

# MMSZ2V4 - MMSZ75

$V_Z$  : 2.4 to 75 V  
 $P_D$  : 500 mW

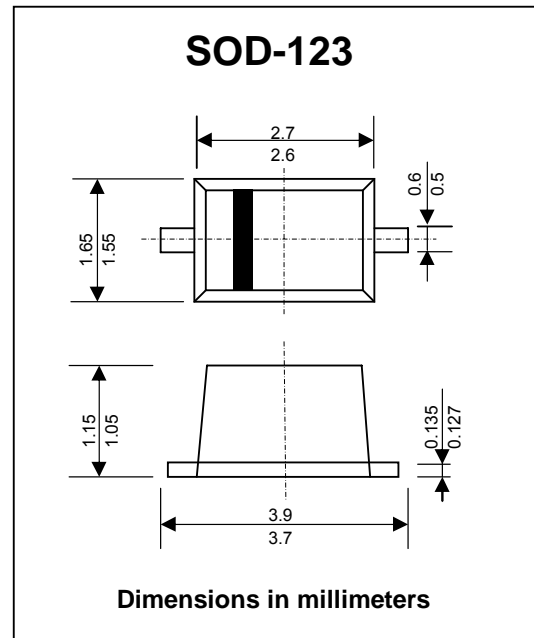
### FEATURES :

- \* Total Power Dissipation 500 mW on FR-4 or FR-5 Board
- \* Wide Zener Reverse Voltage Range 2.4 V to 75 V
- \* Package Designed for Optimal Automated Board Assembly
- \* Small Package Size for High Density Applications
- \* Pb / RoHS Free

### MECHANICAL DATA :

- \* Case : SOD-123
- \* Weight : 0.01 gram (approximately)

## ZENER DIODES



### Maximum Ratings and Thermal Characteristics

Rating at 25 °C ambient temperature unless otherwise specific.

Parameter	Symbol	Value	Unit
Total Power Dissipation on FR-5 Board, (Note 1), at $T_L = 75\text{ °C}$ Derated above 75 °C	$P_D$	500 6.7	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	340	°C/W
Thermal Resistance Junction to Lead	$R_{\theta JL}$	150	°C/W
Junction Temperature Range	$T_J$	-55 to + 150	°C
Storage Temperature Range	$T_{STG}$	-55 to + 150	°C

**Note :**

(1) FR-5 = 3.5 x 1.5 inches

**ELECTRICAL CHARACTERISTICS** ( $T_a = 25^\circ\text{C}$  unless otherwise note,  $V_f = 0.9 V_{\text{max}}$ . @  $f = 10 \text{ mA}$ )

TYPE NO.	Marking	$V_{Z1}^{(1,2)}$ @ $I_{ZT1} = 5 \text{ mA}$			$Z_{ZT1}^{(3)}$ @ $I_{ZT1} = 5 \text{ mA}$	$V_{Z2}^{(1,2)}$ @ $I_{ZT2} = 1 \text{ mA}$		$Z_{ZT2}^{(3)}$ @ $I_{ZT2} = 1 \text{ mA}$	Max. Reverse Leakage Current		
		(V)				( $\Omega$ )	(V)		$I_R$ @ $V_R$		
		Min	Nom	Max			Min		Max	( $\mu\text{A}$ )	(V)
MMSZ2V4	4C	2.28	2.4	2.52	100	1.7	2.1	600	50	1.0	
MMSZ2V7	4D	2.57	2.7	2.84	100	1.9	2.4	600	20	1.0	
MMSZ3V0	4E	2.85	3.0	3.15	95	2.1	2.7	600	10	1.0	
MMSZ3V3	4F	3.14	3.3	3.47	95	2.3	2.9	600	5.0	1.0	
MMSZ3V6	4H	3.42	3.6	3.78	90	2.7	3.3	600	5.0	1.0	
MMSZ3V9	4J	3.71	3.9	4.10	90	2.9	3.5	600	3.0	1.0	
MMSZ4V3	4K	4.09	4.3	4.52	90	3.3	4.0	600	3.0	1.0	
MMSZ4V7	4M	4.47	4.7	4.94	80	3.7	4.7	500	3.0	2.0	
MMSZ5V1	4N	4.85	5.1	5.36	60	4.2	5.3	480	2.0	2.0	
MMSZ5V6	4P	5.32	5.6	5.88	40	4.8	6.0	400	1.0	2.0	
MMSZ6V2	4R	5.89	6.2	6.51	10	5.6	6.6	150	3.0	4.0	
MMSZ6V8	4X	6.46	6.8	7.14	15	6.3	7.2	80	2.0	4.0	
MMSZ7V5	4Y	7.13	7.5	7.88	15	6.9	7.9	80	1.0	5.0	
MMSZ8V2	4Z	7.79	8.2	8.61	15	7.6	8.7	80	0.7	5.0	
MMSZ9V1	5A	8.65	9.1	9.56	15	8.4	9.6	100	0.5	6.0	
MMSZ10	5B	9.50	10	10.50	20	9.3	10.6	150	0.2	7.0	
MMSZ11	5C	10.45	11	11.55	20	10.2	11.6	150	0.1	8.0	
MMSZ12	5D	11.40	12	12.60	25	11.2	12.7	150	0.1	8.0	
MMSZ13	5E	12.35	13	13.65	30	12.3	14.0	170	0.1	8.0	
MMSZ15	5F	14.25	15	15.75	30	13.7	15.5	200	0.05	10.5	
MMSZ16	5H	15.20	16	16.80	40	15.2	17.0	200	0.05	11.2	
MMSZ18	5J	17.10	18	18.90	45	16.7	19.0	225	0.05	12.6	
MMSZ20	5K	19.00	20	21.00	55	18.7	21.1	225	0.05	14.0	
MMSZ22	5M	20.90	22	23.10	55	20.7	23.2	250	0.05	15.4	
MMSZ24	5N	22.80	24	25.20	70	22.7	25.5	250	0.05	16.8	

**Notes :**

- (1) The type number shown have a standard tolerance of  $\pm 5\%$  on the nominal Zener Voltage.
- (2) Tolerance and Voltage Designation: Zener Voltage ( $V_Z$ ) is measured with the Zener Current applied for  $PW = 1 \text{ ms}$ .
- (3)  $Z_{ZT}$  and  $Z_{ZK}$  are measured by dividing the AC voltage drop across the device by the AC current applied.  
The specified limits are for  $I_{Z(AC)} = 0.1 I_{Z(DC)}$ , with the AC frequency = 1 kHz.

## ELECTRICAL CHARACTERISTICS (Ta = 25 °C unless otherwise note, Vr = 0.9 Vmax. @ If = 10 mA)

TYPE NO.	Marking	$V_{Z1}^{(1,2)}$ @ $I_{ZT1} = 2 \text{ mA}$			$Z_{ZT1}^{(3)}$ @ $I_{ZT1} = 2 \text{ mA}$	$V_{Z2}^{(1,2)}$ @ $I_{ZT2} = 0.1 \text{ mA}$		$Z_{ZT2}^{(3)}$ @ $I_{ZT2} = 0.5 \text{ mA}$	Max. Reverse Leakage Current	
		(V)				(Ω)	(V)		$I_R$ @ $V_R$	
		Min	Nom	Max	Min		Max	(μA)	(V)	
MMSZ27	5P	25.65	27	28.35	80	25.0	28.9	300	0.05	18.9
MMSZ30	5R	28.50	30	31.50	80	27.8	32.0	300	0.05	21.0
MMSZ33	5X	31.35	33	34.65	80	30.8	35.0	325	0.05	23.1
MMSZ36	5Y	34.20	36	37.80	90	33.8	38.0	350	0.05	25.2
MMSZ39	5Z	37.05	39	40.95	130	36.7	41.0	350	0.05	27.3
MMSZ43	6A	40.85	43	45.15	150	39.7	46.0	375	0.05	30.1
MMSZ47	6B	44.65	47	49.35	170	43.7	50.0	375	0.05	32.9
MMSZ51	6C	48.45	51	53.55	180	47.6	54.0	400	0.05	35.7
MMSZ56	6D	53.20	56	58.80	200	51.5	60.0	425	0.05	39.2
MMSZ62	6E	58.00	62	66.00	200	-	-	-	0.2	47
MMSZ68	6F	64.00	68	72.00	250	-	-	-	0.2	52
MMSZ75	6H	70.00	75	79.00	300	-	-	-	0.2	57

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- (3)  $Z_{ZT}$  and  $Z_{ZK}$  are measured by dividing the AC voltage drop across the device by the AC current applied.  
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