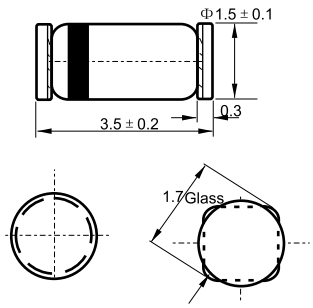
ZMM55C Series

0.5W Zener Diodes

MINI-MELF



Dimension in millimeters

Features

- ✧ Small surface mounting type
- ✧ High reliability

Applications

- ✧ Voltage stabilization

Construction

- ✧ Silicon epitaxial planar

Absolute Maximum Ratings

T_j=25 °C

Parameter	Test Conditions	Type	Symbol	Value	Unit
Power dissipation	R_{thJA}≤300K/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 °C

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

Electrical Characteristics

T_j=25 °C

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	I_F=200mA		V_F			1.5	V

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Type	V_{Znom}	I_{ZT} for V_{ZT} and r_{ziT}			r_{ziK} at I_{ZK}		I_R and I_R at V_R			TK_{VZ}
ZMM55C.	V	mA	V[1)]	Ω	Ω	mA	uA	mA[2)]	V	%/K
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	<90	<600	1	<4	<40	1	-0.08~-0.05
3V3	3.3	5	3.1~3.5	<90	<600	1	<2	<40	1	-0.08~-0.05
3V6	3.6	5	3.4~3.8	<90	<600	1	<2	<40	1	-0.08~-0.05
3V9	3.9	5	3.7~4.1	<90	<600	1	<2	<40	1	-0.08~-0.05
4V3	4.3	5	4.0~4.6	<90	<600	1	<1	<20	1	-0.06~-0.03
4V7	4.7	5	4.4~5.0	<80	<600	1	<0.5	<10	1	-0.05~+0.02
5V1	5.1	5	4.8~5.4	<60	<550	1	<0.1	<2	1	-0.02~+0.02
5V6	5.6	5	5.2~6.0	<40	<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

[1)] Tighter tolerances available request:

ZMM55A… ±1% of V_{Znom}

ZMM55B… ±2% of V_{Znom}

ZMM55F… ±3% of V_{Znom}

ZMM55C… ±5% of V_{Znom}

[2)] at T_j=150 °C

Characteristics (T_j=25°C unless otherwise specified)

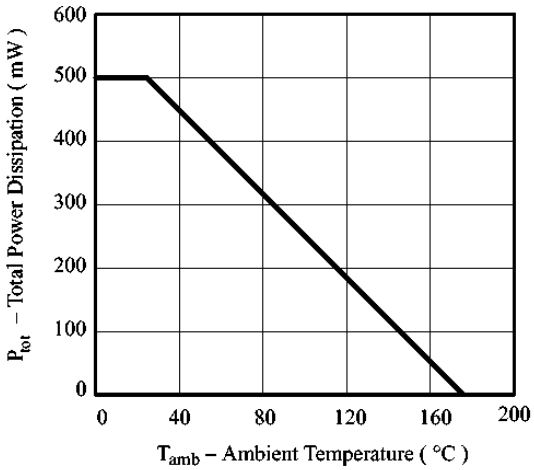

Figure 1. Total Power Dissipation vs. Ambient Temperature

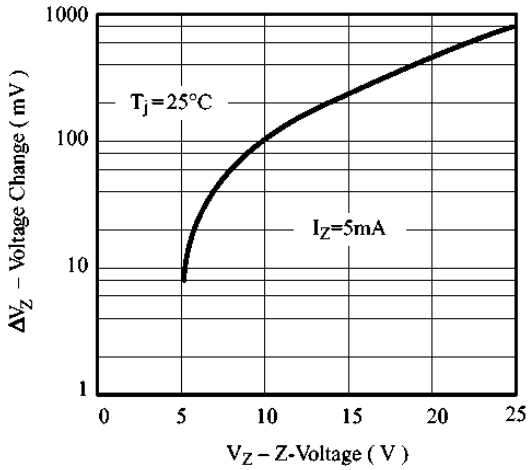

Figure 2. Typical Change of Working Voltage under Operating Conditions at T_{amb}=25_C

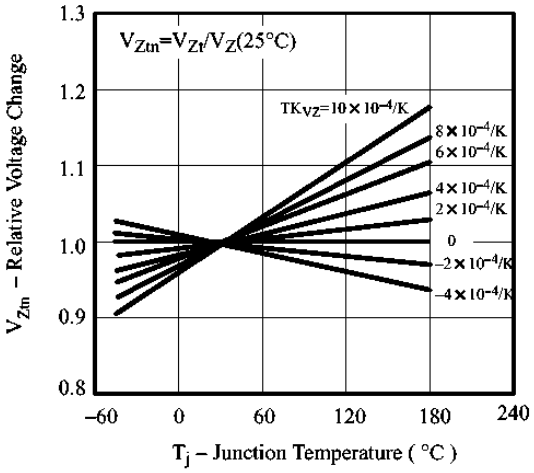

Figure 3. Typical Change of Working Voltage vs. Junction Temperature

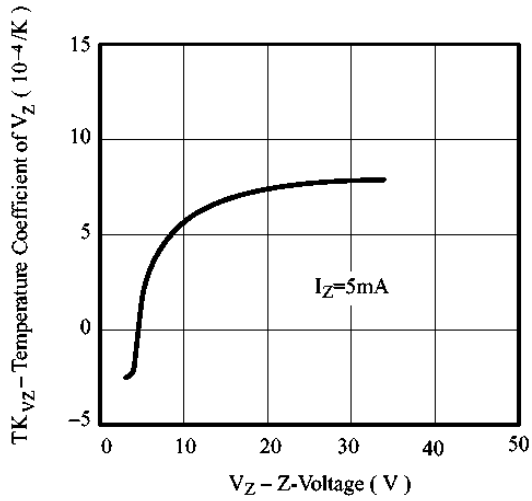

Figure 4. Temperature Coefficient of Vz vs. Z–Voltage

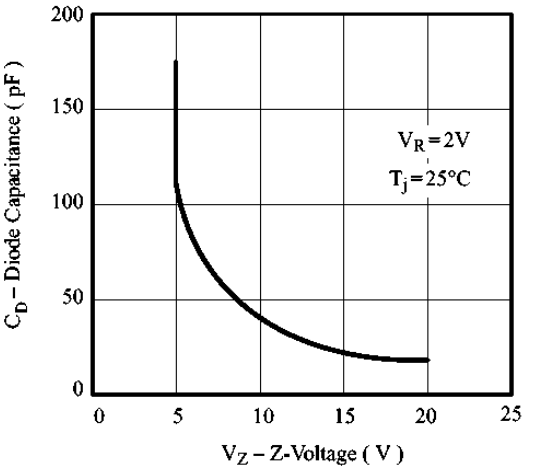

Figure 5. Diode Capacitance vs. Z–Voltage

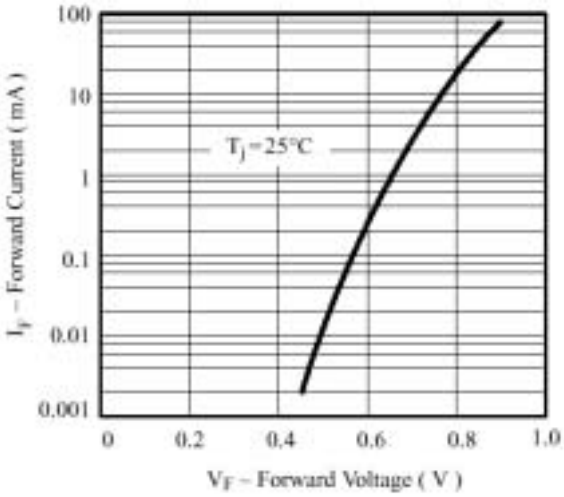

Figure 6. Forward Current vs. Forward Voltage

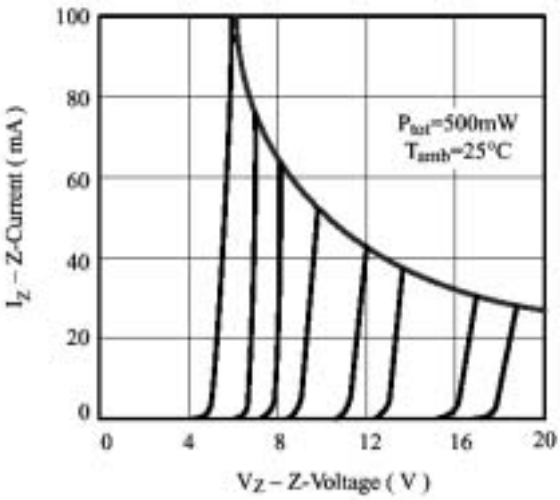

Figure 7. Z–Current vs. Z–Voltage

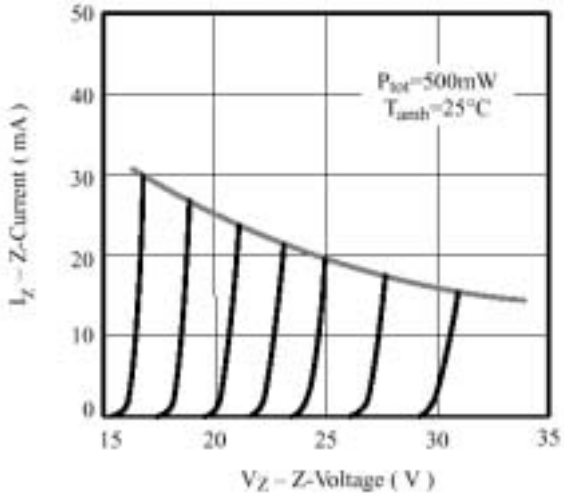

Figure 8. Z–Current vs. Z–Voltage

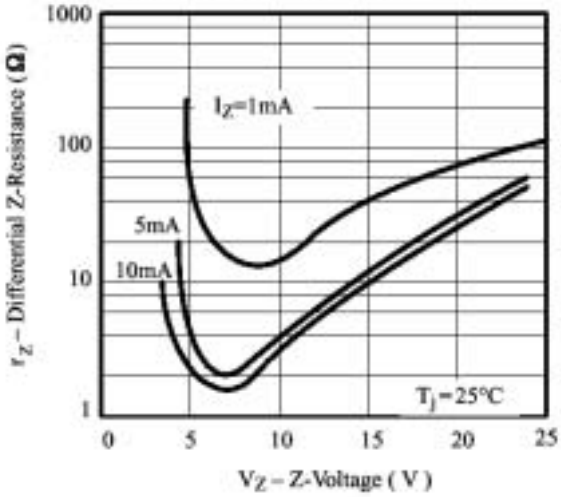

Figure 9. Differential Z–Resistance vs. Z–Voltage

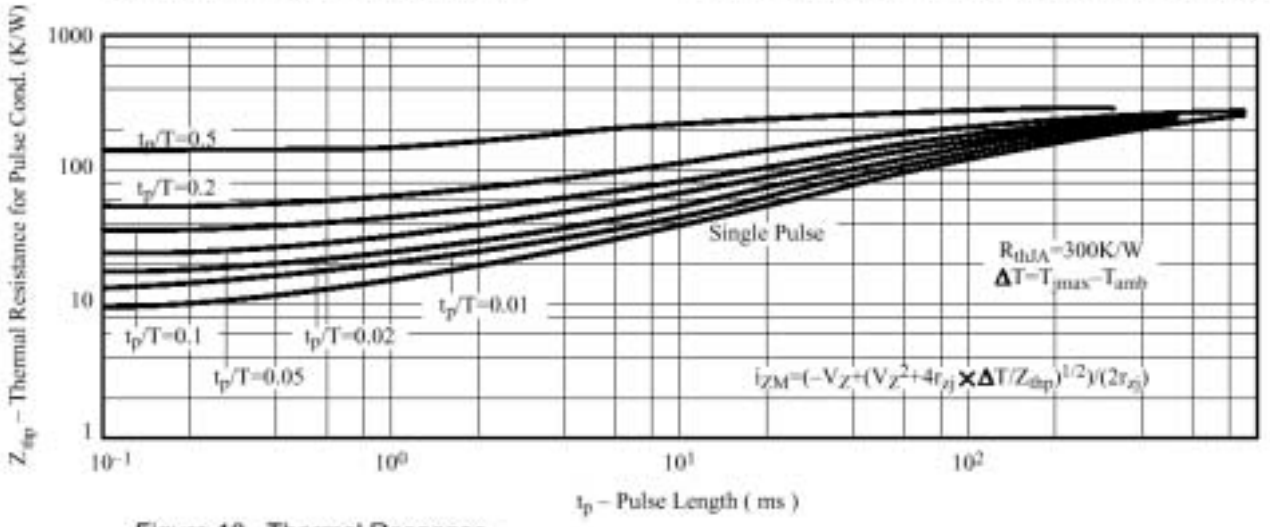

Figure 10. Thermal Response