MOTOROLA
SEMICONDUCTOR TECHNICAL DATA

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P4SMA16AT3

AUTOMOTIVE J1850 (CLASS 2) ESD IMMUNITY

Surface Mount Transient Voltage Suppressors

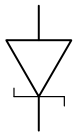
GENERAL DATA
400 WATT PEAK POWER

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

PLASTIC SURFACE MOUNT
ESD OVERVOLTAGE
TRANSIENT SUPPRESSOR
400 WATT PEAK POWER

SMA
CASE 403B–01
PLASTIC



Schematic

MAXIMUM RATINGS AND CHARACTERISTICS

Rating	Symbol	Value	Unit
Peak Power Dissipation @ T_L = 25°C, PW = 10/1000 μs (1)	P_{pk}	400	Watts
Peak Forward Surge @ T_A = 25°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	°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.

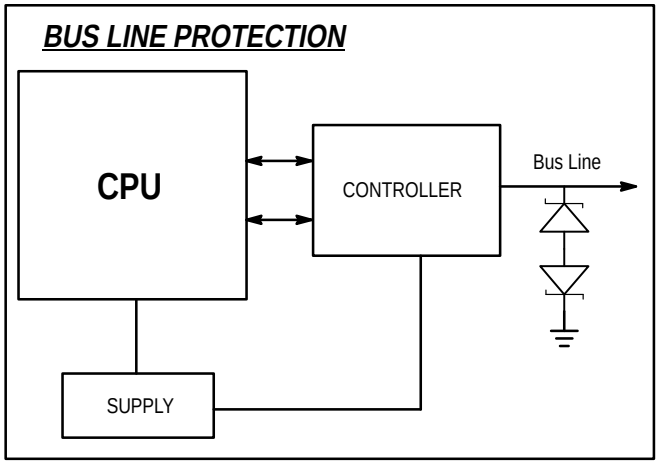
ELECTRICAL CHARACTERISTICS (V_F = 3.5 Volts @ I_F = 40 A)

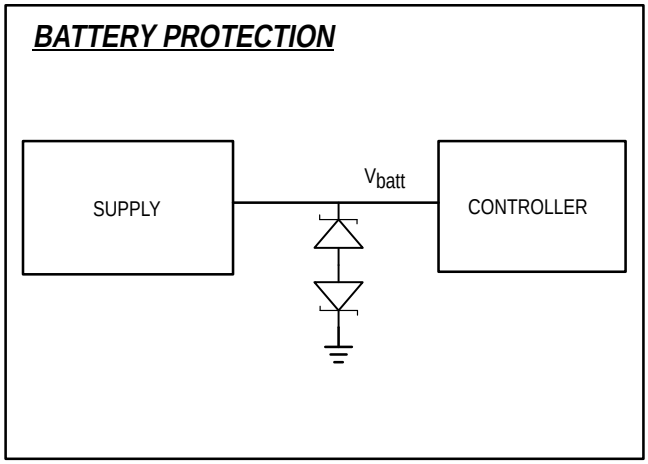
Device	Nominal Zener Voltage V_Z @ I_{ZT} Volts (+/–5% tolerance) (Volts)	Test Current I_{ZT} (mA)	Reverse Stand–off Voltage V_{RWM} (Volts)	Maximum Reverse Leakage @ V_{RWM} I_r (μA)	Maximum Reverse Surge Current I_{RSM} (Amps)	Maximum Reverse Voltage @ I_{RSM} (Clamping Voltage) V_{rsm} (Volts)	Typical 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 ±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°C)

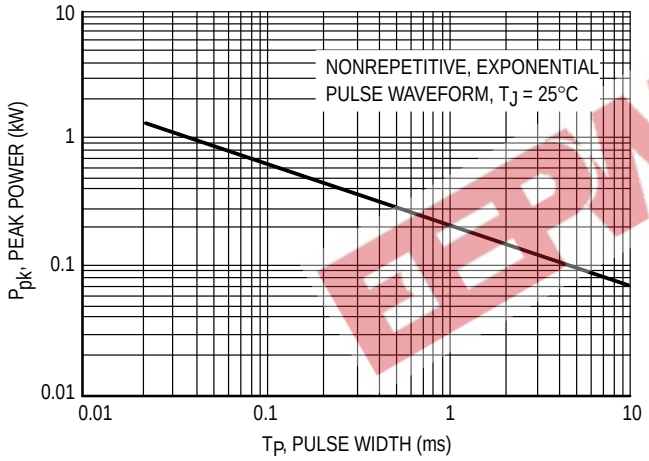


Figure 1. Typical Pulse Rating Curve

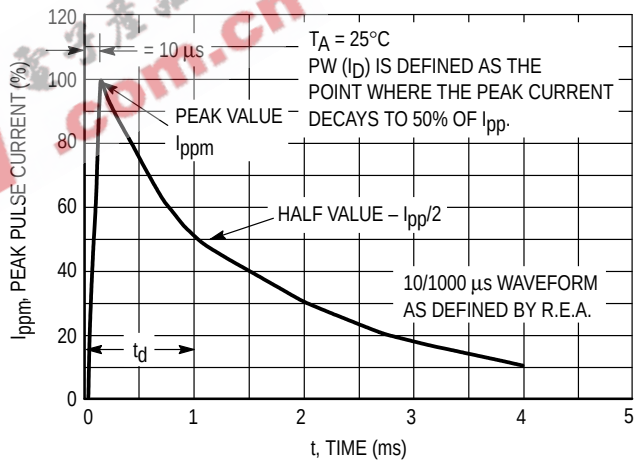


Figure 2. Pulse Waveform

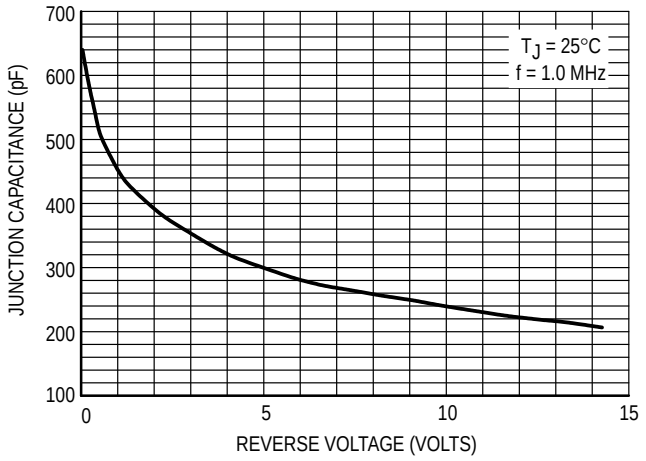


Figure 3. Typical Junction Capacitance

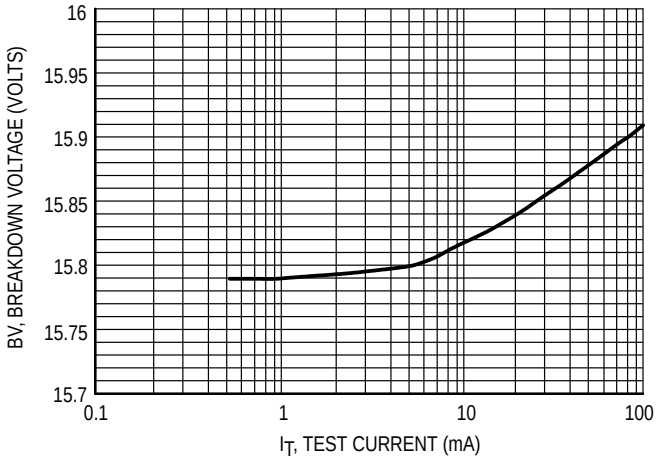


Figure 4. Breakdown Voltage Curve

RATING AND TYPICAL CHARACTERISTIC CURVES (T_A = 25°C)

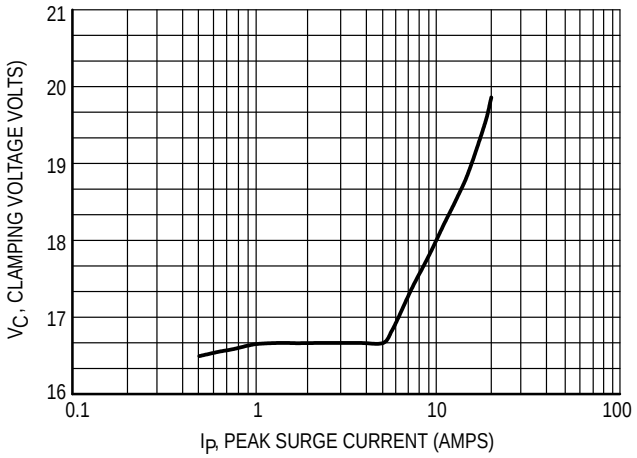


Figure 5. Clamping Voltage Curve

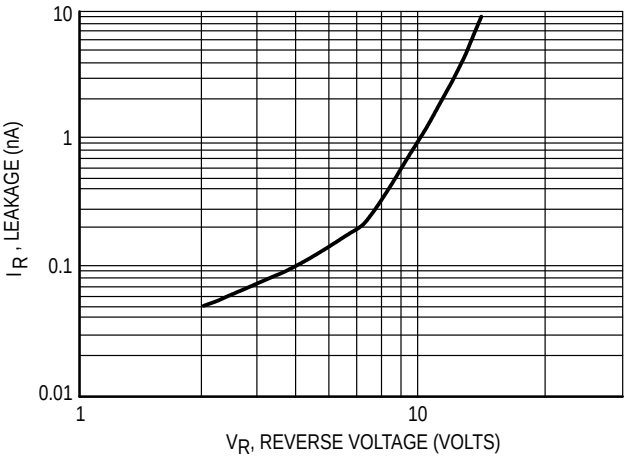


Figure 6. Reverse Leakage Curve

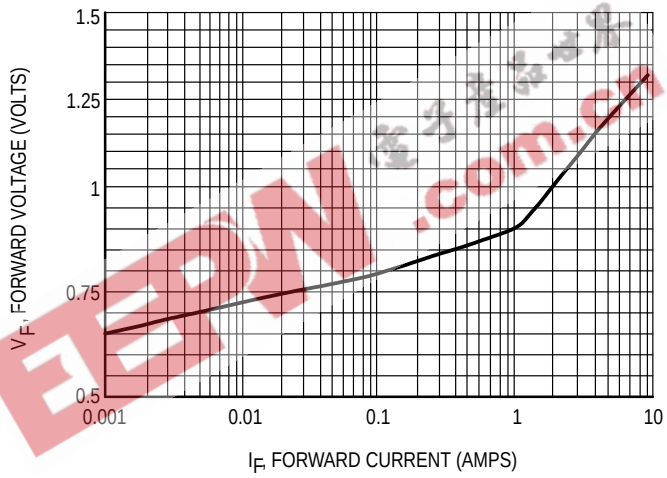
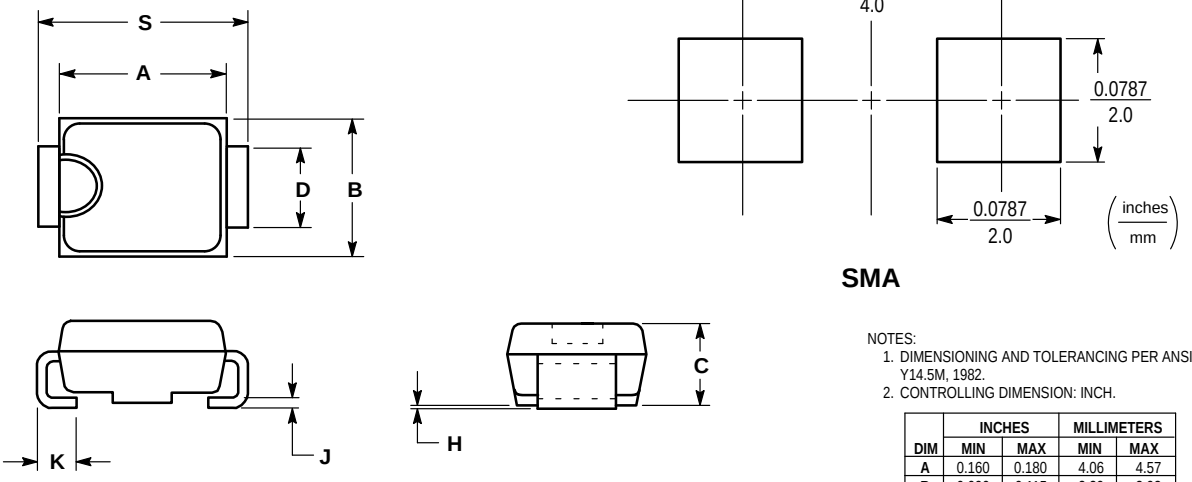


Figure 7. Forward Voltage Current

OUTLINE DIMENSIONS



SMA

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.160	0.180	4.06	4.57
B	0.090	0.115	2.29	2.92
C	0.075	0.105	1.91	2.67
D	0.050	0.064	1.27	1.63
H	0.004	0.008	0.10	0.20
J	0.006	0.016	0.15	0.41
K	0.030	0.060	0.76	1.52
S	0.190	0.220	4.83	5.59

CASE 403B–01
ISSUE O

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