MMBZxxxALT1G Series

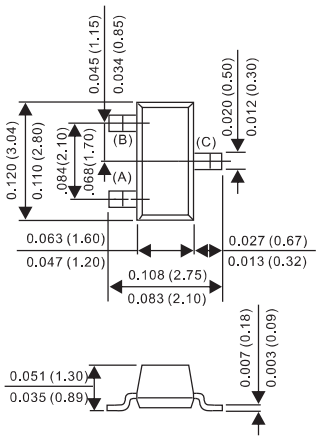
300mW Surface Mount Zener Diodes

Features

- Dual zeners common anode configuration.
- Wide zener reverse voltage range 2.7V to 47V.
- Small package size for high density applications.
- Ideally suited for automated assembly processes.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228

Package outline

SOT-23



Dimensions in inches and (millimeters)

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-23
- Terminals :Plated terminals, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any

Maximum ratings (at T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Power Dissipation at T_A=25°C	Mounted on Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.	P_D			300	mW
Thermal Resistance	Junction to Ambient	$R_{\theta JA}$		417		°C/W
Operating junction temperature range		T_J	-55		+150	°C
Storage temperature range		T_{STG}	-55		+150	°C

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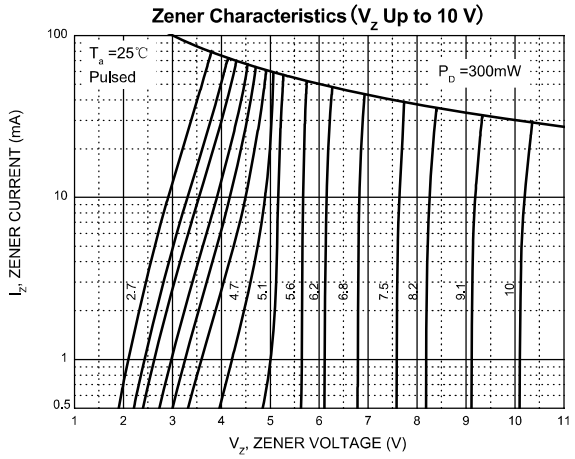
Electrical Characteristics（T_a=25℃ Unless otherwise specified）

Type Numbe	Marking Code	Nominal Zener Voltage			Maximum Zener Impedance				Min Reverse Leakage Current	
		V_Z (V)@ I_{ZT}			Z_{ZT}@I_{ZT}		Z_{Zk}@I_{Zk}		I_R @ V_R	
		Min.	Typ.	Max.	Ω	mA	Ω	mA	uA	V
MMBZ2V7ALT1G	KD1	2.5	2.7	2.9	100	5	600	1	20	1
MMBZ3V0ALT1G	KD2	2.8	3.0	3.2	95	5	600	1	10	1
MMBZ3V3ALT1G	KD3	3.1	3.3	3.5	95	5	600	1	5	1
MMBZ3V6ALT1G	KD4	3.4	3.6	3.8	90	5	600	1	5	1
MMBZ3V9ALT1G	KD5	3.7	3.9	4.1	90	5	600	1	3	1
MMBZ4V3ALT1G	KD6	4.0	4.3	4.6	90	5	600	1	3	1
MMBZ4V7ALT1G	KD7	4.4	4.7	5.0	80	5	500	1	3	2
MMBZ5V1ALT1G	KD8	4.8	5.1	5.4	60	5	480	1	2	2
MMBZ5V6ALT1G	KD9	5.2	5.6	6.0	40	5	400	1	1	2
MMBZ6V2ALT1G	KDA	5.8	6.2	6.6	10	5	150	1	3	4
MMBZ6V8ALT1G	KDB	6.4	6.8	7.2	15	5	80	1	2	4
MMBZ7V5ALT1G	KDC	7.0	7.5	7.9	15	5	80	1	1	5
MMBZ8V2ALT1G	KDD	7.7	8.2	8.7	15	5	80	1	0.7	5
MMBZ9V1ALT1G	KDE	8.5	9.1	9.6	15	5	100	1	0.5	6
MMBZ10VALT1G	KDF	9.4	10	10.6	20	5	150	1	0.2	7
MMBZ11VALT1G	KDG	10.4	11	11.6	20	5	150	1	0.1	8
MMBZ12VALT1G	KDH	11.4	12	12.7	25	5	150	1	0.1	8
MMBZ13VALT1G	KDI	12.4	13	14.1	30	5	170	1	0.1	8
MMBZ15VALT1G	KDJ	13.8	15	15.6	30	5	200	1	0.1	10.5
MMBZ16VALT1G	KDK	15.3	16	17.1	40	5	200	1	0.1	11.2
MMBZ18VALT1G	KDL	16.8	18	19.1	45	5	225	1	0.1	12.6
MMBZ20VALT1G	KDM	18.8	20	21.2	55	5	225	1	0.1	14
MMBZ22VALT1G	KDN	20.8	22	23.3	55	5	250	1	0.1	15.4
MMBZ24VALT1G	KDO	22.8	24	25.6	70	5	250	1	0.1	16.8
MMBZ27VALT1G	KDP	25.1	27	28.9	80	2	300	1	0.1	18.9
MMBZ30VALT1G	KDQ	28	30	32	80	2	300	1	0.1	21.0
MMBZ33VALT1G	KDR	31	33	35	80	2	325	1	0.1	23.1
MMBZ36VALT1G	KDS	34	36	38	90	2	350	1	0.1	25.2
MMBZ39VALT1G	KDT	37	39	41	130	2	350	1	0.1	27.3
MMBZ43VALT1G	D30	40.85	43	45.15	150	5	375	1	0.1	30.1
MMBZ47VALT1G	D31	44.65	47	49.35	170	5	375	1	0.1	32.9

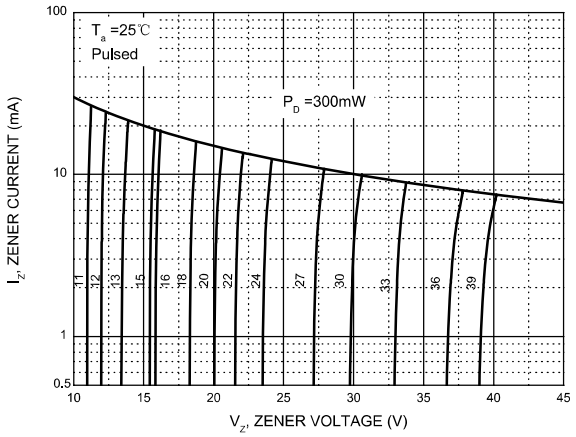
Notes: 1. Short duration test pulse used to minimize self-heating effect.
2. f=1kHz

Rating and characteristic curves

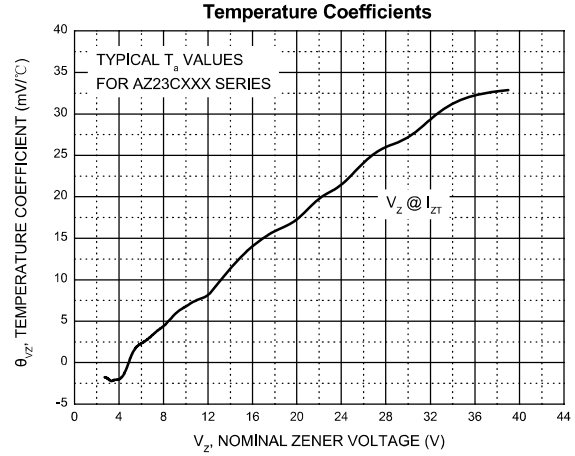
Zener Characteristics (V_Z Up to 10 V)



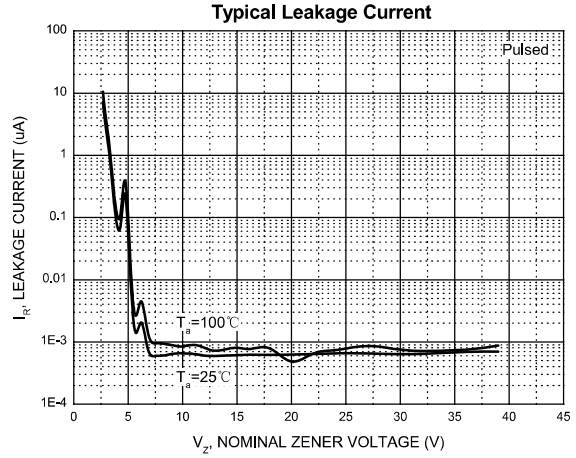
Zener Characteristics (11 V to 39 V)



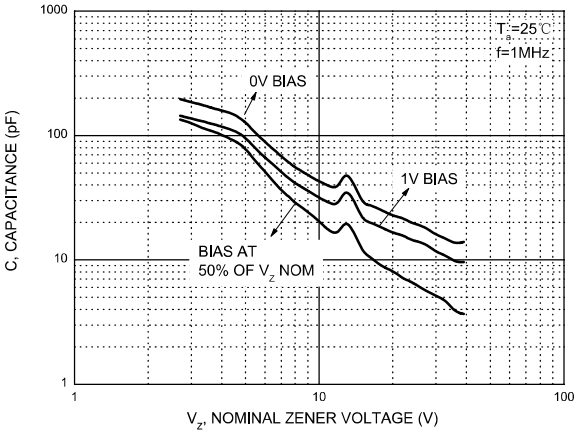
Temperature Coefficients



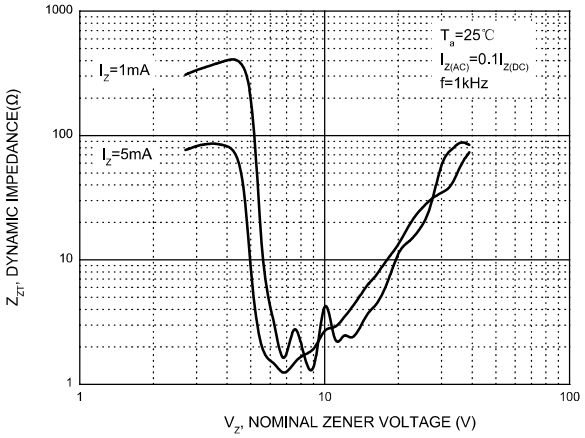
Typical Leakage Current



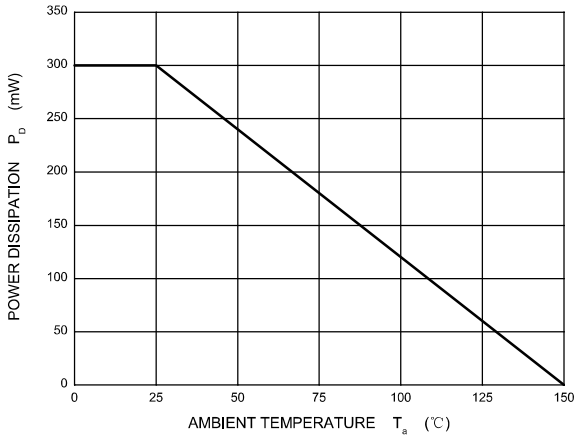
Typical Capacitance



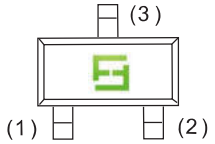
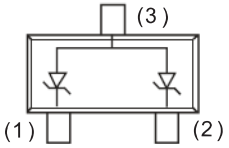
Effect of Zener Voltage on Zener Impedance



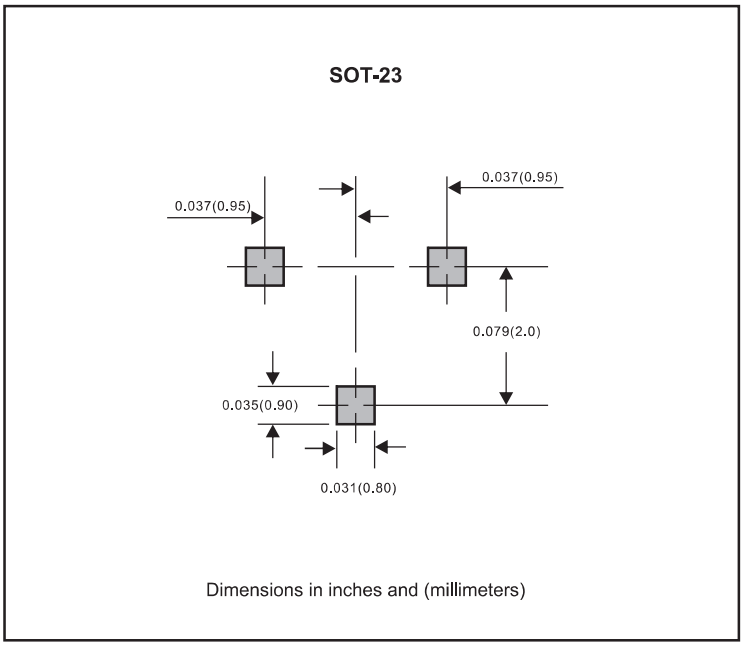
Power Derating Curve



Pinning information

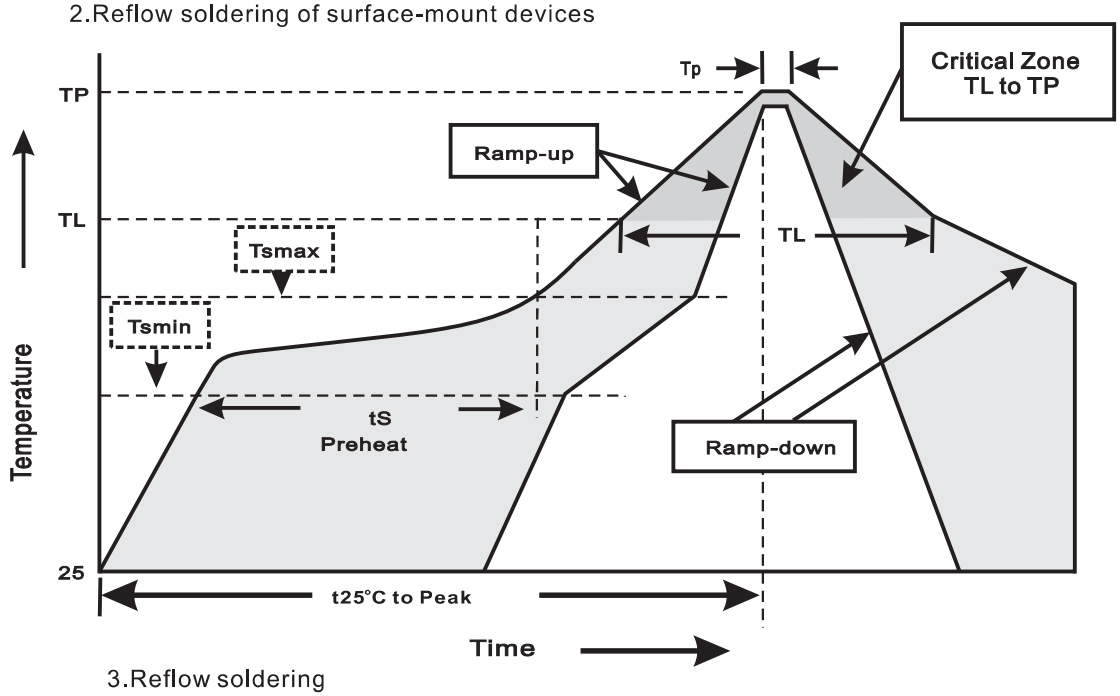
Pin	Simplified outline	Symbol
Pin1 Pin2 Pin3		

Suggested solder pad layout



Suggested thermal profiles for soldering processes

1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax to T_L -Ramp-upRate	 <3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	 217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes