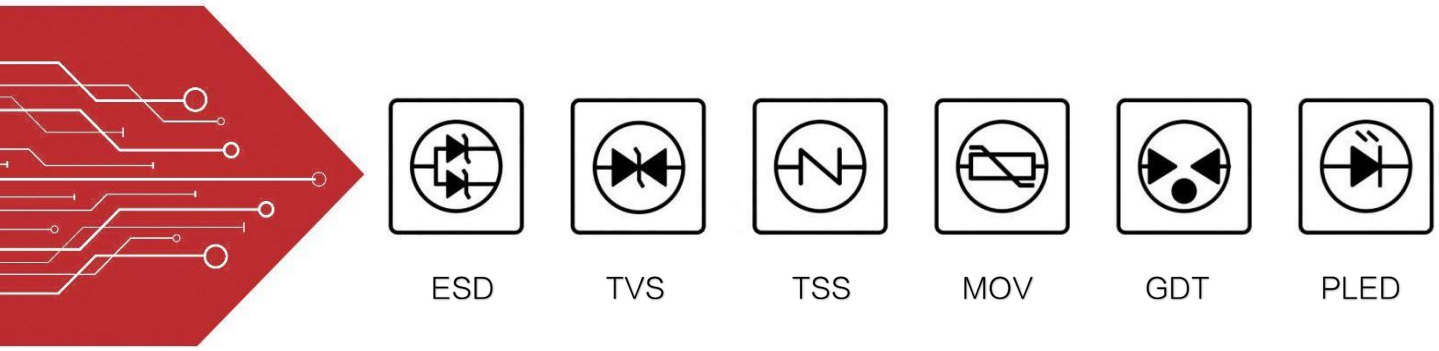
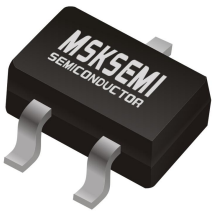
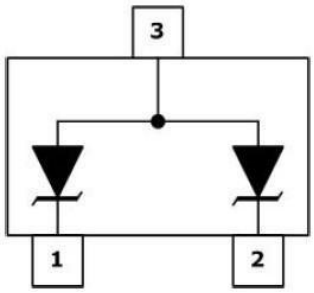
MSKSEMI
SEMICONDUCTOR



Product data sheet

PIN CONFIGURATION





SOT-23

FEATURES

- SOT-23 package allows either two separate unidirectional configurations or a single bidirectional configuration.
- Working peak reverse voltage 3V to 22V
- Standard Zener breakdown voltage 5.6V to 27V
- Peak power 24 or 40 Watts @ 1.0ms (unidirectional) per Figure 6 Waveform
- ESD Rating:
  Class 3B (>16kV) per the Human Body Model
  Class C (>400V) per Machine Model
- ESD Rating of IEC61000-4-2 level 4, ±30kV contact Discharge
- Low leakage < 5.0μA

MACHANICAL DATA

- SOT-23 package
- Flammability Rating: UL 94V-0
- Packaging: Tape and Reel
- High temperature soldering guaranted:260℃/10s
- Reel size: 7 inch

APPLICATIONS

- Computers
- Printers
- Business Machines
- Communication systems
- Medical equipment

ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
P_{PK}	Peak Power Dissipation @1.0ms MMBZ5V6AL-MS thru MMBZ9V1AL-MS MMBZ12VAL-MS thru MMBZ27VAL-MS	 24 40	W
P_D	Total Power Dissipation	200	mW
T_{OPT}	Operating Temperature	-55/+150	°C
T_{STG}	Storage Temperature	-55/+150	°C

24 WATTS

ELECTRICAL CHARACTERISTICS (Tamb=25°C)

UNIDIRECTIONAL (Circuit tied to Pins 1 and 3 or Pins 2 to 3)

P/N	Marking	V_{RWM}	I_R	V_{BR}				Z_{ZT}	Z_{ZK}		V_C	
		(V)	(μA)	(V)			(mA)	(Ω)	(Ω)	(mA)	(V)	(A)
			@ V_{RWM}	Min	Nom	Max	@ I_T	Max @I_{ZT}	Max	@ I_{ZK}	Max	@ I_{PP}
MMBZ5V6ALT1G-MS	5A6+code	3.0	5.0	5.32	5.6	5.88	20	11	1600	0.25	8.0	3.0
MMBZ6V2ALT1G-MS	6A2+code	3.0	0.5	5.89	6.2	6.51	1.0	--	--	--	8.7	2.76
MMBZ6V8ALT1G-MS	6A8+code	4.5	0.5	6.46	6.8	7.14	1.0	--	--	--	9.6	2.5
MMBZ9V1ALT1G-MS	9A1+code	6.0	0.3	8.65	9.1	9.56	1.0	--	--	--	14	1.7

V_F=0.9V Max @ I_F=10mA

40 WATTS

ELECTRICAL CHARACTERISTICS (Tamb=25°C)

UNIDIRECTIONAL (Circuit tied to Pins 1 and 3 or Pins 2 to 3)

P/N	Marking	V_{RWM}	I_R	V_{BR}				V_C (note1)	
		(V)	(nA)	(V)			(mA)	(V)	(A)
			@ V_{RWM}	Min	Nom	Max	@ I_T	Max	@ I_{PP}
MMBZ12VALT1G-MS	12A+code	8.5	200	11.40	12	12.60	1	17	2.35
MMBZ15VALT1G-MS	15A+code	12.0	50	14.25	15	15.75	1	21	1.90
MMBZ18VALT1G-MS	18A+code	14.5	50	17.10	18	18.90	1	25	1.60
MMBZ20VALT1G-MS	20A+code	16.0	50	19	20	21	1	38	1.0
MMBZ27VALT1G-MS	27A+code	22.0	50	25.65	27	28.35	1	40	1.0

V_F=0.9V Max @ I_F=10mA

Note 1: Surge Current waveform per Figure 5

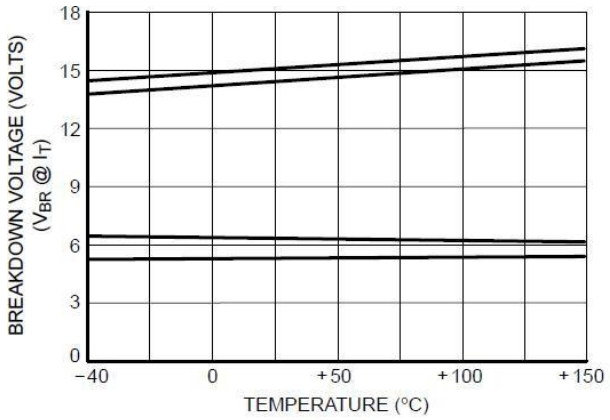


Figure 1. Typical Breakdown Voltage versus Temperature

(Upper curve for each voltage is bidirectional mode, lower curve is unidirectional mode)

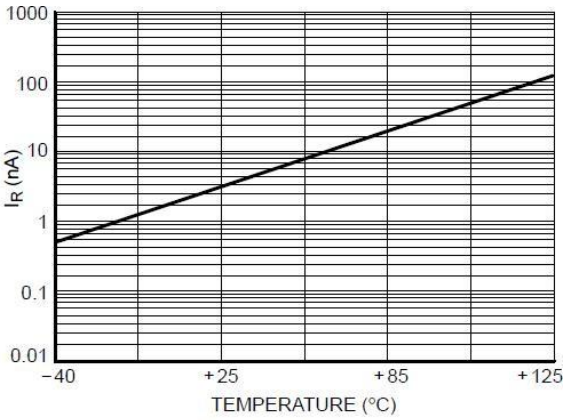


Figure 2. Typical Leakage Current versus Temperature

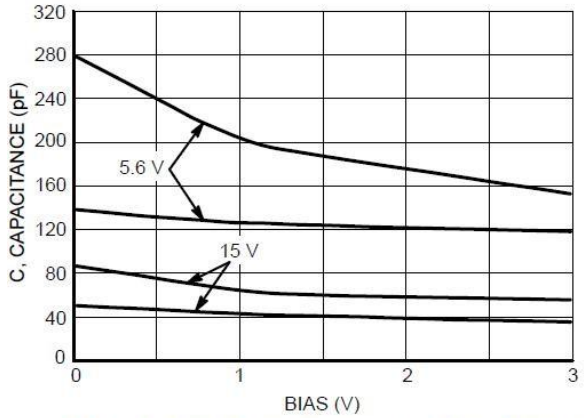


Figure 3. Typical Capacitance versus Bias Voltage

(Upper curve for each voltage is unidirectional mode, lower curve is bidirectional mode)

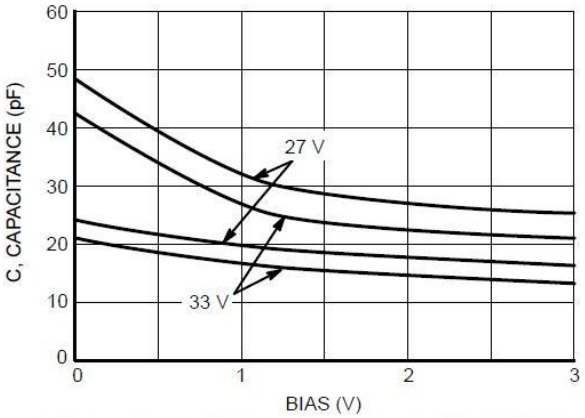


Figure 4. Typical Capacitance versus Bias Voltage

(Upper curve for each voltage is unidirectional mode, lower curve is bidirectional mode)

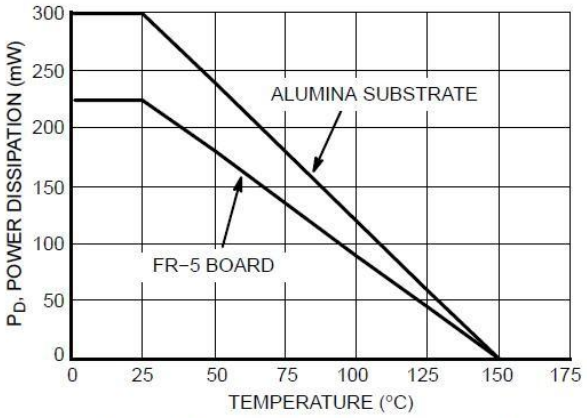
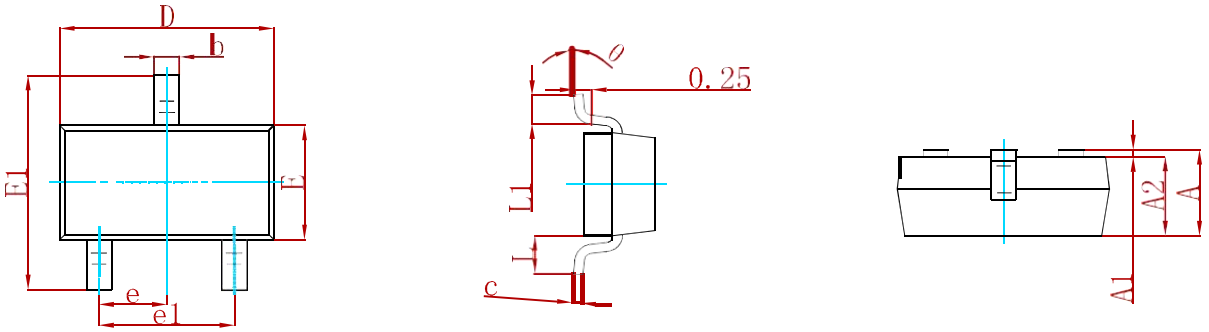


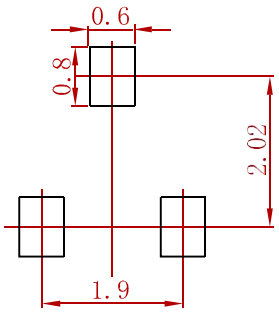
Figure 5. Steady State Power Derating Curve

PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In 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°

Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

REEL SPECIFICATION

P/N	PKG	QTY
MMBZXXXALT1G-MS	SOT-23	3000

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