

### Vishay Semiconductors

# **Small Signal Zener Diodes**



#### **DESIGN SUPPORT TOOLS**

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PRIMARY CHARACTERISTICS			
PARAMETER	VALUE	UNIT	
V <sub>Z</sub> range nom.	2.4 to 43	V	
Test current I <sub>ZT</sub>	0.05	mA	
V <sub>Z</sub> specification	Thermal equilibrium		
Circuit configuration	Single		

#### **FEATURES**

- Silicon planar Zener diodes
- Standard Zener voltage tolerance is ± 5 %
- High temperature soldering guaranteed: 260 °C/4 x 10 s set terminals
- AEC-Q101 qualified available
- ESD capability according to AEC-Q101: Human body model > 8 kV Machine model > 800 V







RoHS COMPLIANT

- Base P/N-E3 RoHS-compliant, commercial grade
- Base P/N-HE3 RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

ORDERING INFORMATION				
DEVICE NAME ORDERING CODE		TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY	
MMSZ4681 to MMSZ4717	MMSZ4681-E3-08 to MMSZ4717-E3-08	3000 (8 mm tape on 7" reel)	15 000/box	
	MMSZ4681-HE3-08 to MMSZ4717-HE3-08	3000 (6 min tape on 7 reei)		
	MMSZ4681-E3-18 to MMSZ4717-E3-18	10 000 (8 mm tape on 13" reel)	10 000/box	
	MMSZ4681-HE3-18 to MMSZ4717-HE3-18	To ooo to minitape on 13 reei)		

PACKAGE					
PACKAGE NAME WEIGHT MOLDING COMPOUND FLAMMABILITY RATING		MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS		
SOD-123	10.3 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals	

ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Power dissipation	$T_L = 75$ °C, on FR - 4 or FR - 5 board with minimum recommended solder pad layout	P <sub>tot</sub>	500	mW	
Zener current	See table "Electrical Characteristics"				
Thermal resistance junction to ambient air	On FR - 4 or FR - 5 board with minimum recommended solder pad layout	R <sub>thJA</sub>	340	K/W	
Junction temperature		Tj	150	°C	
Storage temperature range		T <sub>stg</sub>	-55 to +150	°C	
Operating temperature range		T <sub>op</sub>	-55 to +150	°C	



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		ZENER VOLTAGE RANGE (1)			TEST CURRENT	REVERSE CURRENT	
	MARKING	V <sub>Z</sub> at I <sub>ZT1</sub>			I <sub>ZT1</sub>	I <sub>R</sub> at V <sub>R</sub>	
	CODE		V			μA V	
		MIN.	NOM.	MAX.	mA	MAX.	
MMSZ4681	CF	2.28	2.4	2.52	0.05	2	1
MMSZ4682	CH	2.57	2.7	2.84	0.05	1	1
MMSZ4683	CJ	2.85	3	3.15	0.05	0.8	1
MMSZ4684	CK	3.14	3.3	3.47	0.05	7.5	1.5
MMSZ4685	CM	3.42	3.6	3.78	0.05	7.5	2
MMSZ4686	CN	3.71	3.9	4.1	0.05	5	2
MMSZ4687	CP	4.09	4.3	4.52	0.05	4	2
MMSZ4688	СТ	4.47	4.7	4.94	0.05	10	3
MMSZ4689	CU	4.85	5.1	5.36	0.05	10	3
MMSZ4690	CV	5.32	5.6	5.88	0.05	10	4
MMSZ4691	CA	5.89	6.2	6.51	0.05	10	5
MMSZ4692	CX	6.46	6.8	7.14	0.05	10	5.1
MMSZ4693	CY	7.13	7.5	7.88	0.05	10	5.7
MMSZ4694	CZ	7.79	8.2	8.61	0.05	1	6.2
MMSZ4695	DC	8.27	8.7	9.14	0.05	1	6.6
MMSZ4696	DD	8.65	9.1	9.56	0.05	1	6.9
MMSZ4697	DE	9.5	10	10.5	0.05	1	7.6
MMSZ4698	DF	10.5	11	11.6	0.05	0.05	8.4
MMSZ4699	DH	11.4	12	12.6	0.05	0.05	9.1
MMSZ4700	DJ	12.4	13	13.7	0.05	0.05	9.8
MMSZ4701	DK	13.3	14	14.7	0.05	0.05	10.6
MMSZ4702	DM	14.3	15	15.8	0.05	0.05	11.4
MMSZ4703	DN	15.2	16	16.8	0.05	0.05	12.1
MMSZ4704	DP	16.2	17	17.9	0.05	0.05	12.9
MMSZ4705	DT	17.1	18	18.9	0.05	0.05	13.6
MMSZ4706	DU	18.1	19	20	0.05	0.05	14.4
MMSZ4707	DV	19	20	21	0.05	0.01	15.2
MMSZ4708	DA	20.9	22	23.1	0.05	0.01	16.7
MMSZ4709	DZ	22.8	24	25.2	0.05	0.01	18.2
MMSZ4710	DY	23.8	25	26.3	0.05	0.01	19
MMSZ4711	EA	25.7	27	28.4	0.05	0.01	20.4
MMSZ4712	EC	26.6	28	29.4	0.05	0.01	21.2
MMSZ4713	ED	28.5	30	31.5	0.05	0.01	22.8
MMSZ4714	EE	31.4	33	34.7	0.05	0.01	25
MMSZ4715	EF	34.2	36	37.8	0.05	0.01	27.3
MMSZ4716	EH	37.1	39	41	0.05	0.01	29.6
MMSZ4717	EJ	40.9	43	45.2	0.05	0.01	32.6

#### Notes

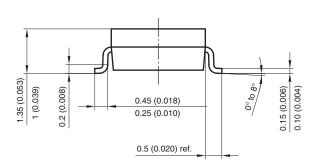
<sup>•</sup> Maximum  $V_F = 0.9 \text{ V}$  at  $I_F = 10 \text{ mA}$ 

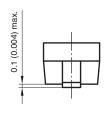
<sup>(1)</sup> Measured with device junction in thermal equilibrium



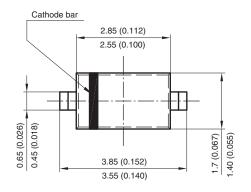
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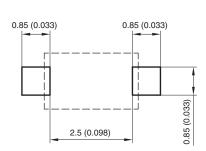
#### PACKAGE DIMENSIONS in millimeters (inches): SOD-123





Mounting Pad Layout





Rev. 4 - Date: 24. Sep. 2009 Document no.: S8-V-3910.01-001 (4)

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