BTRSA28A401

400W Surface Mount Transient Voltage Suppressor

FEATURES

- 400W Peak Pulse Power dissipation at 10/1000μs waveform , Repetition rate (duty cycle): 0.01%
- 28V Stand-off Voltage
- Glass passivated junction
- Uni-Directional versions available
- Low leakage
- Low inductance
- Very Fast Response Time
- Excellent clamping capability
- Plastic package is flammability rated 94V-0 Underwriters Laboratories
- Halogen free and ROHS compliant

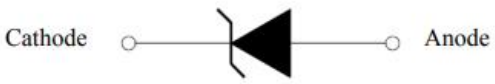
MECHANICAL DATA

- Package : SMA/DO-214AC
- Case Material: Green Molding Compound
- Terminals: Meets MSL level 1 , per J-STD-020 , maximum peak of 260℃
- Polarity Indicator: Color band denotes cathode (Note: Bi-directional devices have no polarity indicator)

APPLICATIONS

- AC/DC Power supply
- I/O Interface
- Low frequency signal transmission line (RS232, RS485, etc.)

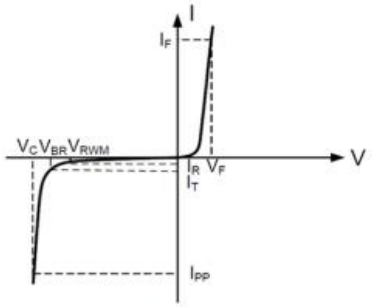
SCHEMATIC & PIN CONFIGURATION



Uni-directional

ELECTRICAL PARAMETERS (TA=25℃ Unless otherwise noted)

Uni-directional



Symbol	Parameter
Ipp	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ Ipp
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F

ABSOULTE MAXIMUM RATINGS (TA=25℃ Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Peak Pulse Power (tp =10/1000μs) (Note 1，2)	P_{PP}	400	W
Maximum Peak Pulse Current (tp =10/1000μs) (Note 1)	I_{PP}	8.8	A
Steady State Power Dissipation @ T_A = 50°C (Note 2)	$P_{M(AV)}$	3.3	W
Maximum Instantaneous Forward Voltage at 50A for Uni-directional Only	V_F	3.5	V
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load , JEDEC Method (Note 3)	I_{FSM}	60	A
Operating Junction Temperature	T_J	-40 ~ 150	℃
Storage Temperature Range	T_{STG}	-40 ~ 150	℃
Junction to Ambient on Printed Circuit	$R_{\theta JA}$	120	℃/W
Lead Soldering Temperature	T_L	260 (10sec)	℃

Note: 1. Non-repetitive current pulse, TA = 25℃。

2. Mounted on 5.0mm x 5.0mm Copper Pads to each terminal。

3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle=4 pulses per minutes maximum。

ELECTRICAL CHARACTERISTICS

Part Number	Reverse Stand off Voltage	Break down Voltage V_{BR} @ I_T		Test Current	Max. Reverse Leakage @ V_{RWM}	Max. Clamping Voltage @ I_{pp}	Max. Peak Pulse Current
	V_{RWM} (V)	Min (V)	Max (V)	I_T (mA)	I_R (μA)	V_C (V)	Ipp (A)
BTRSA28A401	28	31.1	34.4	1	1	45.4	8.8

TYPICAL CHARACTERISTICS

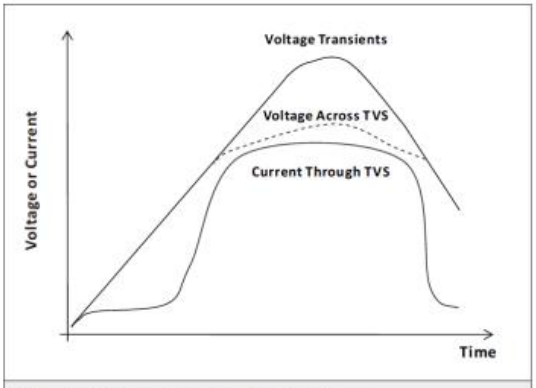


Figure 1 - TVS Transients Clamping Waveform

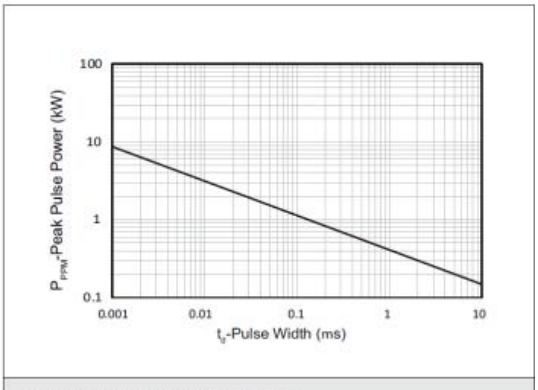


Figure 2 - Peak Pulse Power Rang Curve

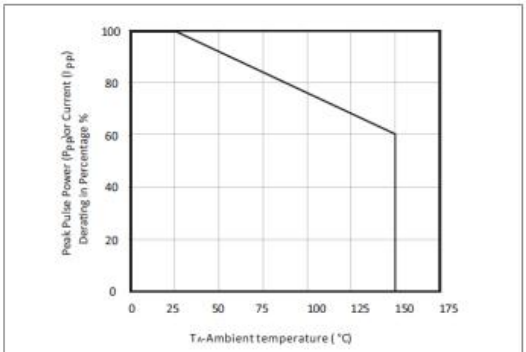


Figure 3 - Pulse Derating Curve

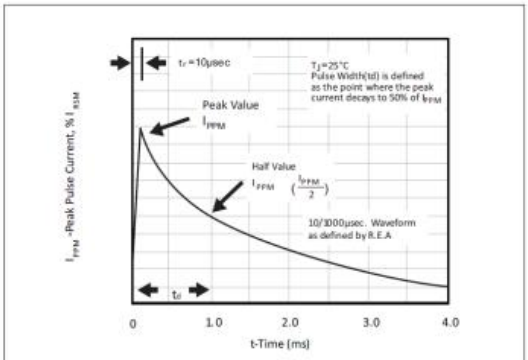


Figure 4 - Pulse Waveform

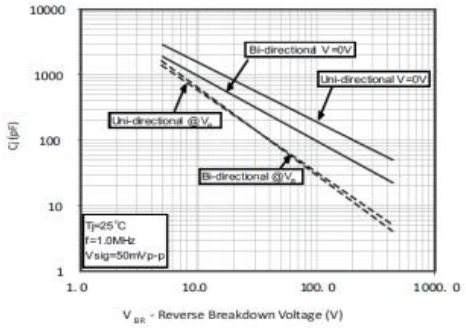


Figure 5 -Typical Junction Capacitance

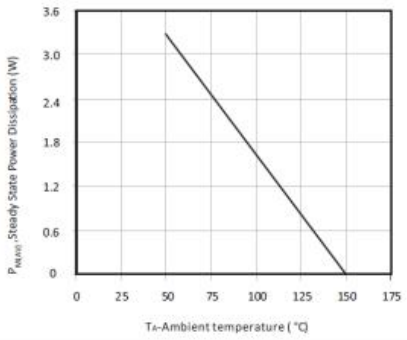
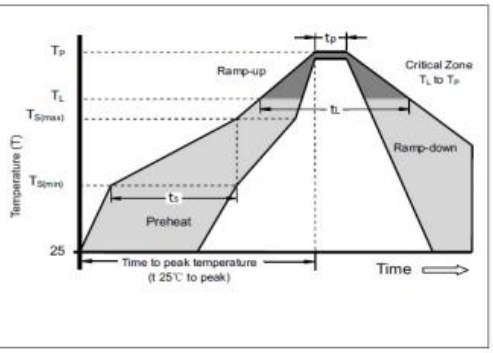


Figure 6 - Steady State Power Dissipation Derating Curve

SOLDERING PARAMETERS

Reflow Condtion		Lead–free assembly
Pre Heat	Temperature Min (Ts(min))	150°C
	Temperature Max (Ts(max)	200°C
	Time (min to max) (ts)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
Ts(max)to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (ts)	60 – 150 seconds
Peak Temperature (T_P)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		260°C



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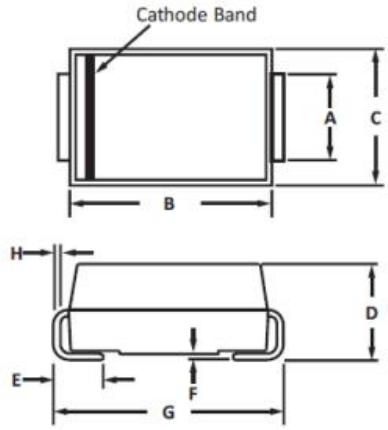
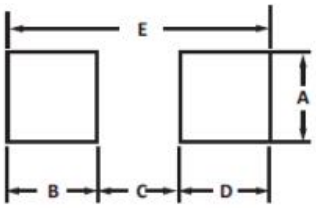
PACKAGE OUTLINE



DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	0.048	0.064	1.23	1.63
B	0.161	0.179	4.10	4.55
C	0.102	0.110	2.60	2.80
D	0.085	0.093	2.15	2.35
E	0.030	0.059	0.75	1.51
F	0.001	0.008	0.02	0.20
G	0.192	0.206	4.87	5.22
H	0.006	0.012	0.15	0.30

RECOMMENDED PAD LAYOUT DIMENSIONS



DIM	Inches	Millimeters
A	0.064	1.63
B	0.057	1.45
C	0.090	2.28
D	0.057	1.45
E	0.208 Ref.	5.28 Ref.

ORDERING INFORMATION

Chip Size	Parts on 13 inch (330mm) Reel
DO-214AC	5,000 PCS