

500mW, 1.8V - 39V Surface Mount Zener Diode

FEATURES

- Constant voltage control
- Wide voltage range selection 1.8V to 39V
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS compliant
- Halogen-free

APPLICATIONS

- For general purpose regulation and protection applications
- Small package size for high density applications

MECHANICAL DATA

- Case: SOD-123
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Polarity: Indicated by cathode band
- Weight: 10.97mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
V_Z	1.8 - 39	V
P_D	500	mW
$T_{J\text{MAX}}$	150	°C
Package	SOD-123	



SOD-123



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Steady state power dissipation ⁽¹⁾	P_D	500	mW
Junction temperature	T_J	-55 to +150	°C
Storage temperature	T_{STG}	-55 to +150	°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance ⁽¹⁾	$R_{\theta JA}$	340	°C/W

Note:

1. Units mounted on 5cm x 5cm Cu pad test board

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Device	Marking Code	Zener Voltage			Test current	Leakage Current	
		$V_Z @ I_{ZT}$			I_{ZT}	$I_R @ V_R$	
		V			μA	μA	V
		Min	Nom	Max			
MMSZ4678	CC	1.710	1.8	1.890	50	7.5	1.0
MMSZ4679	CD	1.900	2.0	2.100	50	5.0	1.0
MMSZ4680	CE	2.090	2.2	2.310	50	4.0	1.0
MMSZ4681	CF	2.280	2.4	2.520	50	2.0	1.0
MMSZ4682	CH	2.565	2.7	2.835	50	1.0	1.0
MMSZ4683	CJ	2.850	3.0	3.150	50	0.8	1.0
MMSZ4684	CK	3.135	3.3	3.465	50	7.5	1.5
MMSZ4685	CM	3.420	3.6	3.780	50	7.5	2.0
MMSZ4686	CN	3.705	3.9	4.095	50	5.0	2.0
MMSZ4687	CP	4.085	4.3	4.515	50	4.0	2.0
MMSZ4688	CT	4.465	4.7	4.935	50	10	3.0
MMSZ4689	CU	4.845	5.1	5.355	50	10	3.0
MMSZ4690	CV	5.320	5.6	5.880	50	10	4.0
MMSZ4691	CA	5.890	6.2	6.510	50	10	5.0
MMSZ4692	CX	6.460	6.8	7.140	50	10	5.1
MMSZ4693	CY	7.125	7.5	7.875	50	10	5.7
MMSZ4694	CZ	7.790	8.2	8.610	50	1.0	6.2
MMSZ4695	DC	8.265	8.7	9.135	50	1.0	6.6
MMSZ4696	DD	8.645	9.1	9.555	50	1.0	6.9
MMSZ4697	DE	9.50	10	10.50	50	1.0	7.6
MMSZ4698	DF	10.45	11	11.55	50	1.0	8.4
MMSZ4699	DH	11.40	12	12.60	50	1.0	9.1
MMSZ4700	DJ	12.35	13	13.65	50	1.0	9.8
MMSZ4701	DK	13.30	14	14.70	50	1.0	10.6
MMSZ4702	DM	14.25	15	15.75	50	1.0	11.4
MMSZ4703	DN	15.20	16	16.80	50	1.0	12.1
MMSZ4704	DP	16.15	17	17.85	50	1.0	12.9
MMSZ4705	DT	17.10	18	18.90	50	1.0	13.6
MMSZ4706	DU	18.05	19	19.95	50	1.0	14.4
MMSZ4707	DV	19.00	20	21.00	50	0.01	15.2
MMSZ4708	DA	20.90	22	23.10	50	0.01	16.7
MMSZ4709	DX	22.80	24	25.20	50	0.01	18.2
MMSZ4710	DY	23.75	25	26.25	50	0.01	19.0
MMSZ4711	EA	25.65	27	28.35	50	0.01	20.4

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Device	Marking Code	Zener Voltage			Test current	Leakage Current	
		$V_z @ I_{ZT}$			I_{ZT}	$I_R @ V_R$	
		V			uA	μA	V
		Min	Nom	Max			
MMSZ4712	EC	26.60	28	29.40	50	0.01	21.2
MMSZ4713	ED	28.50	30	31.50	50	0.01	22.8
MMSZ4714	EE	31.35	33	34.65	50	0.01	25.0
MMSZ4715	EF	34.20	36	37.80	50	0.01	27.3
MMSZ4716	EH	37.05	39	40.95	50	0.01	29.6

ORDERING INFORMATION

ORDERING CODE ⁽¹⁾	PACKAGE	PACKING
MMSZ4xxx RHG	SOD-123	3,000 / 7" Tape & Reel

Note:

- "xxx" defines voltage from MMSZ4678(1.8V) to MMSZ4716(39V)

CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 Power Temperature Derating Curve

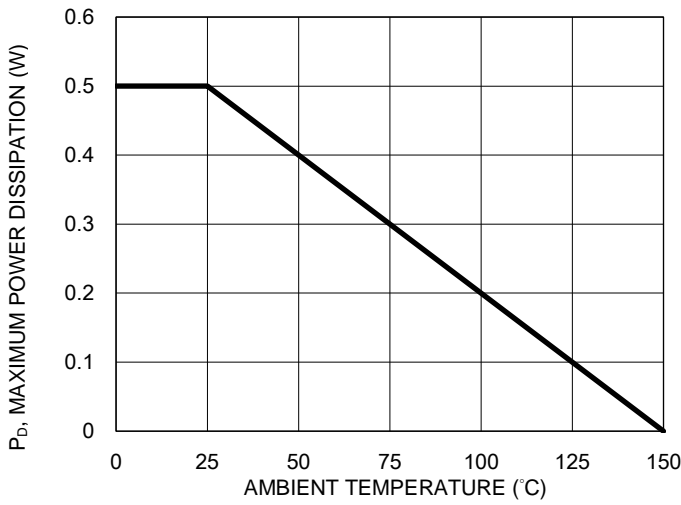


Fig.2 Zener Voltage Versus Zener Current

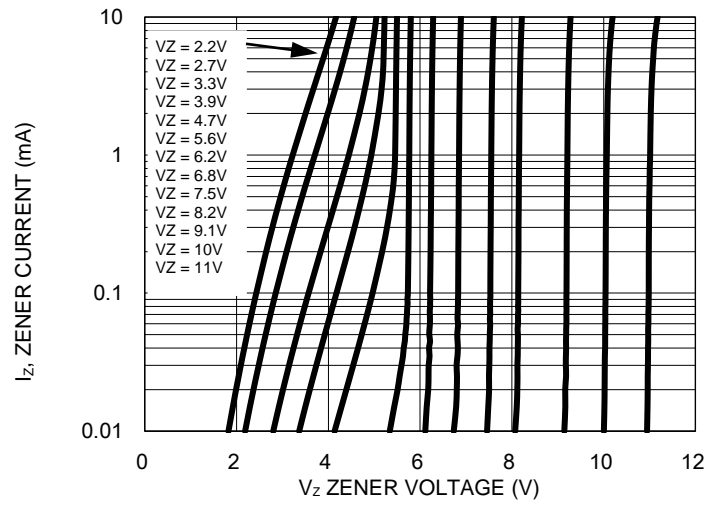


Fig.3 Zener Voltage Versus Zener Current

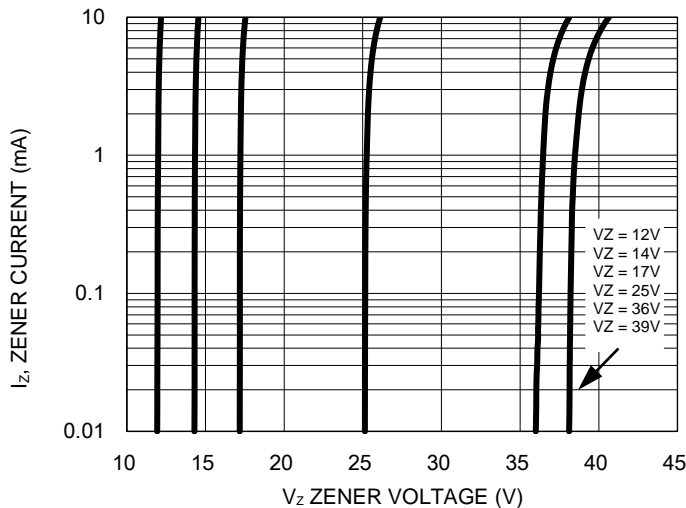


Fig.4 Effect of Zener Voltage On Zener Impedance

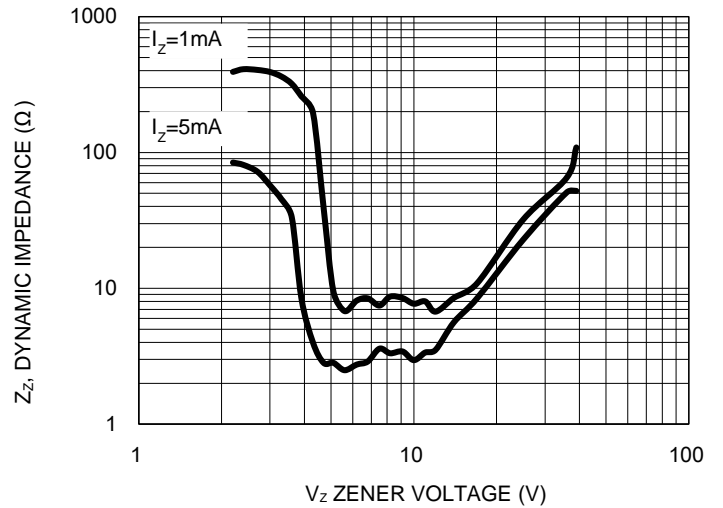
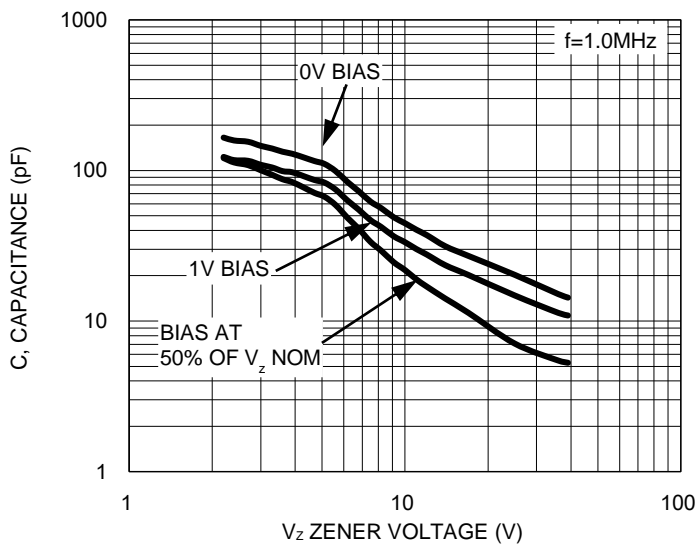
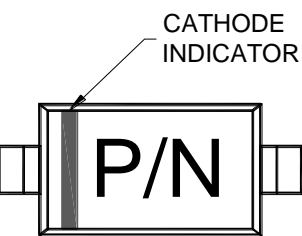
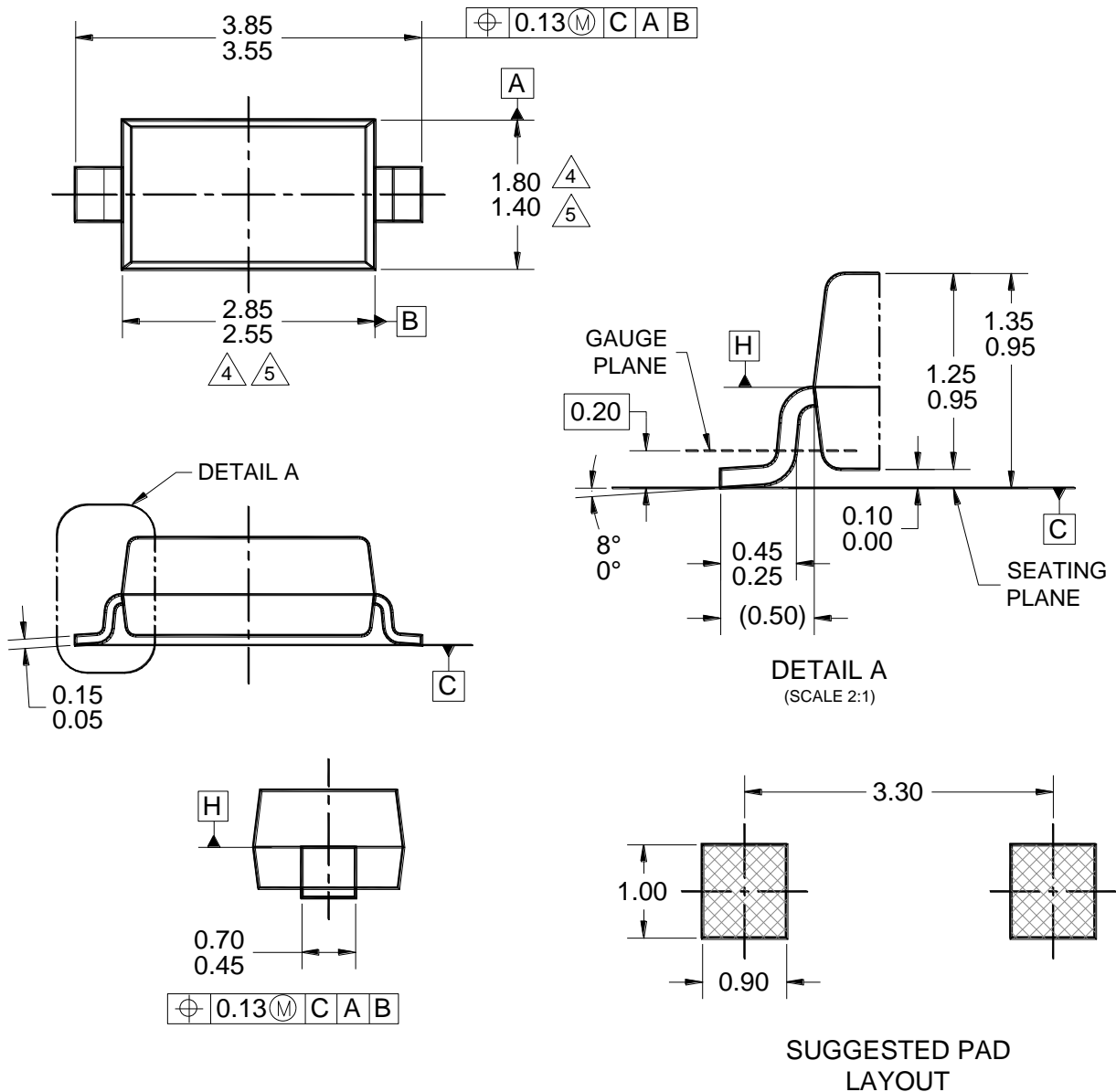


Fig.5 Typical Capacitance Versus Zener Voltage



PACKAGE OUTLINE DIMENSIONS

SOD-123



MARKING DIAGRAM

P/N = MARKING CODE

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC DO-215, VARIATION AD, ISSUE D.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
5. MOLDED PLASTIC BODY LATERAL DIMENSIONS TO BE DETERMINED AT DATUM PLANE H.
6. DWG NO. REF: HQ2SD07-SOD123-046 REV A.

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