



## Zener diode



### Features:

1. Small surface mounting type
2. High reliability

**SMALL SIGNAL  
ZENER DIODES  
500m WATTS**

### Applications:

Voltage stabilization

## Absolute Maximum Ratings

$T_j=25^\circ\text{C}$

Parameter	Test Conditions	Type	Symbol	Value	Unit
Power dissipation	$R_{thJA} \leq 300\text{K/W}$		$P_V$	500	mW
Z-current			$I_Z$	$P_V/V_Z$	mA
Junction temperature			$T_j$	175	°C
Storage temperature range			$T_{stg}$	-65~+175	°C

## Maximum Thermal Resistance

$T_j=25^\circ\text{C}$

Parameter	Test Conditions	Symbol	Value	Unit
Junction ambient	on PC board 50mm × 50mm × 1.6mm	$R_{thJA}$	500	K/W

Stresses exceeding maximum ratings may damage the device. Maximum ratings are stress ratings only. Functional operation above the recommended operating conditions is not implied. Extended exposure to stresses above the recommended operating conditions may affect device reliability.

## Electrical Characteristics

$T_j=25^\circ\text{C}$

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F=200\text{mA}$		$V_F$			1.5	V



KINGWELL TECHNOLOGY CORP., LTD.

<http://www.kingwell-tw.com.tw>

ZMM55C Series

Type	$V_{Znom}$	$I_{ZT}$	for $V_{ZT}$ and $V^1)$	$r_{zT}$	$r_{zK}$ at $I_{zK}$	$I_R$ and $I_R$ at $V_R$	$TK_{VZ}$	
ZMM55C	V	mA	V	$\Omega$	$\Omega$	mA $\mu A$	$\mu A^2)$ V	%/K
2V0	2.0	5	1.9~2.1	100	<600	1 <150	<300 1	-0.09~-0.06
2V2	2.2	5	2.09~2.31	100	<600	1 <150	<300 1	-0.09~-0.06
2V4	2.4	5	2.28~2.56	<85	<600	1 <50	<100 1	-0.09~-0.06
2V7	2.7	5	2.5~2.9	<85	<600	1 <10	<50 1	-0.09~-0.06
3V0	3.0	5	2.8~3.2	<85	<600	1 <4	<40 1	-0.08~-0.05
3V3	3.3	5	3.1~3.5	<85	<600	1 <2	<40 1	-0.08~-0.05
3V6	3.6	5	3.4~3.8	<85	<600	1 <2	<40 1	-0.08~-0.05
3V9	3.9	5	3.7~4.1	<85	<600	1 <2	<40 1	-0.08~-0.05
4V3	4.3	5	4.0~4.6	<75	<600	1 <1	<20 1	-0.06~-0.03
4V7	4.7	5	4.4~5.0	<60	<600	1 <0.5	<10 1	-0.05~+0.02
5V1	5.1	5	4.8~5.4	<35	<550	1 <0.1	<2 1	-0.02~+0.02
5V6	5.6	5	5.2~6.0	<25	<450	1 <0.1	<2 1	-0.05~+0.05
6V2	6.2	5	5.8~6.6	<10	<200	1 <0.1	<2 2	0.03~0.06
6V8	6.8	5	6.4~7.2	<8	<150	1 <0.1	<2 3	0.03~0.07
7V5	7.5	5	7.0~7.9	<7	<50	1 <0.1	<2 5	0.03~0.07
8V2	8.2	5	7.7~8.7	<7	<50	1 <0.1	<2 6.2	0.03~0.08
9V1	9.1	5	8.5~9.6	<10	<50	1 <0.1	<2 6.8	0.03~0.09
10	10	5	9.4~10.6	<15	<70	1 <0.1	<2 7.5	0.03~0.1
11	11	5	10.4~11.6	<20	<70	1 <0.1	<2 8.2	0.03~0.11
12	12	5	11.4~12.7	<20	<90	1 <0.1	<2 9.1	0.03~0.11
13	13	5	12.4~14.1	<26	<110	1 <0.1	<2 10	0.03~0.11
15	15	5	13.8~15.6	<30	<110	1 <0.1	<2 11	0.03~0.11
16	16	5	15.3~17.1	<40	<170	1 <0.1	<2 12	0.03~0.11
18	18	5	16.8~19.1	<50	<170	1 <0.1	<2 13	0.03~0.11
20	20	5	18.8~21.2	<55	<220	1 <0.1	<2 15	0.03~0.11
22	22	5	20.8~23.3	<55	<220	1 <0.1	<2 16	0.04~0.12
24	24	5	22.8~25.6	<80	<220	1 <0.1	<2 18	0.04~0.12
27	27	5	25.1~28.9	<80	<220	1 <0.1	<2 20	0.04~0.12
30	30	5	28~32	<80	<220	1 <0.1	<2 22	0.04~0.12
33	33	5	31~35	<80	<220	1 <0.1	<2 24	0.04~0.12
36	36	5	34~38	<80	<220	1 <0.1	<2 27	0.04~0.12
39	39	2.5	37~41	<90	<500	0.5 <0.1	<5 30	0.04~0.12
43	43	2.5	40~46	<90	<600	0.5 <0.1	<5 33	0.04~0.12
47	47	2.5	44~50	<110	<700	0.5 <0.1	<5 36	0.04~0.12
51	51	2.5	48~54	<125	<700	0.5 <0.1	<10 39	0.04~0.12
56	56	2.5	52~60	<135	<1000	0.5 <0.1	<10 43	0.04~0.12
62	62	2.5	58~66	<150	<1000	0.5 <0.1	<10 47	0.04~0.12
68	68	2.5	64~72	<200	<1000	0.5 <0.1	<10 51	0.04~0.12
75	75	2.5	70~79	<250	<1500	0.5 <0.1	<10 56	0.04~0.12
82	82	2.5	77~87	<300	<2000	0.5 <0.1	<10 62	0.04~0.12
91	91	1.0	85~96	<450	<5000	0.1 <0.1	<10 68	0.04~0.12
100	100	1.0	94~106	<450	<5000	0.1 <0.1	<10 75	0.04~0.12

<sup>1)</sup> Tighter tolerances available request:ZMM55B... ±2% of  $V_{Znom}$ <sup>2)</sup> at  $T_j=150^\circ C$

### Characteristics ( $T_j=25^\circ\text{C}$ unless otherwise specified)

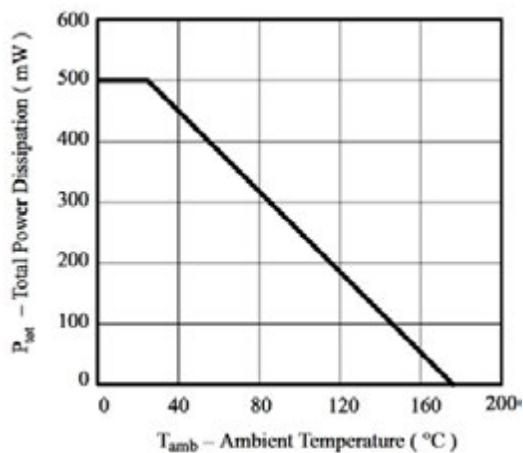


Figure 1. Total Power Dissipation vs. Ambient Temperature

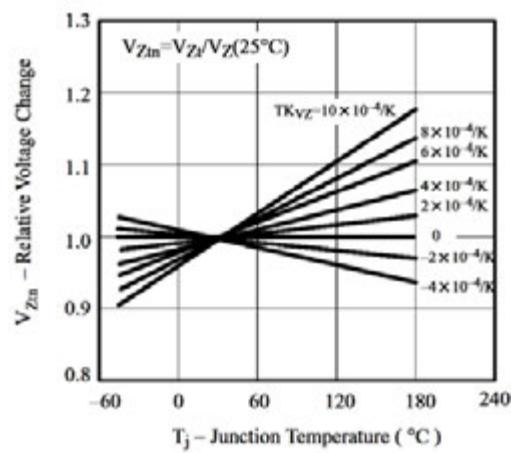


Figure 4. Typical Change of Working Voltage Vs. Junction Temperature

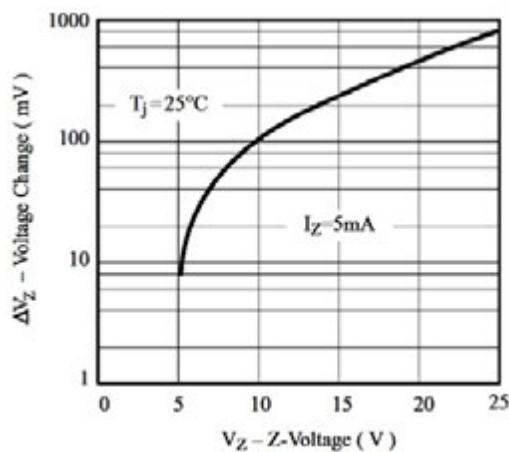


Figure 2. Typical Change of Working Voltage under Operating Conditions at  $T_{\text{amb}}=25^\circ\text{C}$

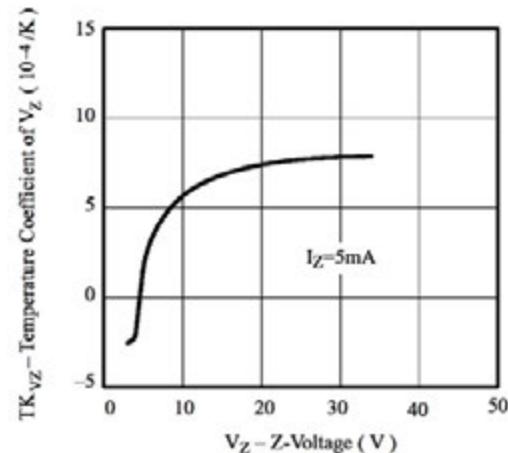


Figure 5. Temperature Coefficient of  $V_z$  vs. Z-Voltage

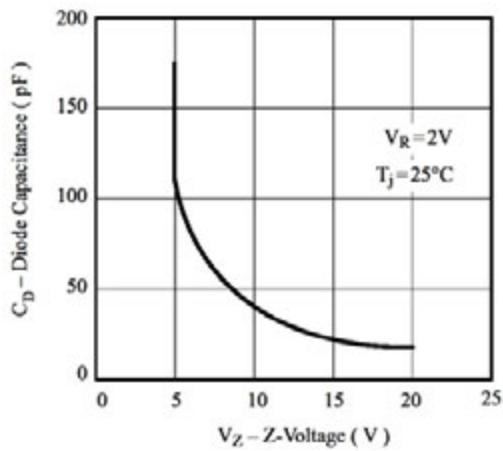
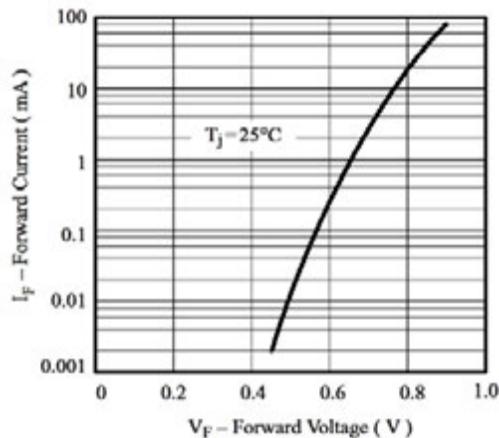
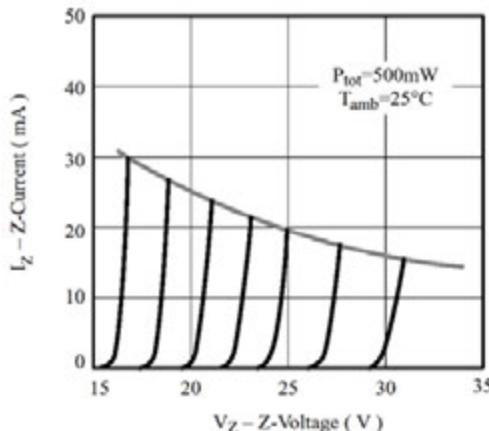


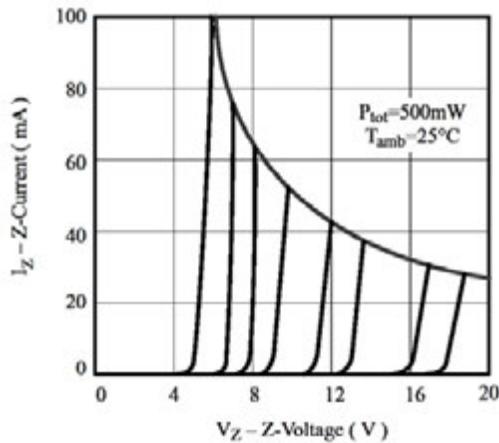
Figure 3. Diode Capacitance vs. Z-voltage



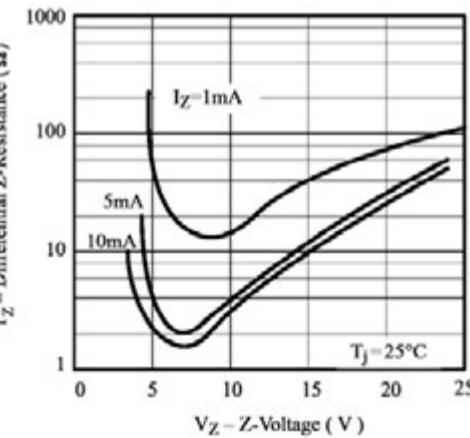
**Figure 6. Forward Current vs. Forward Voltage**



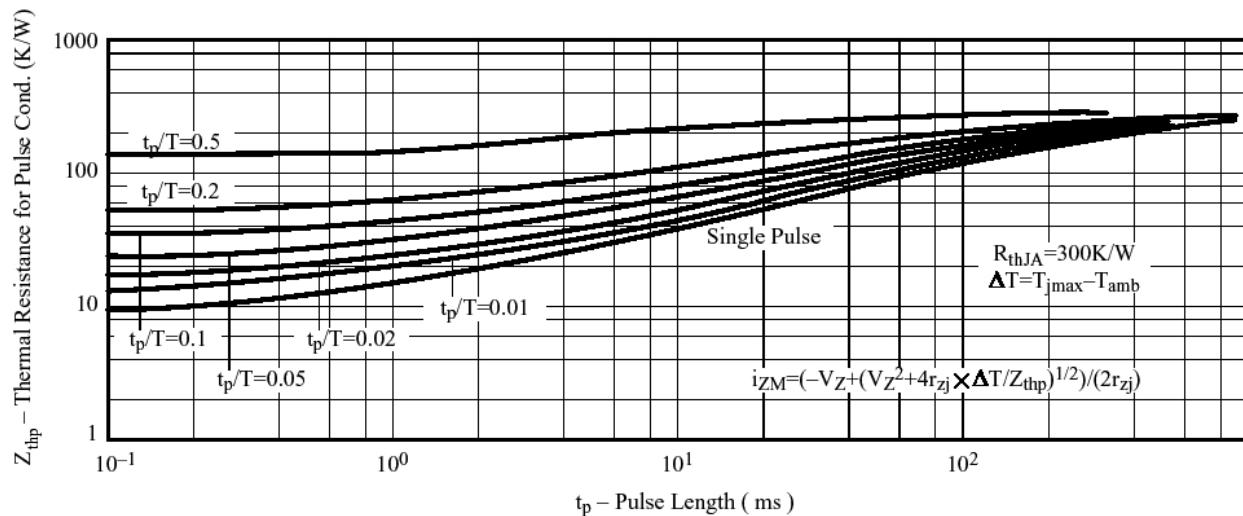
**Figure 8. Z-Current vs. Z-Voltage**



**Figure 7. Z-Current vs. Z-Voltage**

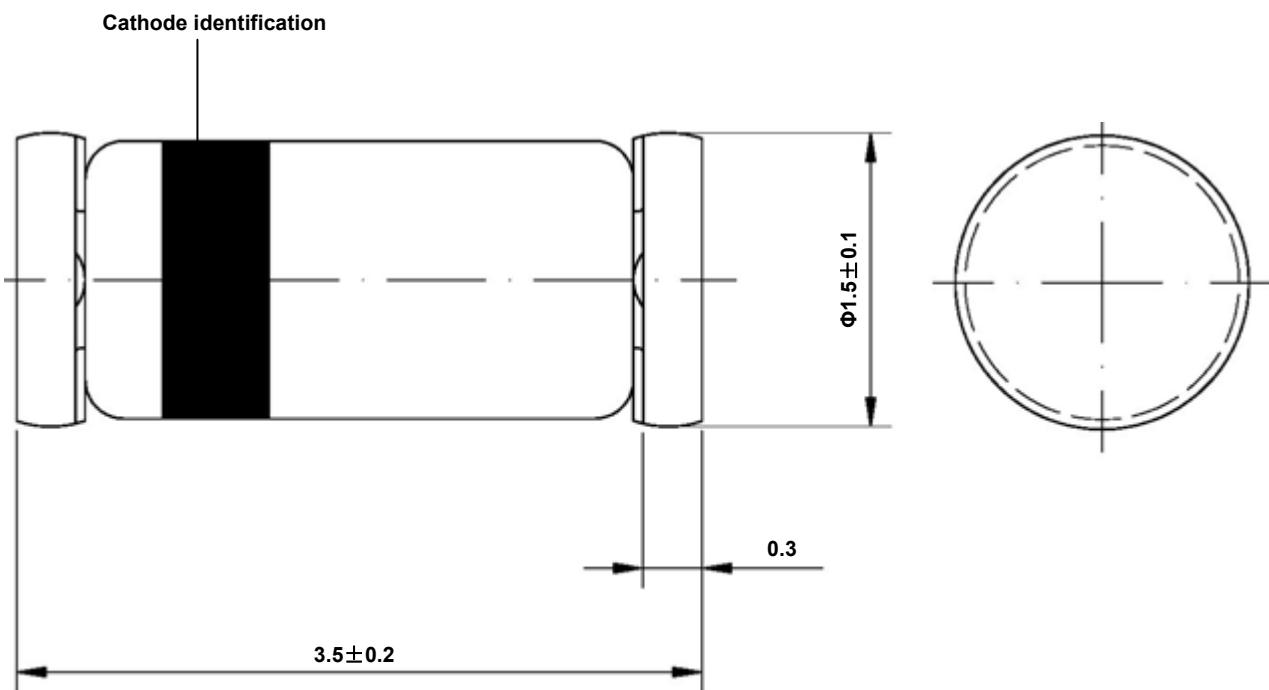


**Figure 9. Differential Z-Resistance Vz vs. Z-Voltage**



**Figure 10. Thermal Response**

### Dimensions in mm



Glass Case  
Mini Melf / SOD-80  
JEDEC DO-213 AA