM CLAMPING VOLTAGE (Fig. 2)<br><br>@ $I_P$<br>$V_C$ VOLTS | MAXIMUM REVERSE SURGE CURRENT<br><br>@ $I_{PP}$ AMPS | MAXIMUM REVERSE LEAKAGE CURRENT<br><br>@ $V_{RWM}$<br>$I_R$ µA |
|----------------------------|----------------|----|--------------------------------------------------|-------------------------------------------------|-------|--------------------------------|-----------------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------|
|                            | UNI            | BI |                                                  | MIN                                             | MAX   |                                |                                                                 |                                                      |                                                                |
| SMAJ5.0                    | AD             | WD | 5.0                                              | 6.40                                            | 7.30  | 10                             | 9.6                                                             | 41.7                                                 | 800                                                            |
| SMAJ5.0A                   | AE             | WE | 5.0                                              | 6.40                                            | 7.00  | 10                             | 9.2                                                             | 43.5                                                 | 800                                                            |
| SMAJ6.0                    | AF             | WF | 6.0                                              | 6.67                                            | 8.15  | 10                             | 11.4                                                            | 35.1                                                 | 800                                                            |
| SMAJ6.0A                   | AG             | WG | 6.0                                              | 6.67                                            | 7.37  | 10                             | 10.3                                                            | 38.8                                                 | 800                                                            |
| SMAJ6.5                    | AH             | WH | 6.5                                              | 7.22                                            | 8.82  | 10                             | 12.3                                                            | 32.5                                                 | 500                                                            |
| SMAJ6.5A                   | AK             | WK | 6.5                                              | 7.22                                            | 7.98  | 10                             | 11.2                                                            | 35.7                                                 | 500                                                            |
| SMAJ7.0                    | AL             | WL | 7.0                                              | 7.78                                            | 9.51  | 10                             | 13.3                                                            | 30.1                                                 | 200                                                            |
| SMAJ7.0A                   | AM             | WM | 7.0                                              | 7.78                                            | 8.60  | 10                             | 12.0                                                            | 33.3                                                 | 200                                                            |
| SMAJ7.5                    | AN             | WN | 7.5                                              | 8.33                                            | 10.20 | 1                              | 14.3                                                            | 28.0                                                 | 100                                                            |
| SMAJ7.5A                   | AP             | WP | 7.5                                              | 8.33                                            | 9.21  | 1                              | 12.9                                                            | 31.0                                                 | 100                                                            |
| SMAJ8.0                    | AQ             | WQ | 8.0                                              | 8.89                                            | 10.90 | 1                              | 15.0                                                            | 26.7                                                 | 50                                                             |
| SMAJ8.0A                   | AR             | WR | 8.0                                              | 8.89                                            | 9.83  | 1                              | 13.6                                                            | 29.4                                                 | 50                                                             |
| SMAJ8.5                    | AS             | WS | 8.5                                              | 9.44                                            | 11.50 | 1                              | 15.9                                                            | 25.2                                                 | 10                                                             |
| SMAJ8.5A                   | AT             | WT | 8.5                                              | 9.44                                            | 10.40 | 1                              | 14.4                                                            | 27.8                                                 | 10                                                             |
| SMAJ9.0                    | AU             | WU | 9.0                                              | 10.00                                           | 12.20 | 1                              | 16.9                                                            | 23.7                                                 | 5                                                              |
| SMAJ9.0A                   | AV             | WV | 9.0                                              | 10.00                                           | 11.10 | 1                              | 15.4                                                            | 26.0                                                 | 5                                                              |
| SMAJ10                     | AW             | WW | 10.0                                             | 11.10                                           | 13.60 | 1                              | 18.8                                                            | 21.3                                                 | 5                                                              |
| SMAJ10A                    | AX             | WX | 10.0                                             | 11.10                                           | 12.30 | 1                              | 17.0                                                            | 23.5                                                 | 5                                                              |
| SMAJ11                     | AY             | WY | 11.0                                             | 12.20                                           | 14.90 | 1                              | 20.1                                                            | 19.9                                                 | 1                                                              |
| SMAJ11A                    | AZ             | WZ | 11.0                                             | 12.20                                           | 13.50 | 1                              | 18.2                                                            | 22.0                                                 | 1                                                              |
| SMAJ12                     | BD             | XD | 12.0                                             | 13.30                                           | 16.30 | 1                              | 22.0                                                            | 18.2                                                 | 1                                                              |
| SMAJ12A                    | BE             | XE | 12.0                                             | 13.30                                           | 14.70 | 1                              | 19.9                                                            | 20.1                                                 | 1                                                              |

## TYPICAL DEVICE CHARACTERISTICS

| ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified |                   |    |                                                           |                                                       |       |                                      |                                                                             |                                                                  |                                                                                 |
|-----------------------------------------------------------------------|-------------------|----|-----------------------------------------------------------|-------------------------------------------------------|-------|--------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------|
| PART<br>NUMBER<br>(Notes 1-3)                                         | DEVICE<br>MARKING |    | REVERSE<br>STAND-OFF<br>VOLTAGE<br><br>$V_{RWM}$<br>VOLTS | BREAKDOWN<br>VOLTAGE<br><br>$V_{(BR)} @ I_T$<br>VOLTS |       | TEST<br>CURRENT<br><br>$@ I_T$<br>mA | MAXIMUM<br>CLAMPING<br>VOLTAGE<br>(Fig. 2)<br><br>$@ I_P$<br>$V_C$<br>VOLTS | MAXIMUM<br>REVERSE<br>SURGE<br>CURRENT<br><br>$@ I_{PP}$<br>AMPS | MAXIMUM<br>REVERSE<br>LEAKAGE<br>CURRENT<br><br>$@ V_{RWM}$<br>$I_R$<br>$\mu A$ |
|                                                                       | UNI               | BI |                                                           | MIN                                                   | MAX   |                                      |                                                                             |                                                                  |                                                                                 |
| SMAJ13                                                                | BF                | XF | 13.0                                                      | 14.40                                                 | 17.60 | 1                                    | 23.8                                                                        | 16.8                                                             | 1                                                                               |
| SMAJ13A                                                               | BG                | XG | 13.0                                                      | 14.40                                                 | 15.90 | 1                                    | 21.5                                                                        | 18.6                                                             | 1                                                                               |
| SMAJ14                                                                | BH                | XH | 14.0                                                      | 15.60                                                 | 19.10 | 1                                    | 25.8                                                                        | 15.5                                                             | 1                                                                               |
| SMAJ14A                                                               | BK                | XK | 14.0                                                      | 15.60                                                 | 17.20 | 1                                    | 23.2                                                                        | 17.2                                                             | 1                                                                               |
| SMAJ15                                                                | BL                | XL | 15.0                                                      | 16.70                                                 | 20.40 | 1                                    | 26.9                                                                        | 14.9                                                             | 1                                                                               |
| SMAJ15A                                                               | BM                | XM | 15.0                                                      | 16.70                                                 | 18.50 | 1                                    | 24.4                                                                        | 16.4                                                             | 1                                                                               |
| SMAJ16                                                                | BN                | XN | 16.0                                                      | 17.80                                                 | 21.80 | 1                                    | 28.8                                                                        | 13.9                                                             | 1                                                                               |
| SMAJ16A                                                               | BP                | XP | 16.0                                                      | 17.80                                                 | 19.70 | 1                                    | 26.0                                                                        | 15.4                                                             | 1                                                                               |
| SMAJ17                                                                | BQ                | XQ | 17.0                                                      | 18.90                                                 | 23.10 | 1                                    | 30.5                                                                        | 13.1                                                             | 1                                                                               |
| SMAJ17A                                                               | BR                | XR | 17.0                                                      | 18.90                                                 | 20.90 | 1                                    | 27.6                                                                        | 14.5                                                             | 1                                                                               |
| SMAJ18                                                                | BS                | XS | 18.0                                                      | 20.00                                                 | 24.40 | 1                                    | 32.2                                                                        | 12.4                                                             | 1                                                                               |
| SMAJ18A                                                               | BT                | XT | 18.0                                                      | 20.00                                                 | 22.10 | 1                                    | 29.2                                                                        | 13.7                                                             | 1                                                                               |
| SMAJ19                                                                | BA                | XA | 19.0                                                      | 21.13                                                 | 25.76 | 1                                    | 34.0                                                                        | 11.8                                                             | 1                                                                               |
| SMAJ19A                                                               | BB                | XB | 19.0                                                      | 21.10                                                 | 23.30 | 1                                    | 30.8                                                                        | 13.0                                                             | 1                                                                               |
| SMAJ20                                                                | BU                | XU | 20.0                                                      | 22.20                                                 | 27.10 | 1                                    | 35.8                                                                        | 11.2                                                             | 1                                                                               |
| SMAJ20A                                                               | BV                | XV | 20.0                                                      | 22.20                                                 | 24.50 | 1                                    | 32.4                                                                        | 12.4                                                             | 1                                                                               |
| SMAJ22                                                                | BW                | XW | 22.0                                                      | 24.40                                                 | 29.80 | 1                                    | 39.4                                                                        | 10.2                                                             | 1                                                                               |
| SMAJ22A                                                               | BX                | XX | 22.0                                                      | 24.40                                                 | 26.90 | 1                                    | 35.5                                                                        | 11.3                                                             | 1                                                                               |
| SMAJ24                                                                | BY                | XY | 24.0                                                      | 26.70                                                 | 32.60 | 1                                    | 43.0                                                                        | 9.3                                                              | 1                                                                               |
| SMAJ24A                                                               | BZ                | XZ | 24.0                                                      | 26.70                                                 | 29.50 | 1                                    | 38.9                                                                        | 10.3                                                             | 1                                                                               |
| SMAJ26                                                                | CD                | YD | 26.0                                                      | 28.90                                                 | 35.30 | 1                                    | 46.6                                                                        | 8.6                                                              | 1                                                                               |
| SMAJ26A                                                               | CE                | YE | 26.0                                                      | 28.90                                                 | 31.90 | 1                                    | 42.1                                                                        | 9.5                                                              | 1                                                                               |
| SMAJ28                                                                | CF                | YF | 28.0                                                      | 31.10                                                 | 38.00 | 1                                    | 50.0                                                                        | 8.0                                                              | 1                                                                               |
| SMAJ28A                                                               | CG                | YG | 28.0                                                      | 31.10                                                 | 34.40 | 1                                    | 45.4                                                                        | 8.8                                                              | 1                                                                               |
| SMAJ30                                                                | CH                | YH | 30.0                                                      | 33.30                                                 | 40.70 | 1                                    | 53.5                                                                        | 7.5                                                              | 1                                                                               |
| SMAJ30A                                                               | CK                | YK | 30.0                                                      | 33.30                                                 | 36.80 | 1                                    | 48.4                                                                        | 8.3                                                              | 1                                                                               |
| SMAJ33                                                                | CL                | YL | 33.0                                                      | 36.70                                                 | 44.90 | 1                                    | 59.0                                                                        | 6.8                                                              | 1                                                                               |
| SMAJ33A                                                               | CM                | YM | 33.0                                                      | 36.70                                                 | 40.60 | 1                                    | 53.3                                                                        | 7.5                                                              | 1                                                                               |
| SMAJ36                                                                | CN                | YN | 36.0                                                      | 40.00                                                 | 48.90 | 1                                    | 64.3                                                                        | 6.2                                                              | 1                                                                               |
| SMAJ36A                                                               | CP                | YP | 36.0                                                      | 40.00                                                 | 44.20 | 1                                    | 58.1                                                                        | 6.9                                                              | 1                                                                               |
| SMAJ40                                                                | CQ                | YQ | 40.0                                                      | 44.40                                                 | 54.30 | 1                                    | 71.4                                                                        | 5.6                                                              | 1                                                                               |
| SMAJ40A                                                               | CR                | YR | 40.0                                                      | 44.40                                                 | 49.10 | 1                                    | 64.5                                                                        | 6.2                                                              | 1                                                                               |
| SMAJ43                                                                | CS                | YS | 43.0                                                      | 47.80                                                 | 58.40 | 1                                    | 76.7                                                                        | 5.2                                                              | 1                                                                               |
| SMAJ43A                                                               | CT                | YT | 43.0                                                      | 47.80                                                 | 52.80 | 1                                    | 69.4                                                                        | 5.8                                                              | 1                                                                               |

## TYPICAL DEVICE CHARACTERISTICS

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

| PART<br>NUMBER<br>(Notes 1-3) | DEVICE<br>MARKING |    | REVERSE<br>STAND-OFF<br>VOLTAGE<br><br>$V_{RWM}$<br>VOLTS | BREAKDOWN<br>VOLTAGE<br><br>$V_{(BR)}$ @ $I_T$<br>VOLTS |        | TEST<br>CURRENT<br><br>@ $I_T$<br>mA | MAXIMUM<br>CLAMPING<br>VOLTAGE<br>(Fig. 2)<br><br>@ $I_P$<br>$V_C$<br>VOLTS | MAXIMUM<br>REVERSE<br>SURGE<br>CURRENT<br><br>@ $I_{PP}$<br>AMPS | MAXIMUM<br>REVERSE<br>LEAKAGE<br>CURRENT<br><br>@ $V_{RWM}$<br>$I_R$<br>$\mu A$ |
|-------------------------------|-------------------|----|-----------------------------------------------------------|---------------------------------------------------------|--------|--------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------|
|                               | UNI               | BI |                                                           | MIN                                                     | MAX    |                                      |                                                                             |                                                                  |                                                                                 |
| SMAJ45                        | CU                | YU | 45.0                                                      | 50.00                                                   | 61.10  | 1                                    | 80.3                                                                        | 5.0                                                              | 1                                                                               |
| SMAJ45A                       | CV                | YV | 45.0                                                      | 50.00                                                   | 55.30  | 1                                    | 72.7                                                                        | 5.5                                                              | 1                                                                               |
| SMAJ48                        | CW                | YW | 48.0                                                      | 53.30                                                   | 65.10  | 1                                    | 85.5                                                                        | 4.7                                                              | 1                                                                               |
| SMAJ48A                       | CX                | YX | 48.0                                                      | 53.30                                                   | 58.90  | 1                                    | 77.4                                                                        | 5.2                                                              | 1                                                                               |
| SMAJ51                        | CY                | YY | 51.0                                                      | 56.70                                                   | 69.30  | 1                                    | 91.1                                                                        | 4.4                                                              | 1                                                                               |
| SMAJ51A                       | CZ                | YZ | 51.0                                                      | 56.70                                                   | 62.70  | 1                                    | 82.4                                                                        | 4.9                                                              | 1                                                                               |
| SMAJ54                        | RD                | ZD | 54.0                                                      | 60.00                                                   | 73.30  | 1                                    | 96.3                                                                        | 4.2                                                              | 1                                                                               |
| SMAJ54A                       | RE                | ZE | 54.0                                                      | 60.00                                                   | 66.30  | 1                                    | 87.1                                                                        | 4.6                                                              | 1                                                                               |
| SMAJ58                        | RF                | ZF | 58.0                                                      | 64.40                                                   | 78.70  | 1                                    | 103.0                                                                       | 3.9                                                              | 1                                                                               |
| SMAJ58A                       | RG                | ZG | 58.0                                                      | 64.40                                                   | 71.20  | 1                                    | 93.6                                                                        | 4.3                                                              | 1                                                                               |
| SMAJ60                        | RH                | ZH | 60.0                                                      | 66.70                                                   | 81.50  | 1                                    | 107.0                                                                       | 3.7                                                              | 1                                                                               |
| SMAJ60A                       | RK                | ZK | 60.0                                                      | 66.70                                                   | 73.70  | 1                                    | 96.8                                                                        | 4.1                                                              | 1                                                                               |
| SMAJ64                        | RL                | ZL | 64.0                                                      | 71.10                                                   | 86.90  | 1                                    | 114.0                                                                       | 3.5                                                              | 1                                                                               |
| SMAJ64A                       | RM                | ZM | 64.0                                                      | 71.10                                                   | 78.60  | 1                                    | 103.0                                                                       | 3.9                                                              | 1                                                                               |
| SMAJ70                        | RN                | ZN | 70.0                                                      | 77.80                                                   | 95.10  | 1                                    | 125.0                                                                       | 3.2                                                              | 1                                                                               |
| SMAJ70A                       | RP                | ZP | 70.0                                                      | 77.80                                                   | 86.00  | 1                                    | 113.0                                                                       | 3.5                                                              | 1                                                                               |
| SMAJ75                        | RQ                | ZQ | 75.0                                                      | 83.30                                                   | 102.00 | 1                                    | 134.0                                                                       | 3.0                                                              | 1                                                                               |
| SMAJ75A                       | RR                | ZR | 75.0                                                      | 83.30                                                   | 92.10  | 1                                    | 121.0                                                                       | 3.3                                                              | 1                                                                               |
| SMAJ78                        | RS                | ZS | 78.0                                                      | 86.70                                                   | 106.00 | 1                                    | 139.0                                                                       | 2.9                                                              | 1                                                                               |
| SMAJ78A                       | RT                | ZT | 78.0                                                      | 86.70                                                   | 95.80  | 1                                    | 126.0                                                                       | 3.2                                                              | 1                                                                               |
| SMAJ80                        | RA                | ZA | 80.0                                                      | 88.96                                                   | 108.80 | 1                                    | 143.2                                                                       | 2.8                                                              | 1                                                                               |
| SMAJ80A                       | RB                | ZB | 80.0                                                      | 88.80                                                   | 97.60  | 1                                    | 129.6                                                                       | 3.1                                                              | 1                                                                               |
| SMAJ85                        | RU                | ZU | 85.0                                                      | 94.40                                                   | 115.00 | 1                                    | 151.0                                                                       | 2.7                                                              | 1                                                                               |
| SMAJ85A                       | RV                | ZV | 85.0                                                      | 94.40                                                   | 104.00 | 1                                    | 137.0                                                                       | 2.9                                                              | 1                                                                               |
| SMAJ90                        | RW                | ZW | 90.0                                                      | 100.00                                                  | 122.00 | 1                                    | 160.0                                                                       | 2.5                                                              | 1                                                                               |
| SMAJ90A                       | RX                | ZX | 90.0                                                      | 100.00                                                  | 111.00 | 1                                    | 146.0                                                                       | 2.7                                                              | 1                                                                               |
| SMAJ100                       | RY                | ZY | 100.0                                                     | 111.00                                                  | 136.00 | 1                                    | 179.0                                                                       | 2.2                                                              | 1                                                                               |
| SMAJ100A                      | RZ                | ZZ | 100.0                                                     | 111.00                                                  | 123.00 | 1                                    | 162.0                                                                       | 2.5                                                              | 1                                                                               |
| SMAJ110                       | SD                | VD | 110.0                                                     | 122.00                                                  | 149.00 | 1                                    | 196.0                                                                       | 2.0                                                              | 1                                                                               |
| SMAJ110A                      | SE                | VE | 110.0                                                     | 122.00                                                  | 135.00 | 1                                    | 177.0                                                                       | 2.3                                                              | 1                                                                               |
| SMAJ120                       | SF                | VF | 120.0                                                     | 133.00                                                  | 163.00 | 1                                    | 214.0                                                                       | 1.9                                                              | 1                                                                               |
| SMAJ120A                      | SG                | VG | 120.0                                                     | 133.00                                                  | 147.00 | 1                                    | 193.0                                                                       | 2.1                                                              | 1                                                                               |
| SMAJ130                       | SH                | VH | 130.0                                                     | 144.00                                                  | 176.00 | 1                                    | 231.0                                                                       | 1.7                                                              | 1                                                                               |
| SMAJ130A                      | SK                | VK | 130.0                                                     | 144.00                                                  | 159.00 | 1                                    | 209.0                                                                       | 1.9                                                              | 1                                                                               |

## TYPICAL DEVICE CHARACTERISTICS

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

| PART<br>NUMBER<br>(Notes 1-3) | DEVICE<br>MARKING |    | REVERSE<br>STAND-OFF<br>VOLTAGE<br><br>$V_{RWM}$<br>VOLTS | BREAKDOWN<br>VOLTAGE<br><br>$V_{(BR)} @ I_T$<br>VOLTS |        | TEST<br>CURRENT<br><br>$@ I_T$<br>mA | MAXIMUM<br>CLAMPING<br>VOLTAGE<br>(Fig. 2)<br><br>$@ I_P$<br>$V_C$<br>VOLTS | MAXIMUM<br>REVERSE<br>SURGE<br>CURRENT<br><br>$@ I_{PP}$<br>AMPS | MAXIMUM<br>REVERSE<br>LEAKAGE<br>CURRENT<br><br>$@ V_{RWM}$<br>$I_R$<br>$\mu A$ |
|-------------------------------|-------------------|----|-----------------------------------------------------------|-------------------------------------------------------|--------|--------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------|
|                               | UNI               | BI |                                                           | MIN                                                   | MAX    |                                      |                                                                             |                                                                  |                                                                                 |
| SMAJ140                       | SA                | VA | 140.0                                                     | 155.68                                                | 190.40 | 1                                    | 250.6                                                                       | 1.6                                                              | 1                                                                               |
| SMAJ140A                      | SB                | VB | 140.0                                                     | 155.00                                                | 171.00 | 1                                    | 226.8                                                                       | 1.7                                                              | 1                                                                               |
| SMAJ150                       | SL                | VL | 150.0                                                     | 167.00                                                | 204.00 | 1                                    | 268.0                                                                       | 1.5                                                              | 1                                                                               |
| SMAJ150A                      | SM                | VM | 150.0                                                     | 167.00                                                | 185.00 | 1                                    | 243.0                                                                       | 1.7                                                              | 1                                                                               |
| SMAJ160                       | SN                | VN | 160.0                                                     | 178.00                                                | 218.00 | 1                                    | 287.0                                                                       | 1.4                                                              | 1                                                                               |
| SMAJ160A                      | SP                | VP | 160.0                                                     | 178.00                                                | 197.00 | 1                                    | 259.0                                                                       | 1.5                                                              | 1                                                                               |
| SMAJ170                       | SQ                | VQ | 170.0                                                     | 189.00                                                | 231.00 | 1                                    | 304.0                                                                       | 1.3                                                              | 1                                                                               |
| SMAJ170A                      | SR                | VR | 170.0                                                     | 189.00                                                | 209.00 | 1                                    | 275.0                                                                       | 1.5                                                              | 1                                                                               |
| SMAJ180                       | SS                | VS | 180.0                                                     | 200.16                                                | 244.80 | 1                                    | 322.2                                                                       | 1.2                                                              | 1                                                                               |
| SMAJ180A                      | ST                | VT | 180.0                                                     | 200.00                                                | 220.00 | 1                                    | 291.6                                                                       | 1.4                                                              | 1                                                                               |
| SMAJ190                       | SU                | VU | 190.0                                                     | 211.28                                                | 258.40 | 1                                    | 340.1                                                                       | 1.2                                                              | 1                                                                               |
| SMAJ190A                      | SV                | VV | 190.0                                                     | 211.00                                                | 232.00 | 1                                    | 307.8                                                                       | 1.3                                                              | 1                                                                               |
| SMAJ200A                      | SW                | VW | 200.0                                                     | 224.00                                                | 247.00 | 1                                    | 324.0                                                                       | 1.2                                                              | 1                                                                               |
| SMAJ220A                      | SX                | VX | 220.0                                                     | 246.00                                                | 272.00 | 1                                    | 356.0                                                                       | 1.1                                                              | 1                                                                               |
| SMAJ250A                      | SZ                | VZ | 250.0                                                     | 279.00                                                | 309.00 | 1                                    | 405.0                                                                       | 1.0                                                              | 1                                                                               |
| SMAJ300A                      | DE                | HE | 300.0                                                     | 335.00                                                | 371.00 | 1                                    | 486.0                                                                       | 0.8                                                              | 1                                                                               |
| SMAJ350A                      | DG                | HG | 350.0                                                     | 391.00                                                | 432.00 | 1                                    | 567.0                                                                       | 0.7                                                              | 1                                                                               |
| SMAJ400A                      | DK                | HK | 400.0                                                     | 447.00                                                | 494.00 | 1                                    | 648.0                                                                       | 0.6                                                              | 1                                                                               |
| SMAJ440A                      | DM                | HM | 440.0                                                     | 492.00                                                | 543.00 | 1                                    | 713.0                                                                       | 0.6                                                              | 1                                                                               |

## NOTE

1. Suffix 'A' denotes 5% tolerance, without 'A' denotes 10% tolerance.
2. Add suffix 'C' or 'CA' after part number to specify a bidirectional device.
3. For bidirectional devices having a  $V_{RWM}$  of 10 Volts and under, the  $I_R$  limit is double.

## TYPICAL DEVICE CHARACTERISTICS

FIGURE 1  
PEAK PULSE POWER VS PULSE TIME

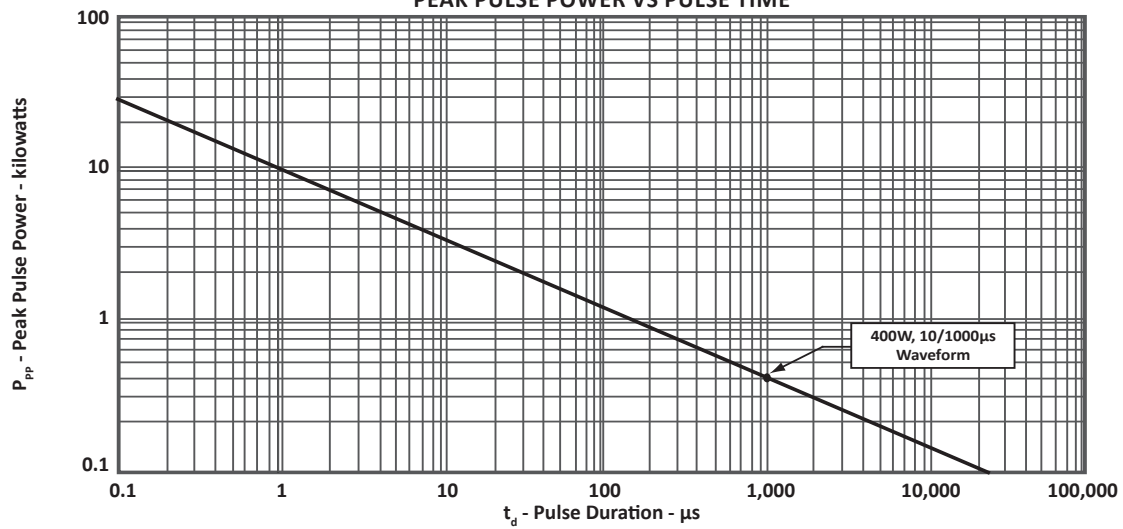


FIGURE 2  
PULSE WAVEFORM

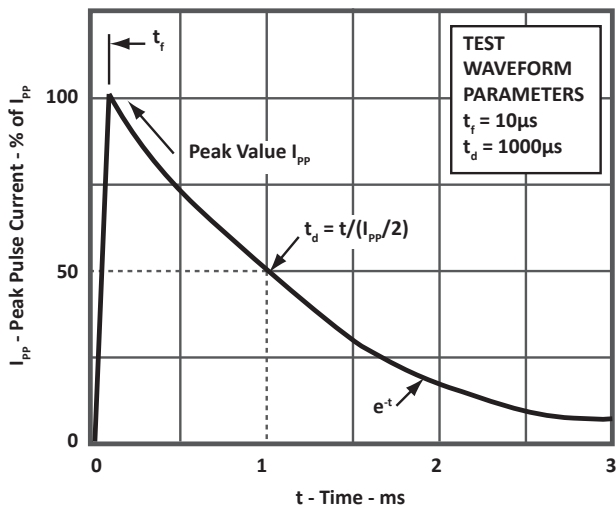
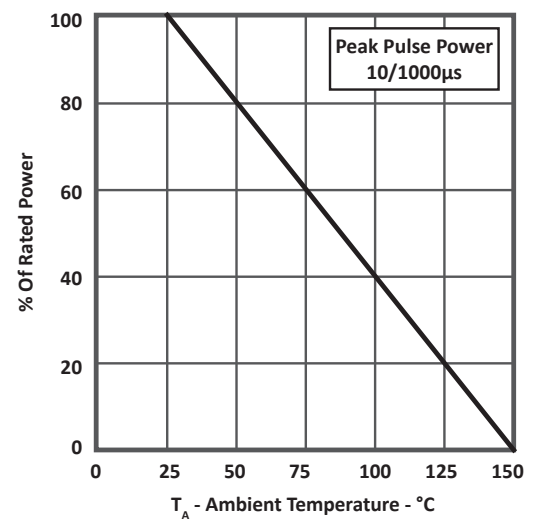


FIGURE 3  
POWER DERATING CURVE



## TYPICAL DEVICE CHARACTERISTICS

FIGURE 4  
TYPICAL JUNCTION CAPACITANCE

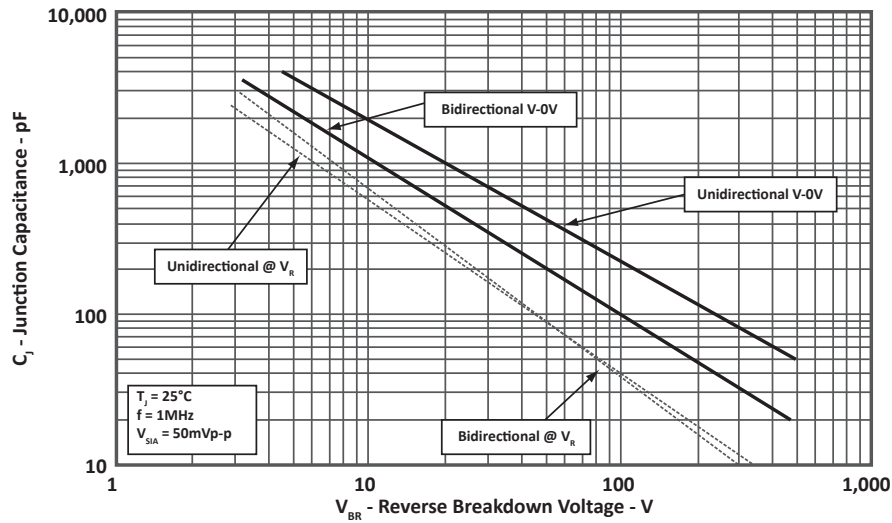


FIGURE 5  
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

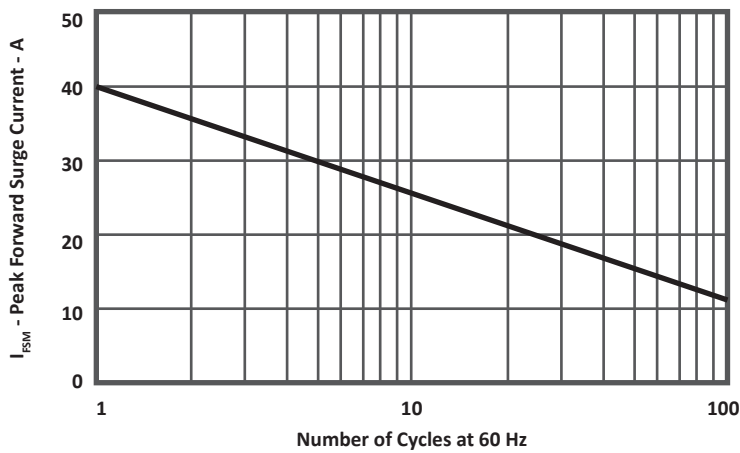
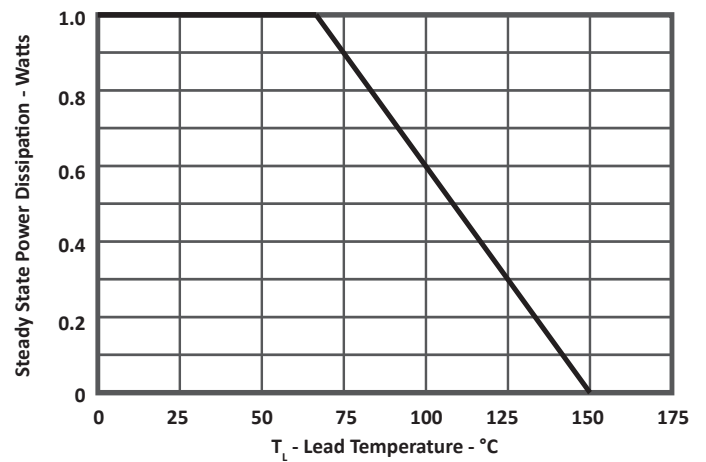


FIGURE 6  
STEADY STATE POWER DERATING CURVE



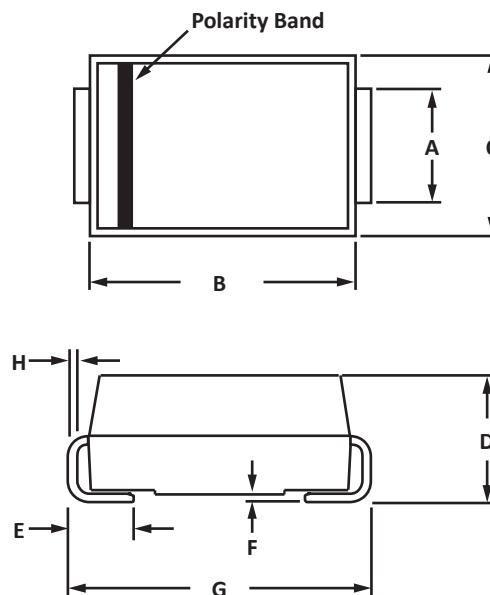
## DO-214AC PACKAGE INFORMATION

## OUTLINE DIMENSIONS

| DIM | MILLIMETERS |      | INCHES |       |
|-----|-------------|------|--------|-------|
|     | MIN         | MAX  | MIN    | MAX   |
| A   | 1.23        | 1.63 | 0.049  | 0.064 |
| B   | 4.10        | 4.55 | 0.162  | 0.179 |
| C   | 2.51        | 2.76 | 0.099  | 0.109 |
| D   | 1.96        | 2.26 | 0.077  | 0.089 |
| E   | 0.75        | 1.51 | 0.03   | 0.06  |
| F   | 0.00        | 0.20 | 0.000  | 0.008 |
| G   | 4.87        | 5.22 | 0.192  | 0.206 |
| H   | 0.15        | 0.30 | 0.006  | 0.012 |

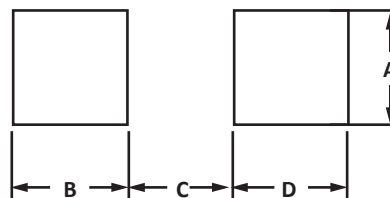
## NOTES

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



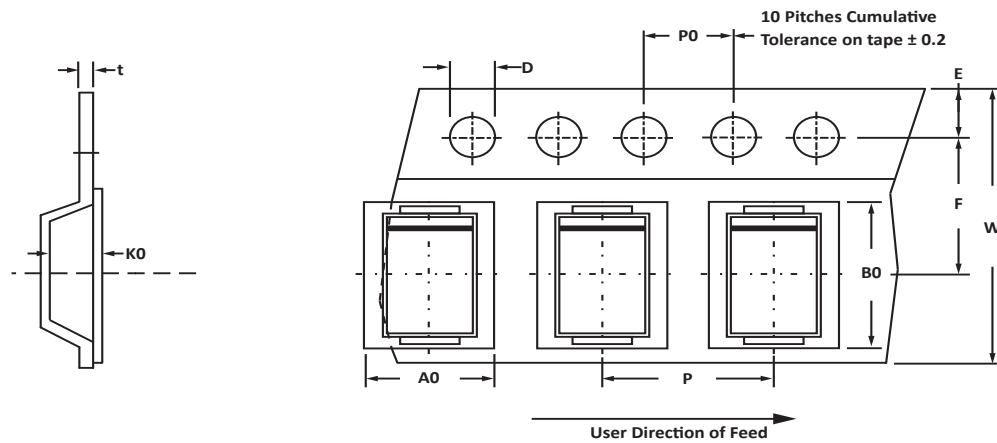
## PAD LAYOUT DIMENSIONS

| DIM | MILLIMETERS |      | INCHES |       |
|-----|-------------|------|--------|-------|
|     | MIN         | MAX  | MIN    | MAX   |
| A   | 1.57        | -    | 0.062  | -     |
| B   | 1.55        | -    | 0.061  | -     |
| C   | -           | 2.28 | -      | 0.090 |
| D   | 1.55        | -    | 0.061  | -     |





## TAPE AND REEL



## SPECIFICATIONS

| REEL DIA.   | TAPE WIDTH | A0              | B0              | K0              | D               | E               | F              | W                | P0              | P               | tmax |
|-------------|------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|------------------|-----------------|-----------------|------|
| 330mm (13") | 12mm       | $2.79 \pm 0.10$ | $5.33 \pm 0.10$ | $2.36 \pm 0.10$ | $1.55 \pm 0.10$ | $1.75 \pm 0.10$ | $5.5 \pm 0.05$ | $12.00 \pm 0.30$ | $4.00 \pm 0.10$ | $4.00 \pm 0.10$ | 0.4  |

## NOTES

1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. Suffix - T13 = 13" Reel - 7,500 pieces and T500 = 7" Reel - 500 pieces per 16mm tape.
4. Marking on Part - marking code (see page 2), date code, logo and cathode defined by polarity band.

## ORDERING INFORMATION

| BASE PART NUMBER<br>(Voltage = xx) | LEADFREE SUFFIX | TAPE SUFFIX | QTY/REEL | REEL SIZE | TUBE QTY |
|------------------------------------|-----------------|-------------|----------|-----------|----------|
| SMAJxx                             | N/A             | -T13        | 7,500    | 13"       | N/A      |
| SMAJxxA                            | N/A             | -T13        | 7,500    | 13"       | N/A      |
| SMAJxxC                            | N/A             | -T13        | 7,500    | 13"       | N/A      |
| SMAJxxCA                           | N/A             | -T13        | 7,500    | 13"       | N/A      |
| SMAJxx                             | N/A             | -T500       | 500      | 7"        | N/A      |
| SMAJxxA                            | N/A             | -T500       | 500      | 7"        | N/A      |
| SMAJxxC                            | N/A             | -T500       | 500      | 7"        | N/A      |
| SMAJxxCA                           | N/A             | -T500       | 500      | 7"        | N/A      |

This device is only available in a Lead-Free configuration.

## COMPANY INFORMATION

---

### 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.

### CONTACT US

#### Corporate Headquarters

2929 South Fair Lane  
Tempe, Arizona 85282  
USA

#### By Telephone

General: 602-431-8101  
Sales: & Marketing: 602-414-5109  
Customer Service: 602-414-5114  
Product Technical Support: 602-414-5107

#### By Fax

General: 602-431-2288

#### By E-mail:

Asia Sales: [asiasales@protekdevices.com](mailto:asiasales@protekdevices.com)  
Europe Sales: [europesales@protekdevices.com](mailto:europesales@protekdevices.com)  
U.S. Sales: [ussales@protekdevices.com](mailto:ussales@protekdevices.com)  
Distributor Sales: [distysales@protekdevices.com](mailto:distysales@protekdevices.com)  
Customer Service: [service@protekdevices.com](mailto:service@protekdevices.com)  
Technical Support: [support@protekdevices.com](mailto:support@protekdevices.com)

#### ProTek Devices (Asia Pacific) Pte. Ltd.

8 Ubi Road 2, #06-19  
Zervex  
Singapore - 408538  
Tel: +65-67488312  
Fax: +65-67488313

#### Web

[www.protekdevices.com](http://www.protekdevices.com)

COPYRIGHT © ProTek Devices 2013 - This literature is subject to all applicable copyright laws and is not for resale in any manner.

SPECIFICATIONS: ProTek reserves the right to change the electrical and or mechanical characteristics described herein without notice.

DESIGN CHANGES: ProTek reserves the right to discontinue product lines without notice and that the final judgement concerning selection and specifications is the buyer's and that in furnishing engineering and technical assistance. ProTek assumes no responsibility with respect to the selection or specifications of such products. ProTek makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ProTek assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability without limitation special, consequential or incidental damages.

LIFE SUPPORT POLICY: ProTek Devices products are not authorized for use in life support systems without written consent from the factory.