

# AUTOMOTIVE J1850 (CLASS 2) ESD IMMUNITY Surface Mount Transient Voltage Suppressors

**P4SMA16AT3**

**GENERAL DATA  
400 WATT PEAK POWER**

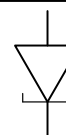
**PLASTIC SURFACE MOUNT  
ESD OVERVOLTAGE  
TRANSIENT SUPPRESSOR  
400 WATT PEAK POWER**

**Specification Features:**

- Nominal Breakdown Voltage Range – 16 V
- Peak Power – 400 Watts @ 1ms
- > 16KV ESD IMMUNITY (Class 3 per Human Body Model)
- Pico Seconds Response Time. (0V to BV)
- Low Capacitance
- Low Lead Inductance
- Available in Tape and Reel
- Low Profile Package



SMA  
CASE 403B-01  
PLASTIC



Schematic

**MAXIMUM RATINGS AND CHARACTERISTICS**

Rating	Symbol	Value	Unit
Peak Power Dissipation @ $T_L = 25^\circ\text{C}$ , $PW = 10/1000 \mu\text{s}$ (1)	$P_{pk}$	400	Watts
Peak Forward Surge @ $T_A = 25^\circ\text{C}$ (2)	$I_{FSM}$	40	Amps
Instantaneous Forward Voltage @ 40A	$V_f$	3.5	Volts
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	150	$^\circ\text{C}$

\*FR4 Board, using Motorola minimum recommended footprint, as shown in case 403B outline dimensions spec.

1. Non-repetitive current pulse.
2. Measured on 0.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulse per minute maximum.

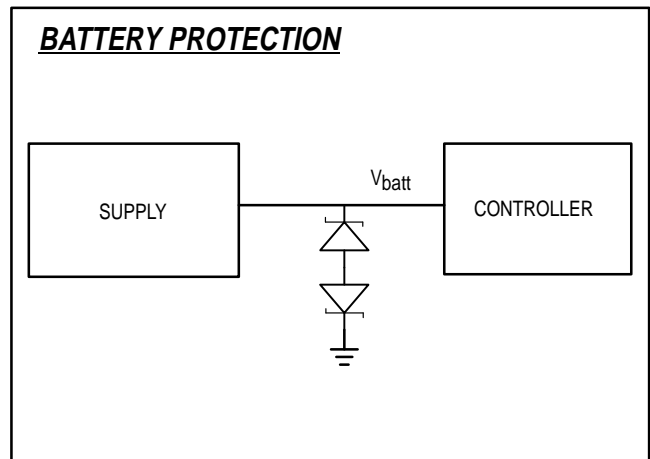
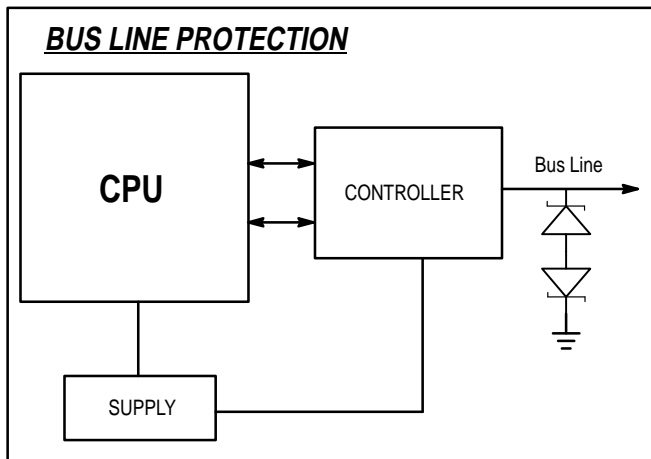
**ELECTRICAL CHARACTERISTICS** ( $V_F = 3.5$  Volts @  $I_F = 40$  A)

Device	Nominal Zener Voltage $V_Z$ @ $I_{ZT}$ Volts (+/-5% tolerance) (Volts)	Test Current $I_{ZT}$ (mA)	Reverse Stand-off Voltage $V_{RWM}$ (Volts)	Maximum Reverse Leakage @ $V_{RWM}$ $I_r$ ( $\mu\text{A}$ )	Maximum Reverse Surge Current $I_{RSM}$ (Amps)	Maximum Reverse Voltage @ $I_{RSM}$ (Clamping Voltage) $V_{rsm}$ (Volts)	Typical Junction Capacitance @ $V_{RWM}/2$ $C_p$ (pf)
P4SMA16AT3	16	1	13.6	2.5	17.8	22.5	250

\*TOLERANCE AND VOLTAGE DESIGNATION Tolerance designation – The type number listed indicates a tolerance of  $\pm 5\%$ .

## APPLICATION DIAGRAMS

Back to back P4SMA16AT3 devices prevent ESD transient damage to the controller on both communication bus and power supply lines.



## RATING AND TYPICAL CHARACTERISTIC CURVES ( $T_A = 25^\circ\text{C}$ )

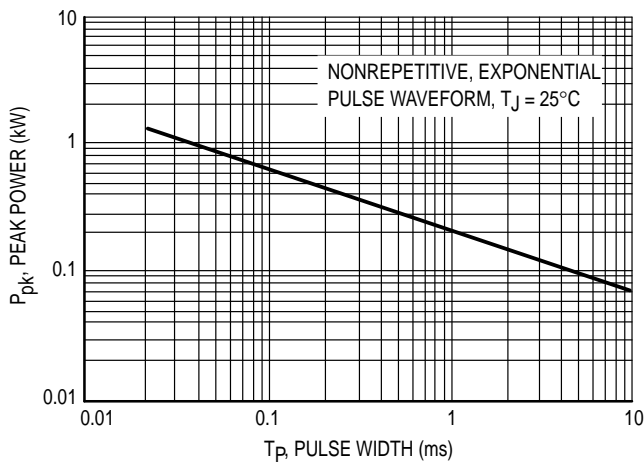


Figure 1. Typical Pulse Rating Curve

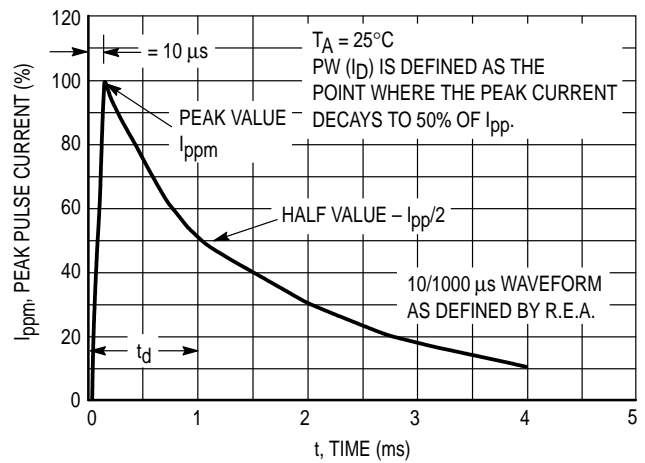


Figure 2. Pulse Waveform

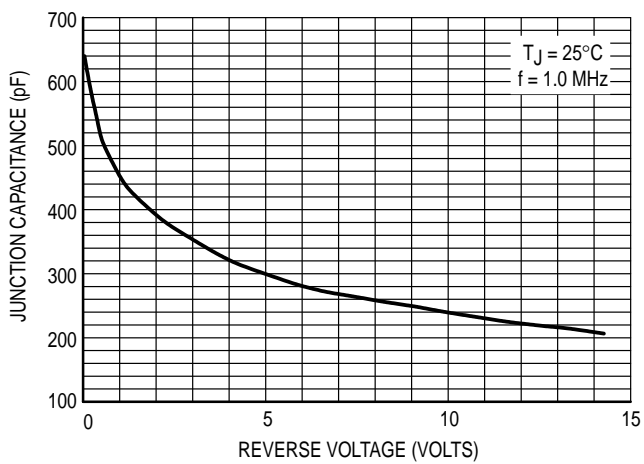


Figure 3. Typical Junction Capacitance

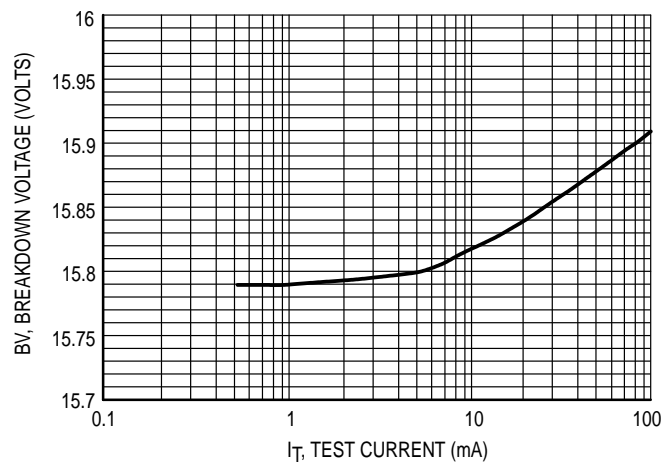


Figure 4. Breakdown Voltage Curve

RATING AND TYPICAL CHARACTERISTIC CURVES ( $T_A = 25^\circ\text{C}$ )

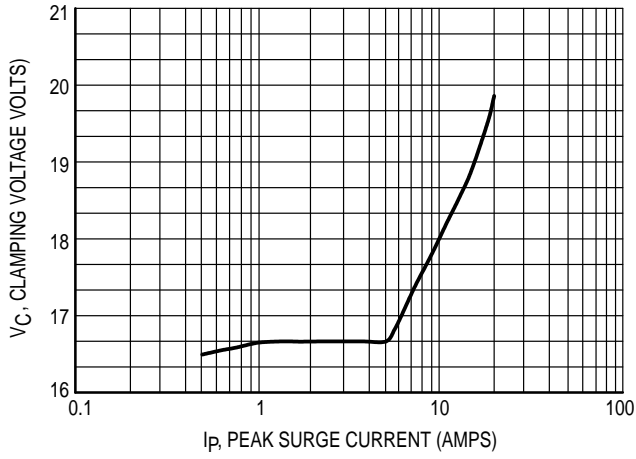


Figure 5. Clamping Voltage Curve

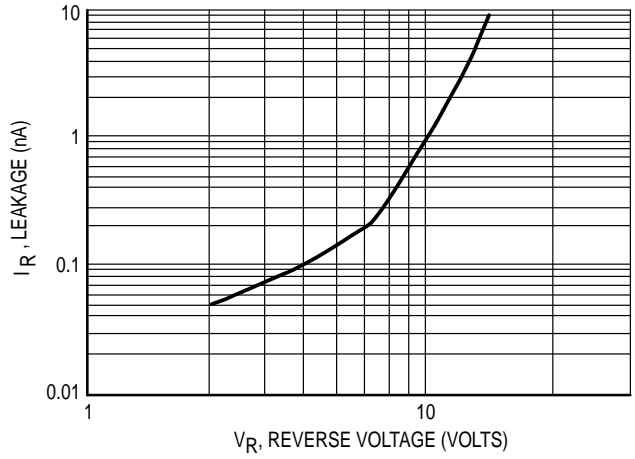


Figure 6. Reverse Leakage Curve

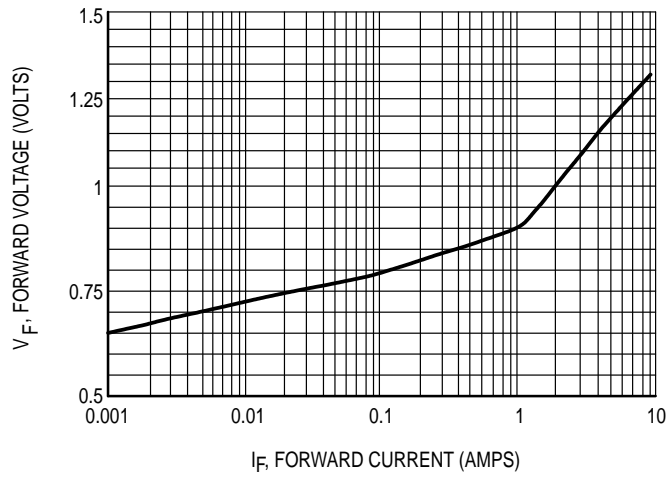
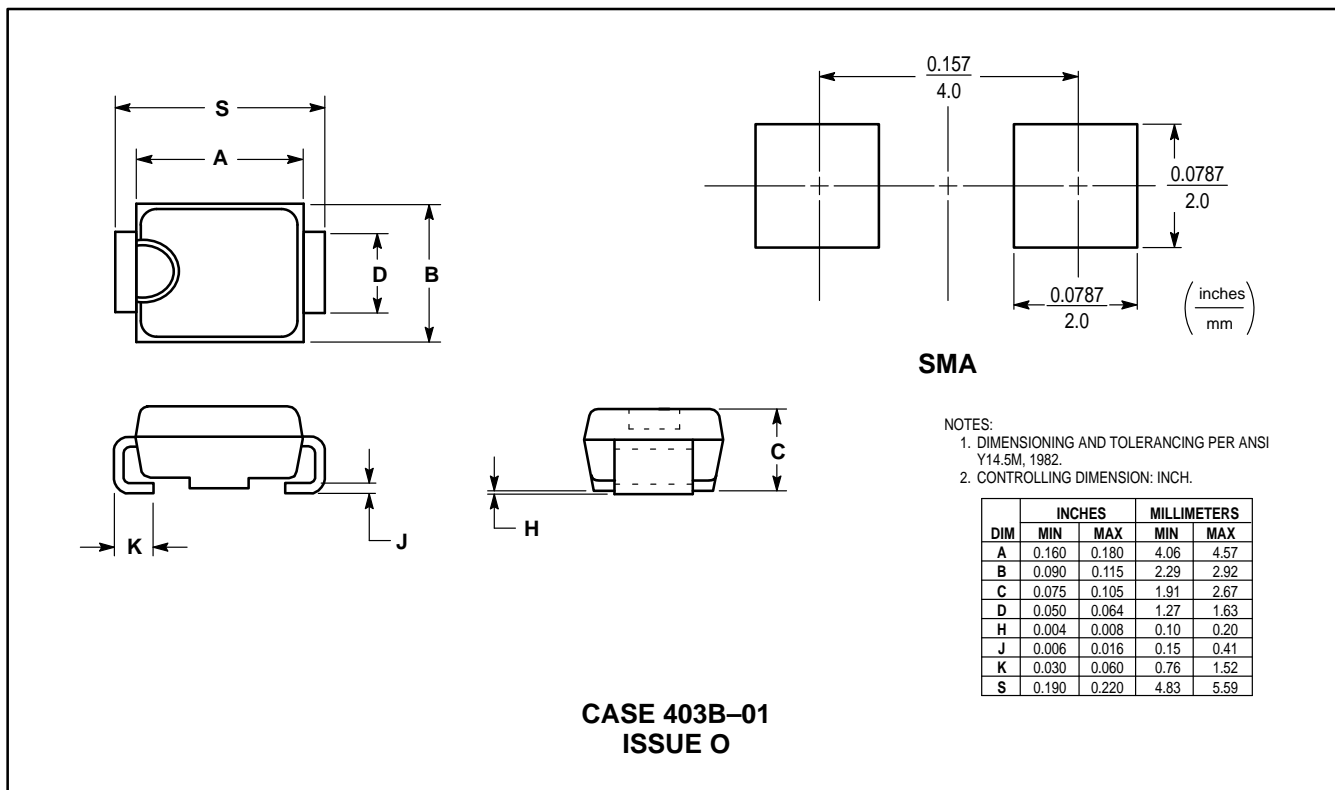


Figure 7. Forward Voltage Current

## OUTLINE DIMENSIONS



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