UMW BST23Axx2V

1.Features

- 300 watts peak pulse power (t_p=8/20μs)
- Protects one bidirectional line or two unidirectional lines
- Working Voltages: 5V, 12V, 15V, 24V and 36V
- ESD Protection > 40 kilovolts
- Low clamping voltages
- IEC 61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)

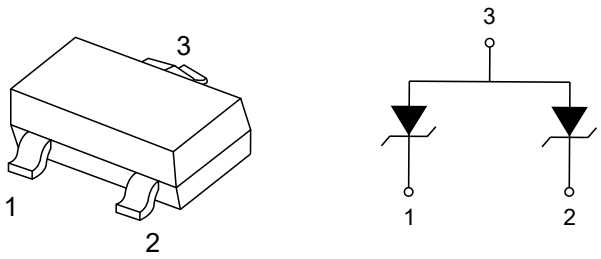
2.Applications

- Cellular Handsets and Accessories
- Control & Monitoring Systems
- Portable Electronics
- Set-Top Box
- Servers, Notebook, and Desktop PC
- Wireless Bus Protection

3.Mechanical Characteristics

- JEDEC SO-T23 package
- Molding compound flammability rating: UL94V-0
- Marking: Marking Code
- Packaging: Tape and Reel per EIA 481
- RoHS Compliant

4.Pinning information

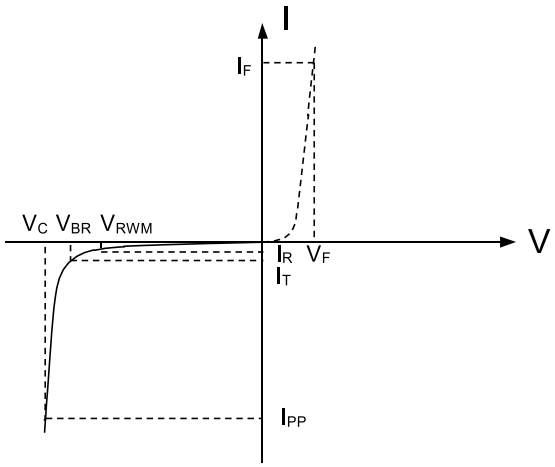


SOT-23

5.Absolute Maximum Ratings T_A= 25°C

Parameter	Symbol	Value	Units
Peak Pulse Power(t_p=8/20μs)	P_{PP}	300	Watts
Lead Soldering Temperature	T_L	260(10sec)	°C
Junction Temperature	T_J	-55 to 125	°C
Storage Temperature	T_{STG}	-55 to 150	°C

6.Electrical Parameters (T=25°C)



Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
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

7.1Electrical Characteristic (BST23A052V)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	6			V
Reverse Leakage Current	I_R	V_{RWM}=5V,T=25°C			1	μA
Peak Pulse Current	I_{PP}	t_p=8/20μs			18	A
Clamping Voltage	V_C	I_{PP}=1A, t_p=8/20μs			9.8	V
Maximum Clamping Voltage	V_C	I_{PP}=18A, t_p=8/20μs			16.7	V
Junction Capacitance	C_J	Pin 1 to 2, V_R=0V, f=1MHz		100		pF
		Pin 1 to 3 and Pin 2 to 3 V_R=0V, f=1MHz		150		pF

7.2Electrical Characteristic (BST23A122V)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Stand-Off Voltage	V_{RWM}				12	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	13.3			V
Reverse Leakage Current	I_R	V_{RWM}=12V,T=25°C			1	μA
Peak Pulse Current	I_{PP}	t_p=8/20μs			12	A
Clamping Voltage	V_C	I_{PP}=1A, t_p=8/20μs			19	V
Maximum Clamping Voltage	V_C	I_{PP}=12A, t_p=8/20μs			25	V
Junction Capacitance	C_J	Pin 1 to 2, V_R=0V, f=1MHz		30		pF
		Pin 1 to 3 and Pin 2 to 3 V_R=0V, f=1MHz		50		pF

7.3Electrical Characteristic (BST23A152V)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Stand-Off Voltage	V_{RWM}				15	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	16.7			V
Reverse Leakage Current	I_R	V_{RWM}=15V,T=25°C			1	μA
Peak Pulse Current	I_{PP}	t_p=8/20μs			10	A
Clamping Voltage	V_C	I_{PP}=1A, t_p=8/20μs			24	V
Maximum Clamping Voltage	V_C	I_{PP}=10A, t_p=8/20μs			30	V
Junction Capacitance	C_J	Pin 1 to 2, V_R=0V, f=1MHz		25		pF
		Pin 1 to 3 and Pin 2 to 3 V_R=0V, f=1MHz		40		pF

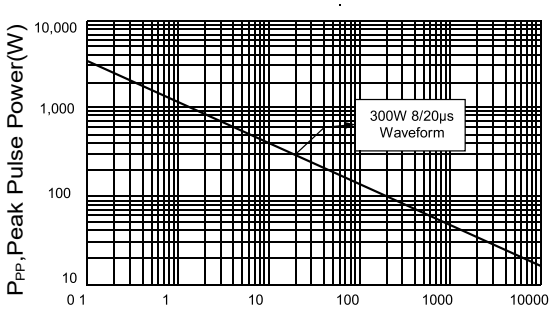
7.4Electrical Characteristic (BST23A242V)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Stand-Off Voltage	V_{RWM}				24	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	26.7			V
Reverse Leakage Current	I_R	V_{RWM}=24V,T=25°C			1	μA
Peak Pulse Current	I_{PP}	t_p=8/20μs			5	A
Clamping Voltage	V_C	I_{PP}=1A, t_p=8/20μs			43	V
Maximum Clamping Voltage	V_C	I_{PP}=5A, t_p=8/20μs			60	V
Junction Capacitance	C_J	Pin 1 to 2, V_R=0V, f=1MHz		20		pF
		Pin 1 to 3 and Pin 2 to 3 V_R=0V, f=1MHz		30		pF

7.5Electrical Characteristic (BST23A362V)

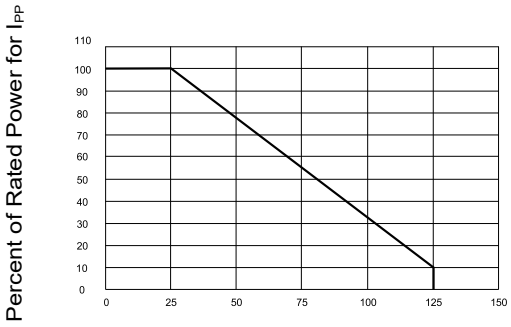
Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Stand-Off Voltage	V_{RWM}				36	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	40			V
Reverse Leakage Current	I_R	V_{RWM}=36V,T=25°C			1	μA
Peak Pulse Current	I_{PP}	t_p=8/20μs			4	A
Clamping Voltage	V_C	I_{PP}=1A, t_p=8/20μs			60	V
Maximum Clamping Voltage	V_C	I_{PP}=4A, t_p=8/20μs			75	V
Junction Capacitance	C_J	Pin 1 to 2, V_R=0V, f=1MHz		20		pF
		Pin 1 to 3 and Pin 2 to 3 V_R=0V, f=1MHz		26		pF

8.Typical characteristic



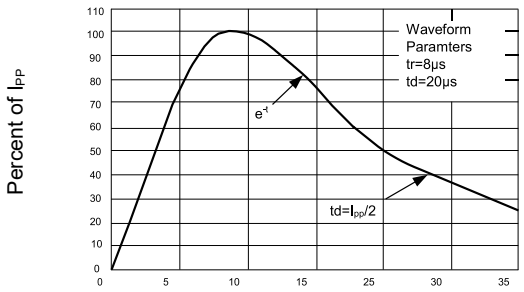
t_d, Pulse Duration (μs)

Figure 1: Peak Pulse Power vs. Pulse Time



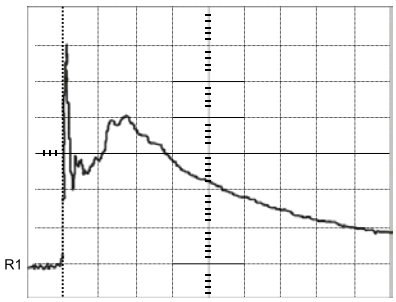
Ambient Temperature - T_A(°C)

Figure 2: Power Derating Curve



Time (μs)

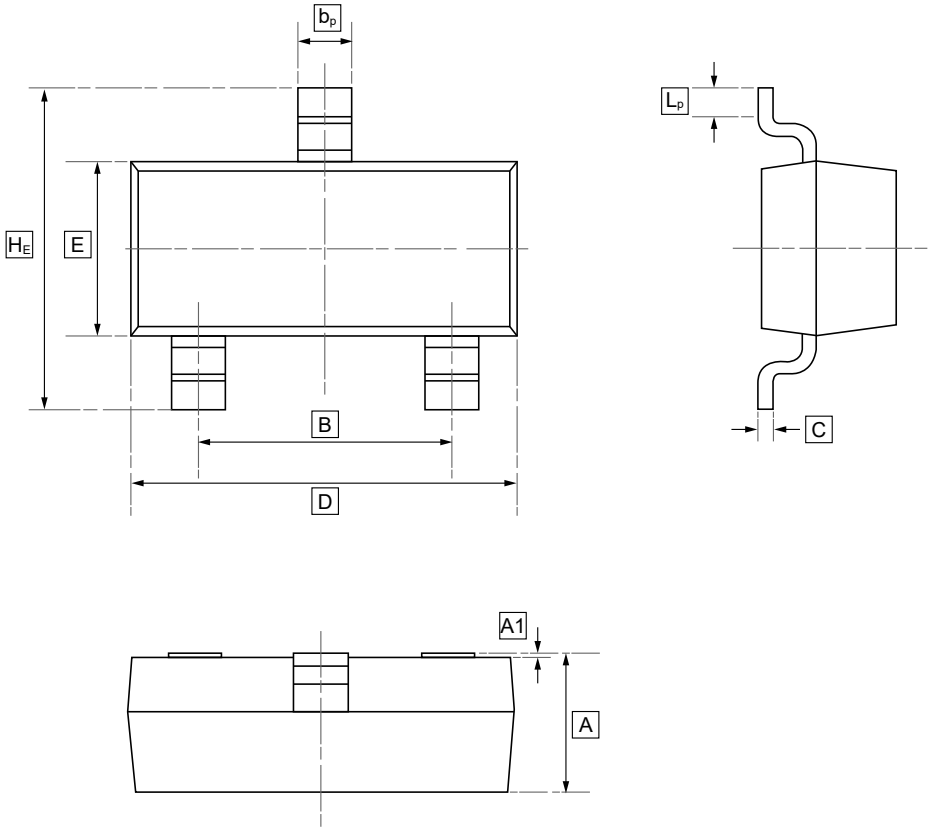
Figure 3: Pulse Waveform



Ref1 500mV 10.0ns

Figure 4: ESD Pulse Waveform (Per IEC 61000-4-2)

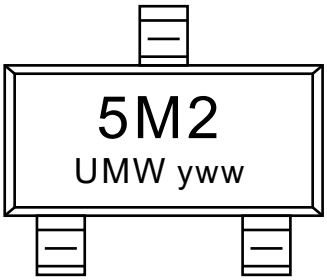
9.SOT-23 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	B	b_p	C	D	E	H_E	A1	L_p
Min	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20
Max	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50

10.Ordering information



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW BST23A052V	SOT-23	3000	Tape and reel
UMW BST23A122V	SOT-23	3000	Tape and reel
UMW BST23A152V	SOT-23	3000	Tape and reel
UMW BST23A242V	SOT-23	3000	Tape and reel
UMW BST23A362V	SOT-23	3000	Tape and reel

11.Disclaimer

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