



**THE DATASHEET OF  
MMSZ4678-TP**





Micro Commercial Components



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# MMSZ4678 THRU MMSZ4716

## 500mW Silicon Zener Diodes

### Features

- Zener Voltage 1.8V-39V
- Very Sharp Reverse Characteristic
- VZ – tolerance  $\pm 5\%$
- High Reliability
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

### Mechanical Data

- Halogen free available upon request by adding suffix "-HF"
- Polarity: Cathode indicated by polarity band
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)

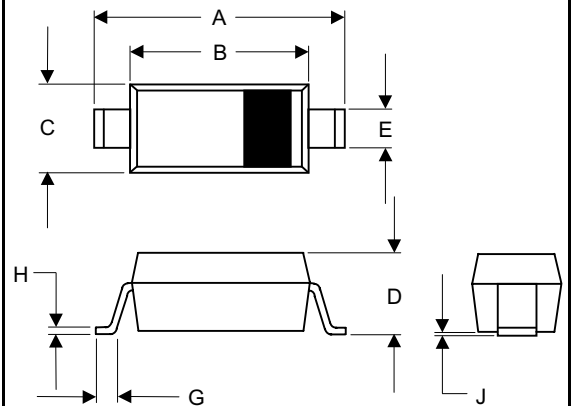
### Maximum Ratings

	Symbol	Value	Units
Max. Steady State Power Dissipation at $T_L < 75^\circ\text{C}$ , Lead Length=3/8"	$P_D$	500	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to 150	$^\circ\text{C}$
Thermal Resistance( Junction to Ambient)	$R_{thJA}$	340	K/W

### Electrical Characteristics @ 25°C Unless Otherwise Specified

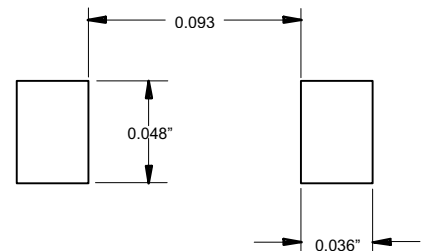
	Symbol	Maximum	Unit
Max. Forward Voltage @ $I_F=10\text{mA}$	$V_F$	0.95	V

### SOD-123



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	.140	.152	3.55	3.85	
B	.100	.112	2.55	2.85	
C	.055	.071	1.40	1.80	
D	-----	.053	-----	1.35	
E	.012	.031	0.30	.78	
G	.006	-----	0.15	-----	
H	-----	.01	-----	.25	
J	-----	.006	-----	.15	

### SUGGESTED SOLDER PAD LAYOUT



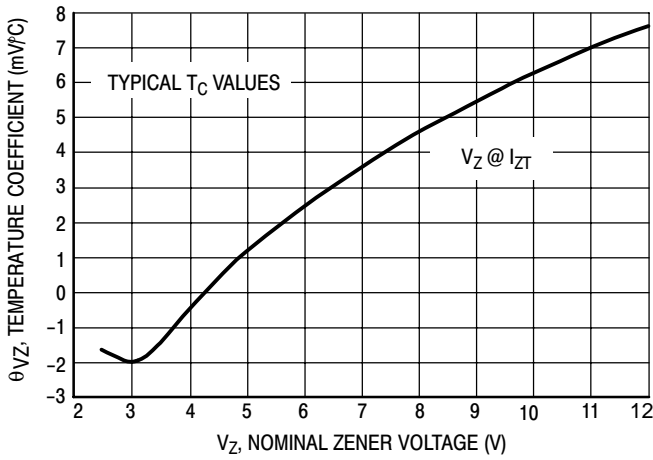
# MMSZ4678 thru MMSZ4716

**Electrical Characteristics (T<sub>i</sub>= 30°C Unless Otherwise Noted, V<sub>F</sub>=0.95V Max @ I<sub>F</sub>=10mA for all types)**

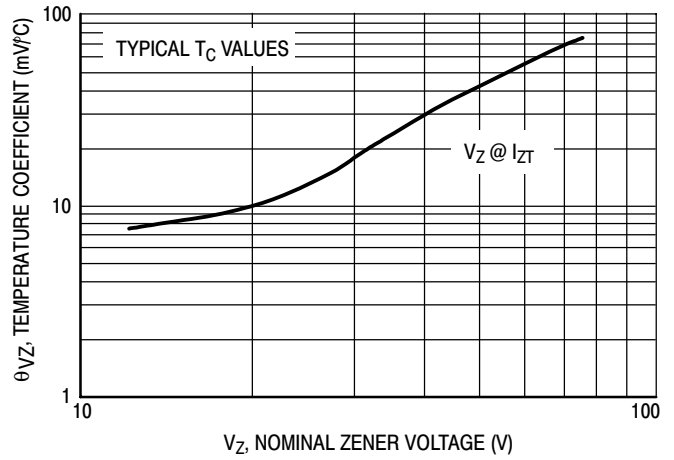
Device	Zener Voltage			@I <sub>ZT</sub>	Leakage Current		Device Marking
	V <sub>Z</sub> (Volts)				I <sub>R</sub> @V <sub>R</sub>		
	Min	Nom	Max	u A	u A	Volts	
MMSZ4678	1.71	1.8	1.89	50	7.5	1.0	CC
MMSZ4679	1.90	2.0	2.10	50	5.0	1.0	CD
MMSZ4680	2.09	2.2	2.31	50	4.0	1.0	CE
MMSZ4681	2.28	2.40	2.52	50	2.0	1.0	CF
MMSZ4682	2.565	2.7	2.835	50	1.0	1.0	CH
MMSZ4683	2.85	3.0	3.15	50	0.8	1.0	CJ
MMSZ4684	3.135	3.3	3.465	50	7.5	1.5	CK
MMSZ4685	3.42	3.6	3.78	50	7.5	2.0	CM
MMSZ4686	3.705	3.9	4.095	50	5.0	2.0	CN
MMSZ4687	4.085	4.3	4.515	50	4.0	2.0	CP
MMSZ4688	4.465	4.7	4.935	50	10	3.0	CT
MMSZ4689	4.845	5.1	5.355	50	10	3.0	CU
MMSZ4690	5.32	5.6	5.88	50	10	4.0	CV
MMSZ4691	5.89	6.2	6.51	50	10	5.0	CA
MMSZ4692	6.46	6.8	7.14	50	10	5.1	CX
MMSZ4693	7.125	7.5	7.875	50	10	5.7	CY
MMSZ4694	7.79	8.2	8.61	50	1	6.2	CZ
MMSZ4695	8.265	8.7	9.135	50	1	6.6	DC
MMSZ4696	8.645	9.1	9.555	50	1	6.9	DD
MMSZ4697	9.50	10	10.5	50	1	7.6	DE
MMSZ4698	10.45	11	11.55	50	0.05	8.4	DF
MMSZ4699	11.40	12	12.6	50	0.05	9.1	DH
MMSZ4700	12.35	13	13.65	50	0.05	9.8	DJ
MMSZ4701	13.30	14	14.7	50	0.05	10.6	DK
MMSZ4702	14.25	15	15.75	50	0.05	11.4	DM
MMSZ4703	15.20	16	16.8	50	0.05	12.1	DN
MMSZ4704	16.15	17	17.85	50	0.05	12.9	DP
MMSZ4705	17.10	18	18.9	50	0.05	13.6	DT
MMSZ4706	18.05	19	19.95	50	0.05	14.4	DU
MMSZ4707	19.00	20	21	50	0.01	15.2	DV
MMSZ4708	20.9	22	23.1	50	0.01	16.7	DA
MMSZ4709	22.8	24	25.2	50	0.01	18.2	DX
MMSZ4710	23.75	25	26.25	50	0.01	19.0	DY
MMSZ4711	25.65	27	28.35	50	0.01	20.4	EA
MMSZ4712	26.6	28	29.4	50	0.01	21.2	EC
MMSZ4713	28.5	30	31.5	50	0.01	22.8	ED
MMSZ4714	31.35	33	34.65	50	0.01	25.0	EE
MMSZ4715	34.2	36	37.8	50	0.01	27.3	EF
MMSZ4716	37.05	39	40.95	50	0.01	29.6	EH

# MMSZ4678 thru MMSZ4716

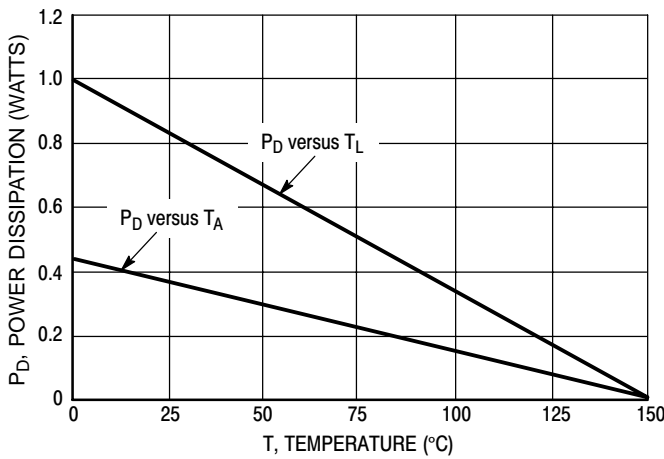
## TYPICAL CHARACTERISTICS



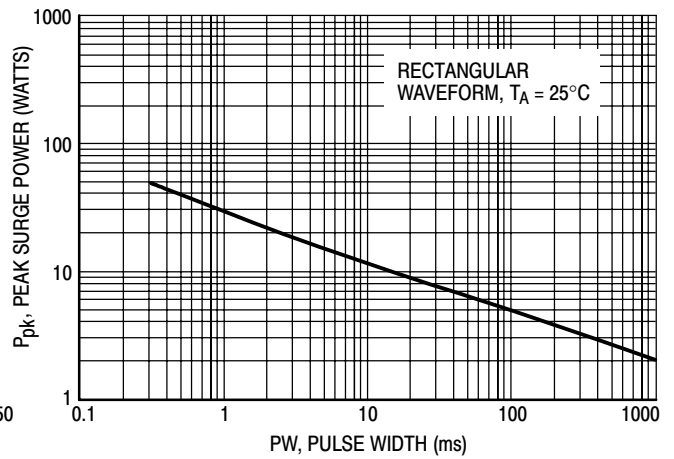
**Figure 1. Temperature Coefficients**  
(Temperature Range -55°C to +150°C)



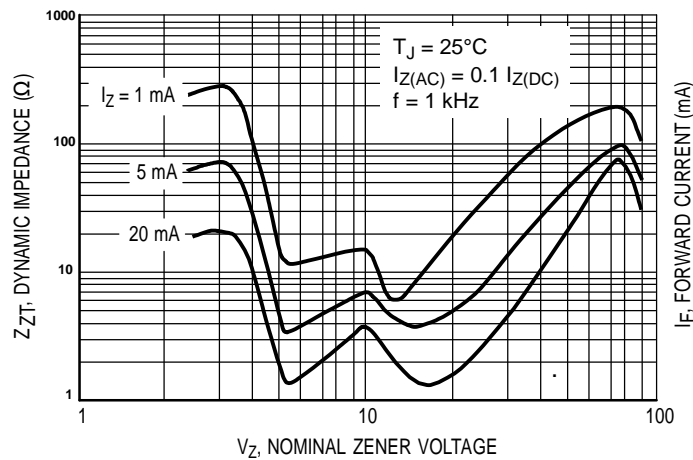
**Figure 2. Temperature Coefficients**  
(Temperature Range -55°C to +150°C)



**Figure 3. Steady State Power Derating**



**Figure 4. Maximum Nonrepetitive Surge Power**



**Figure 5. Effect of Zener Voltage on Zener Impedance**

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## TYPICAL CHARACTERISTICS

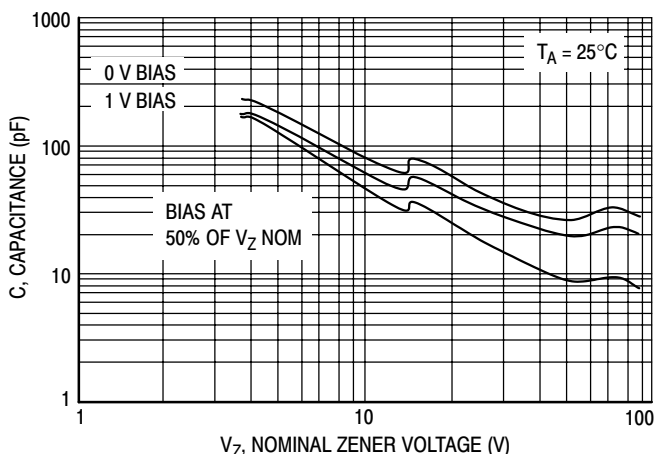


Figure 7. Typical Capacitance

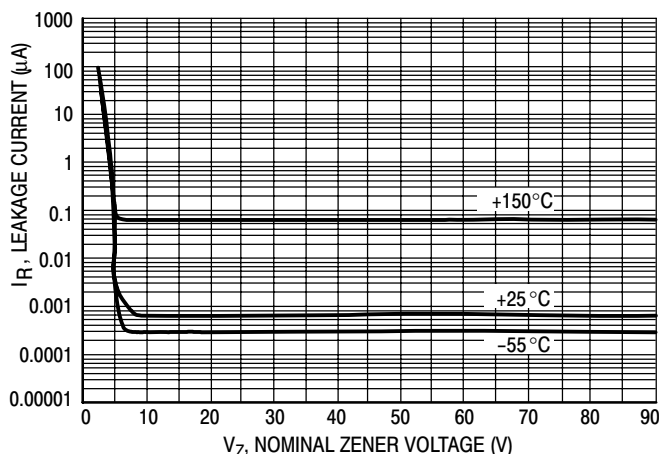


Figure 8. Typical Leakage Current

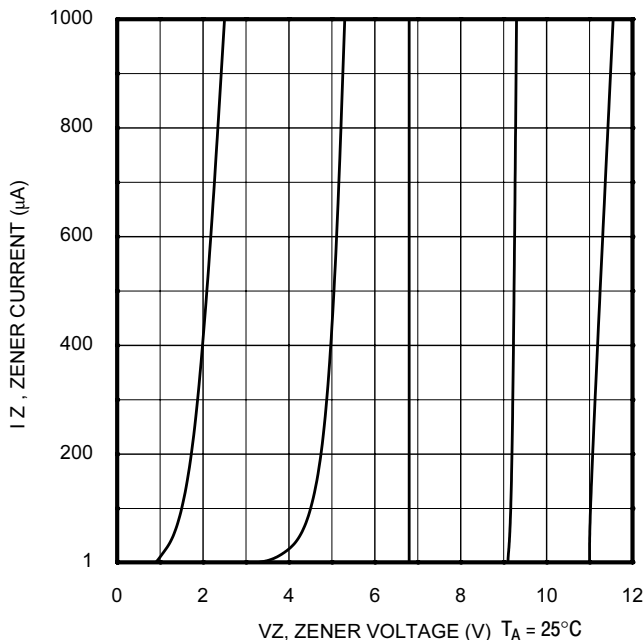


Figure 9. Zener Voltage versus Zener Current (V<sub>Z</sub> Up to 12 V)

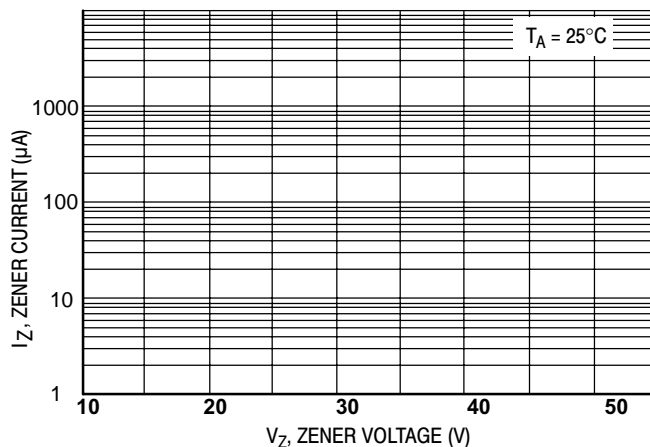


Figure 10. Zener Voltage versus Zener Current (12 V to 39 V)



**Ordering Information :**

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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