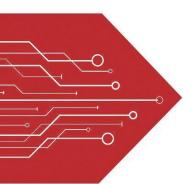
## MSKSEMI















**ESD** 

TVS

**TSS** 

MOV

GDT

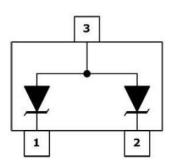
**PLED** 

# Broduct data sheet



### **PIN CONFIGURATION**





SOT-23

#### **FEATURES**

- SOT-23 package allows either two separate unidirectional configurations single or 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</li>

#### **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
	Peak Power Dissipation @1.0ms		
P <sub>PK</sub>	MMBZ5V6AL-MS thru MMBZ9V1AL-MS	24	W
	MMBZ12VAL-MS thru MMBZ27VAL-MS	40	
P <sub>D</sub>	Total Power Dissipation	200	mW
T <sub>OPT</sub>	Operating Temperature	-55/+150	°C
T <sub>STG</sub>	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)

		$V_{RWM}$	$I_R$	$V_{BR}$				Z <sub>ZT</sub>	$Z_z$	ľK	\	/ <sub>C</sub>
P/N	Marking	(V)	(μΑ)	(V)		(mA)	<b>(</b> Ω)	<b>(</b> Ω)	(mA )	(V)	(A)	
	Marking		@	Min	Nom	Max	@	Max	Max	. @ ,	Max	@
			$V_{RWM}$	IVIIII	IVIIII INOIII	IVIAX	Ιτ	@I <sub>ZT</sub>	IVIAX	$I_{ZK}$	IVIAX I <sub>PP</sub>	$I_{PP}$
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	ł			9.6	2.5
MMBZ9V1ALT1G-MS	9A1+code	6.0	0.3	8.65	9.1	9.56	1.0				14	1.7

V<sub>F</sub>=0.9V Max @ I<sub>F</sub>=10mA

### 40 WATTS ELECTRICAL CHARACTERISTICS (Tamb=25°C) UNIDIRECTIONAL (Circuit tied to Pins 1 and 3 or Pins 2 to 3)

	$V_{RWM}$	$I_R$	$V_{BR}$				V <sub>C</sub> (note1)		
		(V)	(nA)	(V)			(mA)	(V)	(A)
P/N	Marking		@	Min	n Nom Max	Mov	@	Max	@
			$V_{RWM}$	IVIII I		IVIAX	Ι <sub>Τ</sub>		$I_{PP}$
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<sub>F</sub>=0.9V Max @ I<sub>F</sub>=10mA

Note 1: Surge Current waveform per Figure 5

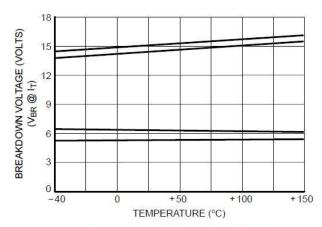


Figure 1. Typical Breakdown Voltage versus Temperature

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

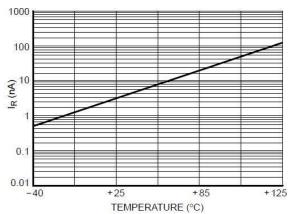


Figure 2. Typical Leakage Current versus Temperature

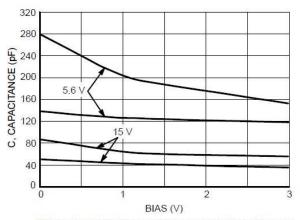


Figure 3. Typical Capacitance versus Bias Voltage (Upper curve for each voltage is unidirectional mode, lower curve is bidirectional mode)

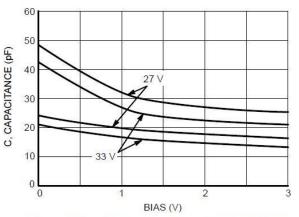


Figure 4. Typical Capacitance versus Bias Voltage (Upper curve for each voltage is unidirectional mode, lower curve is bidirectional mode)

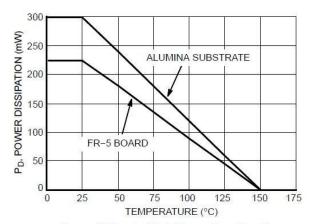
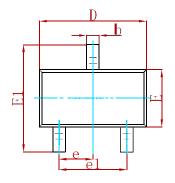
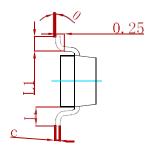


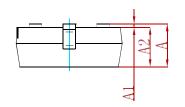
Figure 5. Steady State Power Derating Curve



### **PACKAGE MECHANICAL DATA**

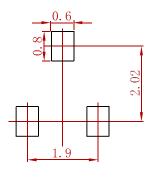






Complete	Dimensions	s In Millimeters	Dimensions In Inches		
Symbol	Min	Max	Min	Max	
Α	0.900	1.150	0.035	0.045	
A1	0.000	0.100	0.000	0.004	
A2	0.900	1.050	0.035	0.041	
b	0.300	0.500	0.012	0.020	
С	0.080	0.150	0.003	0.006	
D	2.800	3.000	0.110	0.118	
E	1.200	1.400	0.047	0.055	
E1	2.250	2.550	0.089	0.100	
е	0.950	) TYP	0.037 TYP		
e1	1.800	2.000	0.071	0.079	
L	0.55	0 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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