

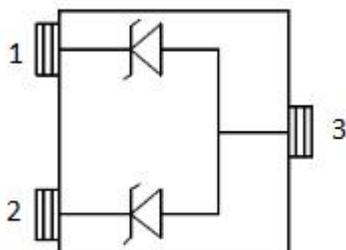
## S2303 THRU S2336 TVS ARRAY SERIES



### Description

The S23XX series of TVS array have been designed to provide unidirectional or bidirectional protection for sensitive electronics from damage due to voltage transients caused by electrostatic discharge (ESD), electrical fast transients (EFT), secondary lightning and other voltage-induced transient events. The device can be used to protect 2 unidirectional or 1 bidirectional data line or interface line.

### Schematic & Pin Configuration



### Features

- Protects 3.3, 5, 12, 15, 24 , 36V Components
- Unidirectional or Bidirectional
- Low Leakage
- Provides Electrically Isolated Protection
- 300 W @ 8/20 us
- Protects 1 or 2 Lines
- SOT-23 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

- SOT-23 Surface Mount Package
- Approximate Weight: 0.015 grams
- PIN #1 Indicator: DOT on top of package
- Packaging: Tape and Reel Per EIA 481

### Application

- RS-232, RS-422 & RS-423
- Cellular Handsets & Accessories
- Universal Serial Bus (USB) Port Protection
- Portable Electronics
- LAN/WAN Equipment
- Wireless Bus Protection

### 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@25°C

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) Pin 1-3 or 2-3 Max	Capacitance (f = 1MHz) $C@ 0V$ (pF) Pin 1- 2 Max
S2303	3.3	4	8	200	600	300
S2305	5.0	6	10.8	20	400	200
S2312	12.0	13.3	19	0.1	160	80
S2315	15.0	16.7	25	0.1	130	65
S2324	24.0	26.7	44	0.1	80	40
S2336	36.0	40.0	60	0.1	50	28

### Ratings and Characteristics Curves

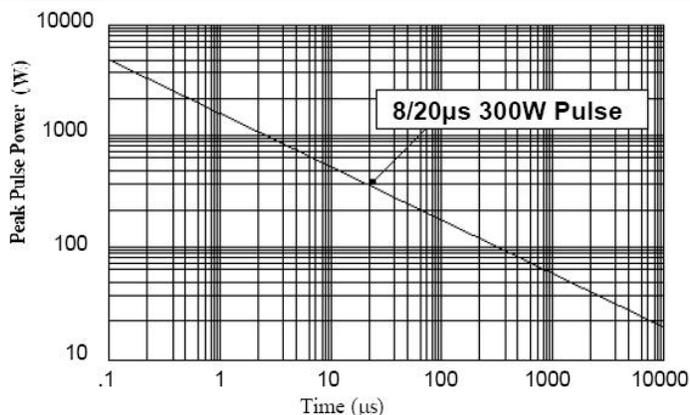


Figure 1. Peak Pulse Power Vs Pulse Time (µs)

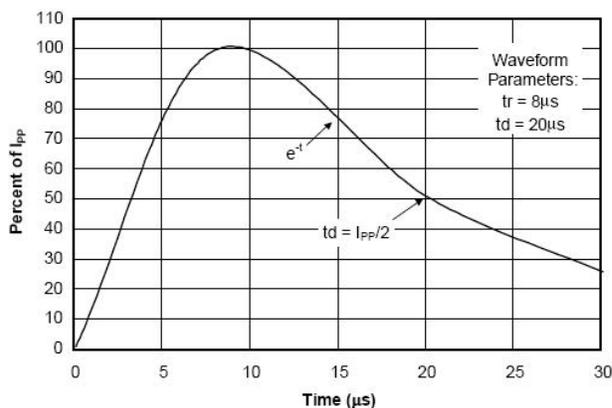


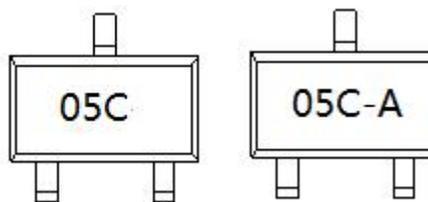
Figure 2. Pulse Wave Form

### Ordering Information

Device	Package	Shipping
S2303 THRU S2336	SOT-23 (Pb-Free)	3000pcs / reel
S2303TR THRU S2336TR	SOT-23 (Pb-Free)	3000pcs / 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

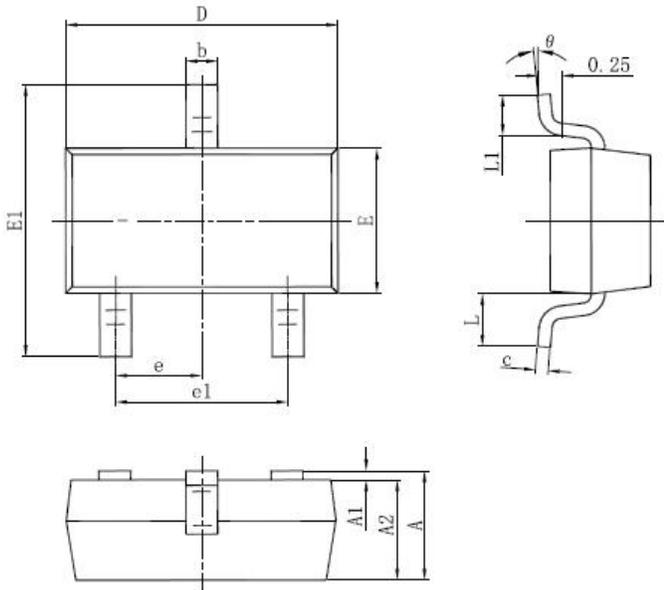


Where 05C is S2305

05C = Part Number  
A = AEC-Q101

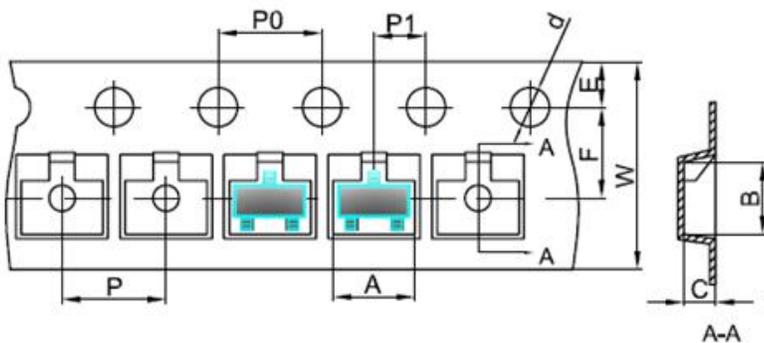
**Cautions:** Molding resin  
Epoxy resin UL:94V-0

**Mechanical Dimensions SOT-23**



SYMBOL	Millimeters		Inches	
	MIN.	MAX.	MIN.	MAX.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

**Carrier Tape Specification SOT-23**



SYMBOL	Millimeters	
	Min.	Max.
A	3.05	3.25
B	2.67	2.87
C	1.12	1.32
d	1.40	1.60
E	1.65	1.85
F	3.40	3.60
P	3.90	4.10
P0	3.90	4.10
P1	1.90	2.10
W	7.90	8.30

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