

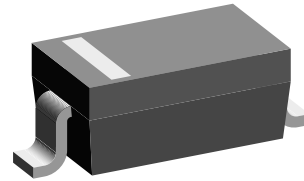
## Small Signal Zener Diodes

### Features

- Silicon planar Zener diodes
- Standard Zener voltage tolerance is  $\pm 5\%$
- High temperature soldering guaranteed:  
260 °C/4 x 10 s set terminals
- These diodes are also available in DO-35 case with the type designation 1N4681 to 1N4717 and SOT-23 case with the type designation MMBZ4681-V to MMBZ4717-V
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



**RoHS**  
COMPLIANT



17431

### Mechanical Data

**Case:** SOD-123

**Weight:** approx. 10.3 mg

**Packaging codes/options:**

GS18/10K per 13" reel (8 mm tape), 10K/box

GS08/3K per 7" reel (8 mm tape), 15K/box

### Absolute Maximum Ratings

$T_{amb} = 25\text{ °C}$ , unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Zener current (see Table "Characteristics")				
Power dissipation	$T_L = 75\text{ °C}$	$P_{tot}$	500 <sup>1)</sup>	mW

**Note**

<sup>1)</sup> On FR - 4 or FR - 5 board with minimum recommended solder pad layout

### Thermal Characteristics

$T_{amb} = 25\text{ °C}$ , unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Thermal resistance junction to ambient air		$R_{thJA}$	340 <sup>1)</sup>	K/W
Maximum junction temperature		$T_j$	150	°C
Storage temperature range		$T_{stg}$	- 55 to + 150	°C

**Note**

<sup>1)</sup> On FR - 4 or FR - 5 board with minimum recommended solder pad layout

# MMSZ4681-V to MMSZ4717-V



Vishay Semiconductors

## Electrical Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

Maximum  $V_F = 0.9\text{ V}$  at  $I_F = 10\text{ mA}$

Part number	Marking code	Zener voltage <sup>1)</sup>			Max. reverse current	Test voltage
		$V_Z$ at $I_{ZT} = 50\text{ }\mu\text{A}$			$I_R$	at $V_R$
		V			$\mu\text{A}$	V
		typ.	min.	max.	max.	
MMSZ4681-V	CF	2.4	2.28	2.52	2	1
MMSZ4682-V	CH	2.7	2.57	2.84	1	1
MMSZ4683-V	CJ	3	2.85	3.15	0.8	1
MMSZ4684-V	CK	3.3	3.14	3.47	7.5	1.5
MMSZ4685-V	CM	3.6	3.42	3.78	7.5	2
MMSZ4686-V	CN	3.9	3.71	4.1	5	2
MMSZ4687-V	CP	4.3	4.09	4.52	4	2
MMSZ4688-V	CT	4.7	4.47	4.94	10	3
MMSZ4689-V	CU	5.1	4.85	5.36	10	3
MMSZ4690-V	CV	5.6	5.32	5.88	10	4
MMSZ4691-V	CA	6.2	5.89	6.51	10	5
MMSZ4692-V	CX	6.8	6.46	7.14	10	5.1
MMSZ4693-V	CY	7.5	7.13	7.88	10	5.7
MMSZ4694-V	CZ	8.2	7.79	8.61	1	6.2
MMSZ4695-V	DC	8.7	8.27	9.14	1	6.6
MMSZ4696-V	DD	9.1	8.65	9.56	1	6.9
MMSZ4697-V	DE	10	9.5	10.5	1	7.6
MMSZ4698-V	DF	11	10.5	11.6	0.05	8.4
MMSZ4699-V	DH	12	11.4	12.6	0.05	9.1
MMSZ4700-V	DJ	13	12.4	13.7	0.05	9.8
MMSZ4701-V	DK	14	13.3	14.7	0.05	10.6
MMSZ4702-V	DM	15	14.3	15.8	0.05	11.4
MMSZ4703-V	DN	16	15.2	16.8	0.05	12.1
MMSZ4704-V	DP	17	16.2	17.9	0.05	12.9
MMSZ4705-V	DT	18	17.1	18.9	0.05	13.6
MMSZ4706-V	DU	19	18.1	20	0.05	14.4
MMSZ4707-V	DV	20	19	21	0.01	15.2
MMSZ4708-V	DA	22	20.9	23.1	0.01	16.7
MMSZ4709-V	DZ	24	22.8	25.2	0.01	18.2
MMSZ4710-V	DY	25	23.8	26.3	0.01	19
MMSZ4711-V	EA	27	25.7	28.4	0.01	20.4
MMSZ4712-V	EC	28	26.6	29.4	0.01	21.2
MMSZ4713-V	ED	30	28.5	31.5	0.01	22.8
MMSZ4714-V	EE	33	31.4	34.7	0.01	25
MMSZ4715-V	EF	36	34.2	37.8	0.01	27.3
MMSZ4716-V	EH	39	37.1	41	0.01	29.6
MMSZ4717-V	EJ	43	40.9	45.2	0.01	32.6

### Note

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

## Typical Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

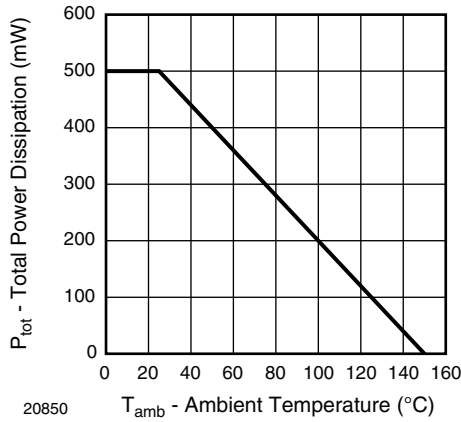


Figure 1. Total Power Dissipation vs. Ambient Temperature

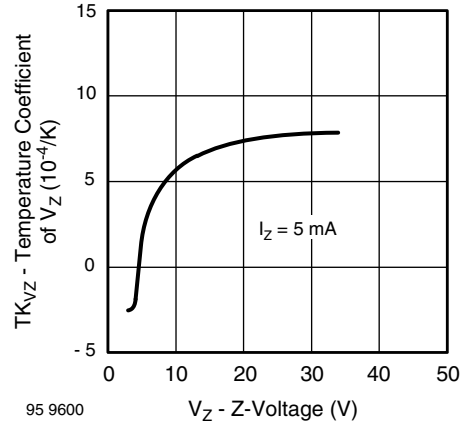


Figure 4. Temperature Coefficient of  $V_Z$  vs. Z-Voltage

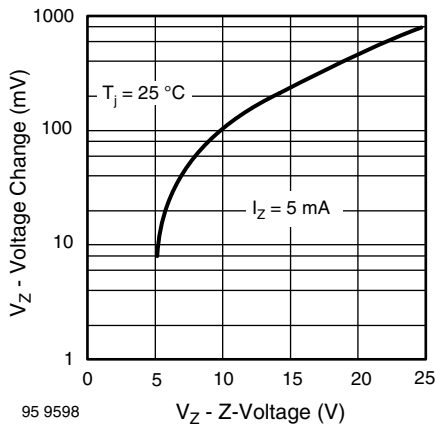


Figure 2. Typical Change of Working Voltage under Operating Conditions at  $T_{amb} = 25\text{ }^{\circ}\text{C}$

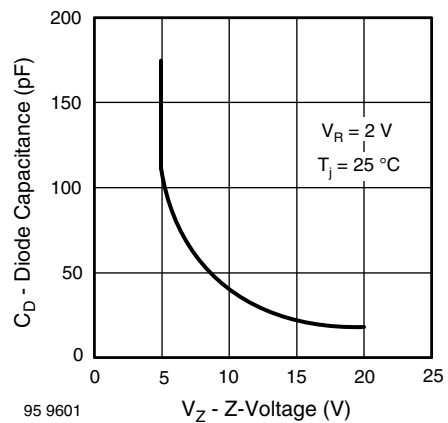


Figure 5. Diode Capacitance vs. Z-Voltage

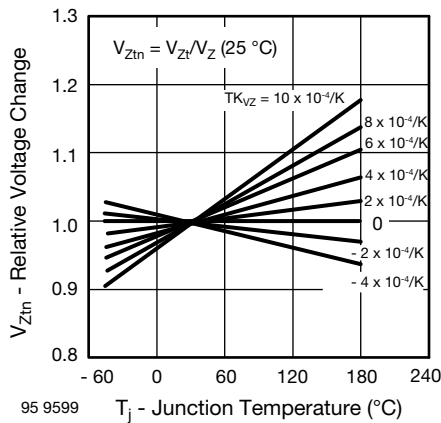


Figure 3. Typical Change of Working Voltage vs. Junction Temperature

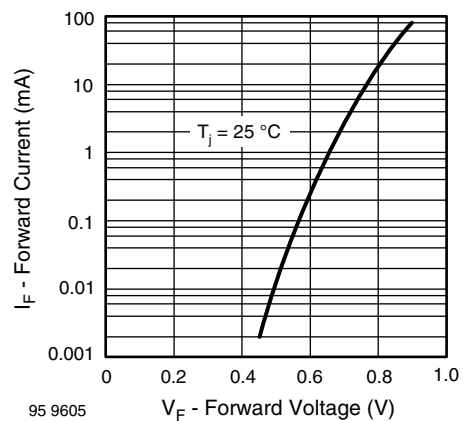


Figure 6. Forward Current vs. Forward Voltage

# MMSZ4681-V to MMSZ4717-V



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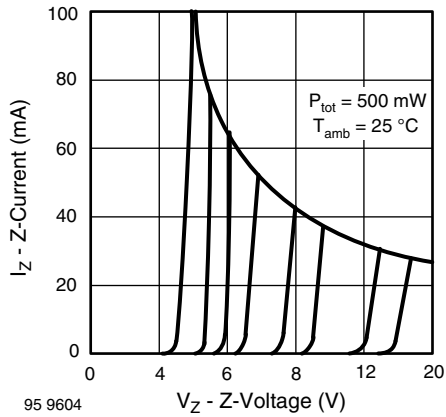


Figure 7. Z-Current vs. Z-Voltage

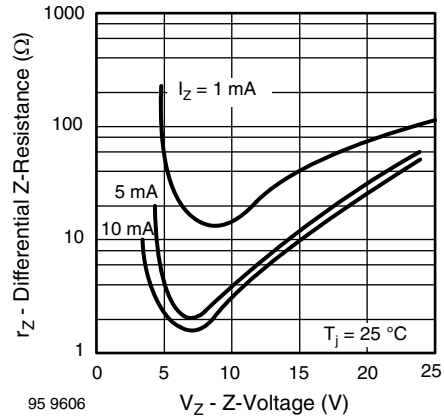


Figure 9. Differential Z-Resistance vs. Z-Voltage

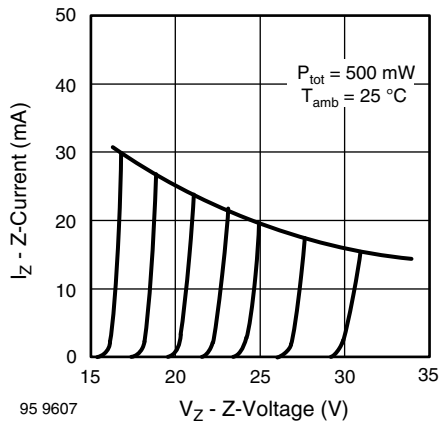


Figure 8. Z-Current vs. Z-Voltage

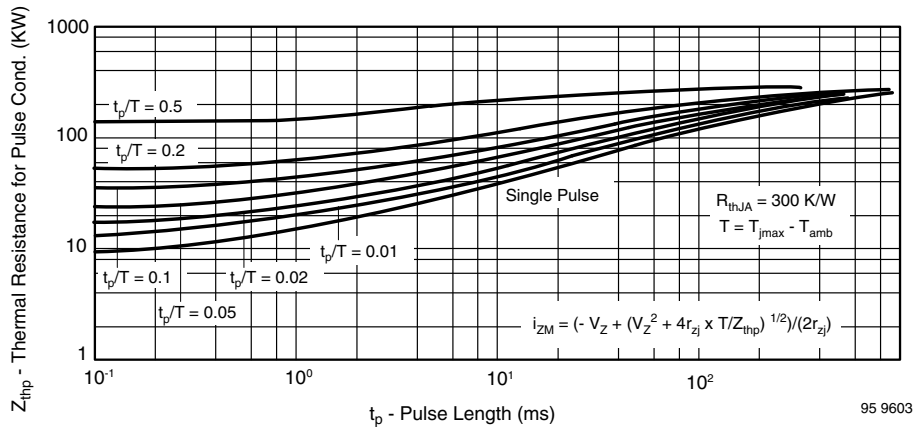
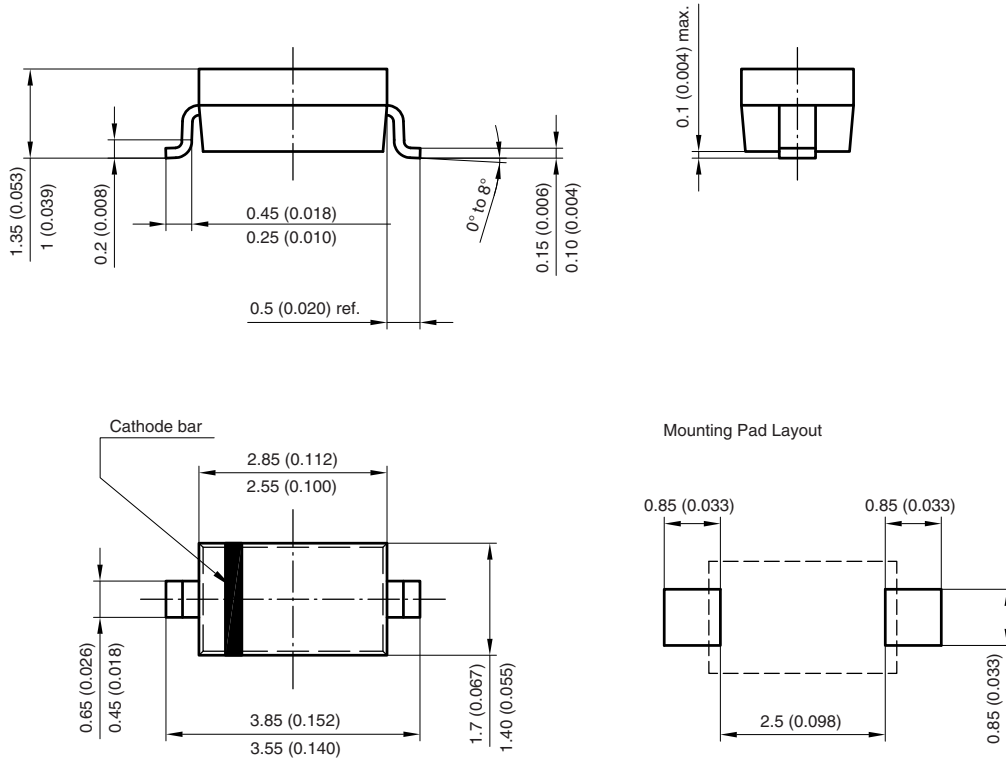


Figure 10. Thermal Response

## Package Dimensions in millimeters (inches): SOD-123



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