



# THE DATASHEET OF SMDA12CTR



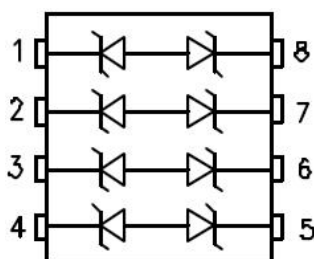
## SMDA03C THRU SMDA24C TVS ARRAY SERIES



### Description

The SMDAXXC series of TVS array have been designed to provide bidirectional protection for sensitive electronics from damage due to voltage transients caused by electrostatic discharge (ESD), electrical fast transients (EFT), lightning and other voltage-induced transient events. The device can be used to protect combinations of four bidirectional lines.

### Schematic & Pin Configuration



### Features

- Protects 3.3, 5, 12, 15, 24 V Components
- Bidirectional
- Provides Electrically Isolated Protection
- 300 W @ 8/20 us
- Protects 4 Lines
- SO-8 Packaging
- "-A" is an AEC-Q101 qualified device
- This is a Pb - Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

### Mechanical Characteristics

- SO-8 Surface Mount Package
- Approximate Weight: 0.1 grams
- PIN #1 Indicator: DOT on top of package
- Packaging: Tubes or Tape & Reel per EIA Standard 481

### Application

- RS-232 & RS-422 Data Lines
- Microprocessor Based Equipment
- Notebooks, Desktops, & Servers
- LAN/WAN Equipment
- Serial and Parallel Port
- Peripherals

### Absolute Maximum Ratings:

| Parameter                                 | Symbol           | Value         | Units |
|---|------------------|---------------|-------|
| Peak Pulse Power, 8/20 $\mu$ s Wave shape | P                | 300           | W     |
| Operating Temperature                     | T <sub>J</sub>   | -55 to +125   | °C    |
| Storage Temperature                       | T <sub>stg</sub> | -55 to +150   | °C    |
| Lead Soldering Temperature                | T <sub>L</sub>   | 260 (10 Sec.) | °C    |

**Electrical Characteristics:**

| Part Number | Stand-off Voltage $V_{wm}$ (V) Max | Breakdown Voltage $V_{BR}$ @1mA (V) Min | Clamping Voltage $V_c$ @ 1 A (V) Max | Leakage Current $I_R$ @ $V_{wm}$ (uA) Max | Capacitance (f = 1MHz) C @ 0V (pF) Max | Temperature Coefficient of $V_{BR}$ a( $V_{BR}$ ) mv/°C Max |
|-------------|------------------------------------|---|--------------------------------------|---|--|---|
| SMDA03C     | 3.3                                | 4                                       | 7                                    | 200                                       | 400                                    | -5  |
| SMDA05C     | 5.0                                | 6                                       | 9.8                                  | 40  | 300                                    | 1   |
| SMDA12C     | 12.0                               | 13.3                                    | 19                                   | 1   | 94                                     | 8   |
| SMDA15C     | 15.0                               | 16.7                                    | 24                                   | 1   | 70                                     | 11  |
| SMDA24C     | 24.0                               | 26.7                                    | 43                                   | 1   | 45                                     | 28  |

**Ratings and Characteristics Curves**

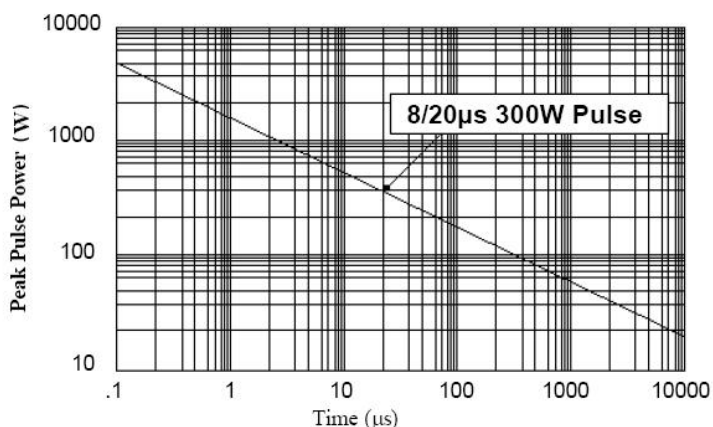


Figure 1. Peak Pulse Power Vs Pulse Time (µs)

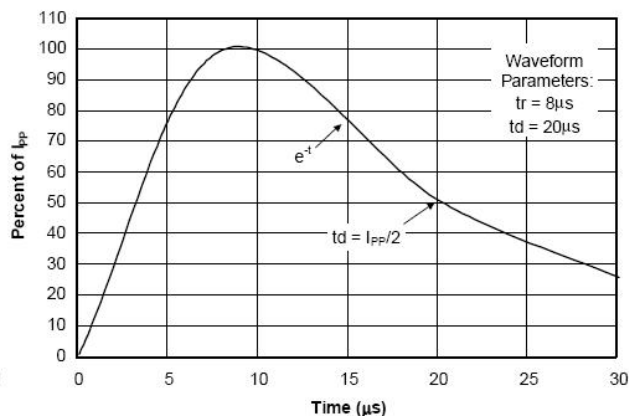


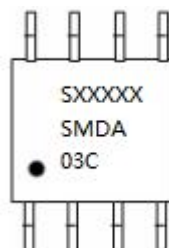
Figure 2. Pulse Wave Form

**Ordering Information**

| Device                         | Package           | Shipping       |
|--------------------------------|-------------------|----------------|
| SMDA03C<br>THRU<br>SMDA24C     | SO-8<br>(Pb-Free) | 2500pcs / reel |
| SMDA03CTR<br>THRU<br>SMDA24CTR | SO-8<br>(Pb-Free) | 2500pcs / reel |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

**Marking Diagram**



Where XXXXX is YYWWL

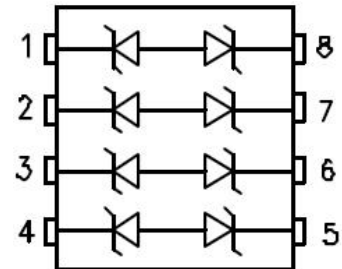
SMDA03C = Part Number  
S = S  
YY = Year  
WW = Week  
L = Lot Number

**Cautions:** Molding resin  
Epoxy resin UL:94V-0

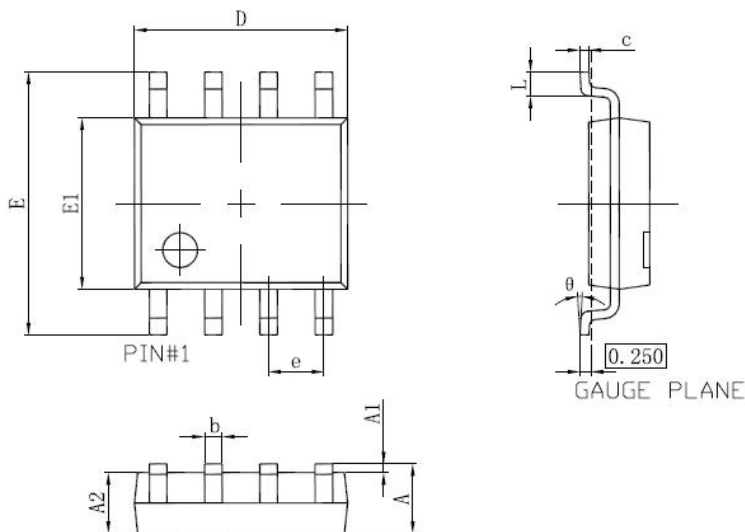
## Circuit Diagram

The SMDAxxC series of devices are designed to protect up to four data lines. The devices are connected as follows:

- ✓ The SMDAxxC are bidirectional devices and are designed for use on line where the normal operating voltage is above ground. Pins 1, 2, 3, and 4 are connected to the protected lines. Pins 5, 6, 7, and 8 are connected to ground. Since the device is electrically symmetrical, these connections may be reversed. The ground connections should be made directly to the ground plane for best results. The path length is kept as short as possible to reduce the effects of parasitic inductance in the board traces.

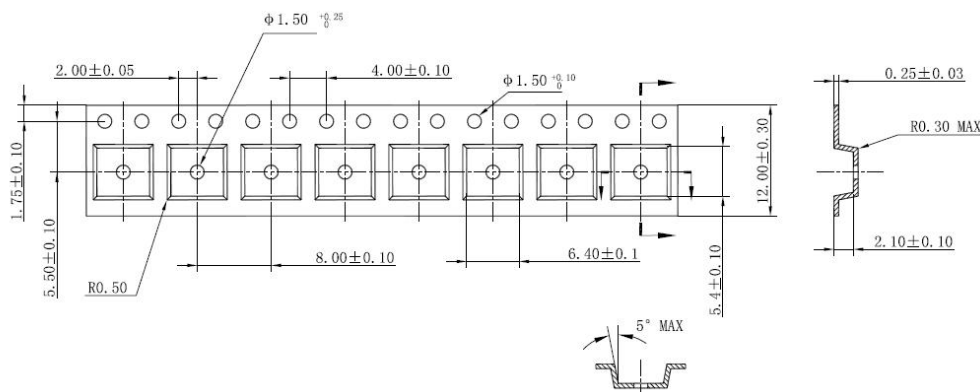


## Mechanical Dimensions SO-8



| SYMBOL | Millimeters |       | Inches |       |
|--------|-------------|-------|--------|-------|
|        | MIN.        | MAX.  | MIN.   | MAX.  |
| A      | 1.350       | 1.800 | 0.053  | 0.071 |
| A1     | 0.100       | 0.250 | 0.004  | 0.010 |
| A2     | 1.350       | 1.750 | 0.053  | 0.069 |
| b      | 0.306       | 0.510 | 0.012  | 0.020 |
| c      | 0.150       | 0.300 | 0.006  | 0.012 |
| D      | 4.720       | 5.120 | 0.186  | 0.202 |
| e      | 1.140       | 1.400 | 0.045  | 0.055 |
| E      | 5.700       | 6.300 | 0.224  | 0.248 |
| E1     | 3.750       | 4.150 | 0.148  | 0.163 |
| L      | 0.300       | 1.270 | 0.012  | 0.050 |
| θ      | 0°          | 8°    | 0°     | 8°    |

## Carrier Tape & Reel Specification SO-8




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