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**USB0403**  
thru  
**USB0424**

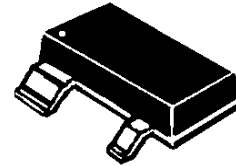
TVSarray™ Series

**DESCRIPTION (300 watt)**

This 4 pin 1 line **unidirectional ULTRA LOW CAPACITANCE** array is designed for use in applications requiring board level protection from voltage transients caused by electrostatic discharge (ESD) as defined by IEC 1000-4-2, electrical fast transients (EFT) per IEC 1000-4-4 and effects of secondary lightning.

These arrays are used to protect 1 discrete line utilizing pins (1,4 signal and 2,3 ground). The S0T-143 product provides board level protection from static electricity and other induced voltage surges that can damage sensitive circuitry.

These TRANSIENT VOLTAGE SUPPRESSOR (TVS) Diode Arrays protect 3.3 Volt components such as DRAM's, SRAM's, CMOS, HCMOS, HSIC, and low voltage interfaces up to 24Volts.



**FEATURES**

- Protects 3.3 up through 24V Components
- Protects 1 line unidirectional
- Provides electrically isolated protection
- SOT-143 Packaging
- **ULTRA LOW CAPACITANCE 5 pF**

**MECHANICAL**

- Molded SOT-143 Surface Mount
- Weight: .035 grams (approximate)
- Body Marked with device marking code
- Pin #1 defined by DOT on top of package

**MAXIMUM RATINGS**

- Operating Temperatures: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Peak Pulse Power: 300 Watts (8/20 μsec, Figure 1)
- Pulse Repetition Rate: <.01%

**PACKAGING**

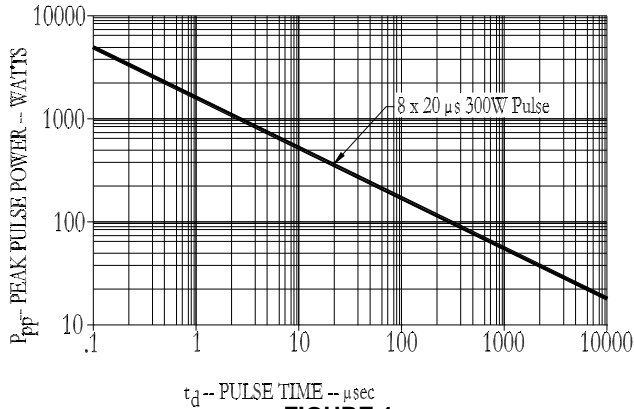
- Tape & Reel EIA Standard 481-1-A
- 7 inch reel 5,000 pieces
- 13 inch reel 10,000 pieces

**ELECTRICAL CHARACTERISTICS @ 25°C Unless otherwise specified**

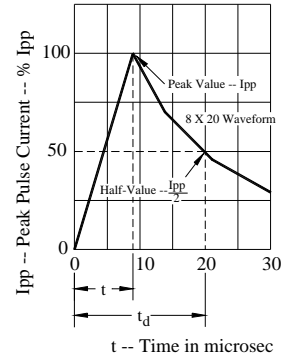
PART NUMBER	DEVICE MARKING	STAND OFF VOLTAGE $V_{WM}$	BREAKDOWN VOLTAGE $V_{BR}$ @ 1 mA	CLAMPING VOLTAGE $V_c$ @ 1 Amp (FIGURE 2)	CLAMPING VOLTAGE $V_c$ @ 5 Amp (FIGURE 2)	STAND OFF CURRENT $I_D$ @ $V_{WM}$	CAPACITANCE (f=1 MHz) @ 0V C	TEMPERATURE COEFFICIENT OF $V_{BR}$ $\alpha_{VBR}$
		VOLTS	VOLTS	VOLTS	VOLTS	μA	pF	mV/°C
		MAX	MIN	MAX	MAX	MAX	MAX	MAX
USB0403	BA	3.3	4	8	11	200	5	-5
USB0405	BB	5.0	6.0	10.8	13	100	5	3
USB0412	BC	12.0	13.3	19	26	1	5	10
USB0415	BD	15.0	16.7	25	32	1	5	13
USB0424	BE	24.0	26.7	44	57	1	5	30

**NOTE:** Transient Voltage Suppression (TVS) product is normally selected based on its stand off Voltage  $V_{WM}$ . Product selected voltage should be equal to or greater than the continuous peak operating voltage of the circuit to be protected.

### WAVE FORMS

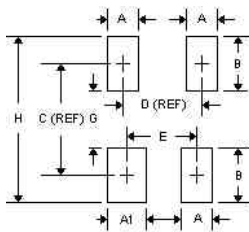


**FIGURE 1**  
Peak Pulse Power Vs Pulse Time



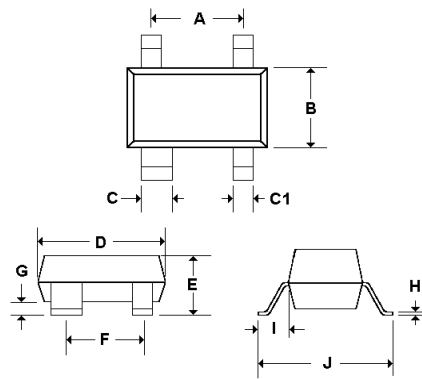
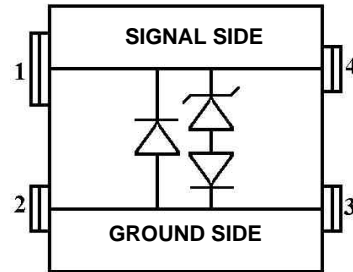
**FIGURE 2**  
Pulse Wave Form

### MOUNTING PAD SOT 143



DIM	DIMENSIONS			
	INCHES		MM	
	MIN	MA X	MIN	MA X
A	.032	.040	0.80	1.00
A1	.040	.048	1.00	1.20
B	---	.057	---	1.44
C	---	.087	---	2.20
D	.075 BSC		1.90 BSC	
E	.067 BSC		1.70 BSC	
G	.032	.040	0.80	1.00
H	.134	.140	3.40	3.60

### CIRCUIT DIAGRAM



DIMENSION	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.070	0.080	1.78	2.03
B	0.047	0.055	1.20	1.40
C	0.030	0.037	0.77	0.94
C1	0.015	0.020	0.37	0.50
D	0.110	0.119	2.80	3.04
E	0.035	0.044	0.89	1.17
F	0.071	0.079	1.80	2.00
G	0.0006	0.006	0.013	0.05
H	0.003	0.007	0.085	0.17
I	0.018	0.023	0.45	0.60
J	0.083	0.093	2.10	2.50