

Zener diode

Features

High reliability

Applications

Voltage stabilization

Construction

Silicon epitaxial planar



Absolute Maximum Ratings

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

Parameter	Test Conditions	Type	Symbol	Value	Unit
Power dissipation	$I=4\text{mm } T_L \leq 25^{\circ}\text{C}$		P_V	500	mW
Z-current			I_Z	P_V/V_Z	mA
Junction temperature			T_j	175	$^{\circ}\text{C}$
Storage temperature range			T_{stg}	-65~+175	$^{\circ}\text{C}$

Maximum Thermal Resistance

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

Parameter	Test Conditions	Symbol	Value	Unit
Junction ambient	$I=4\text{mm } T_L=\text{constant}$	R_{thJA}	350	K/W

Electrical Characteristics

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

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F=50\text{mA}$		V_F			1.0	V

Type	V _{Znom}	I _{ZT}	for V _{ZT} and	r _{zT}	r _{zK} at	I _{ZK}	I _R and	I _R at	V _R	TK _{VZ}
BZX83C	V	mA	V ¹⁾	Ω	Ω	mA	μA	μA ²⁾	V	%/K
2V7	2.7	5	2.5~2.9	<90	<600	1	<100	<50	1	-0.09~-0.06
3V0	3.0	5	2.8~3.2	<90	<600	1	<60	<40	1	-0.08~-0.05
3V3	3.3	5	3.1~3.5	<90	<600	1	<30	<40	1	-0.08~-0.05
3V6	3.6	5	3.4~3.8	<90	<600	1	<20	<40	1	-0.08~-0.05
3V9	3.9	5	3.7~4.1	<90	<600	1	<10	<40	1	-0.08~-0.05
4V3	4.3	5	4.0~4.6	<80	<600	1	<5	<20	1	-0.06~-0.03
4V7	4.7	5	4.4~5.0	<80	<600	1	<2	<10	1	-0.05~+0.02
5V1	5.1	5	4.8~5.4	<60	<550	1	<1	<2	1	-0.02~+0.02
5V6	5.6	5	5.2~6.0	<40	<450	1	<1	<2	1	-0.05~+0.05
6V2	6.2	5	5.8~6.6	<10	<200	1	<1	<2	2	0.03~0.06
6V8	6.8	5	6.4~7.2	<8	<150	1	<1	<2	3	0.03~0.07
7V5	7.5	5	7.0~7.9	<7	<50	1	<1	<2	3.5	0.03~0.07
8V2	8.2	5	7.7~8.7	<7	<50	1	<1	<2	4	0.03~0.08
9V1	9.1	5	8.5~9.6	<10	<50	1	<1	<2	5	0.03~0.09
10	10	5	9.4~10.6	<15	<70	1	<1	<2	6	0.03~0.1
11	11	5	10.4~11.6	<20	<70	1	<1	<2	8.2	0.03~0.11
12	12	5	11.4~12.7	<20	<90	1	<1	<2	9.1	0.03~0.11
13	13	5	12.4~14.1	<26	<110	1	<1	<2	10	0.03~0.11
15	15	5	13.8~15.6	<30	<110	1	<1	<2	11	0.03~0.11
16	16	5	15.3~17.1	<40	<170	1	<1	<2	12	0.03~0.11
18	18	5	16.8~19.1	<55	<170	1	<1	<2	13	0.03~0.11
20	20	5	18.8~21.2	<55	<220	1	<1	<2	15	0.03~0.11
22	22	5	20.8~23.3	<58	<220	1	<1	<2	16	0.04~0.12
24	24	5	22.8~25.6	<80	<220	1	<1	<2	18	0.04~0.12
27	27	5	25.1~28.9	<80	<220	1	<1	<2	20	0.04~0.12
30	30	5	28~32	<80	<220	1	<1	<2	22	0.04~0.12
33	33	5	31~35	<90	<220	1	<1	<2	24	0.04~0.12
36	36	5	34~38	<90	<220	1	<1	<2	27	0.04~0.12
39	39	2.5	37~41	<100	<500	0.5	<1	<5	30	0.04~0.12
43	43	2.5	40~46	<100	<600	0.5	<1	<5	33	0.04~0.12
47	47	2.5	44~50	<120	<700	0.5	<1	<5	36	0.04~0.12
51	51	2.5	48~54	<125	<700	0.5	<1	<10	39	0.04~0.12
56	56	2.5	52~60	<135	<1000	0.5	<1	<10	43	0.04~0.12
62	62	2.5	58~66	<170	<1000	0.5	<1	<10	47	0.04~0.12
68	68	2.5	64~72	<200	<1000	0.5	<1	<10	51	0.04~0.12
75	75	2.5	70~79	<250	<1500	0.5	<1	<10	56	0.04~0.12

¹⁾ Tighter tolerances available request:

BZX83B... ±2% of V_{Znom}

²⁾ at T_J=150°C

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

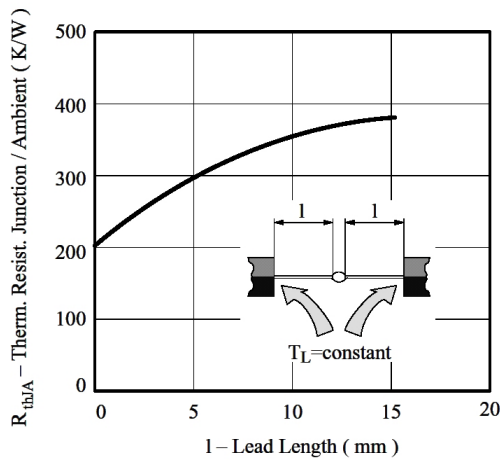


Figure 1. Thermal Resistance vs. Lead length

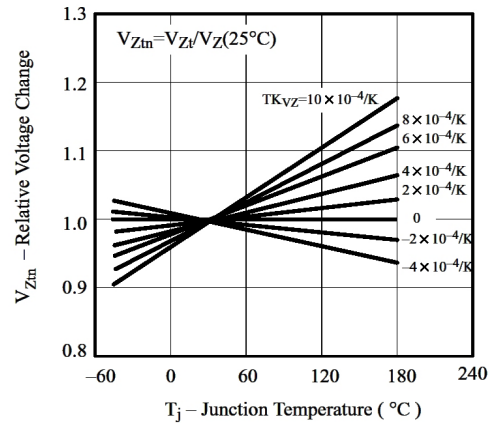


Figure 4. Typical Change of Working Voltage Vs. Junction Temperature

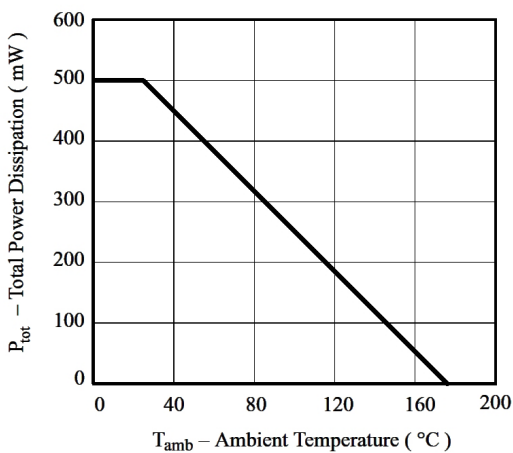


Figure 2. Total Power Dissipation vs. Ambient Temperature

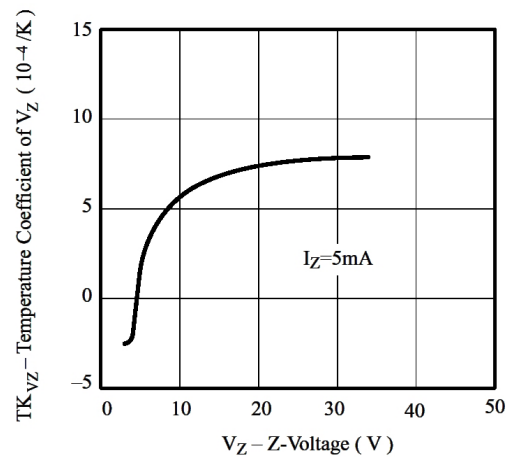


Figure 5. Temperature Coefficient of V_Z vs. Z-Voltage

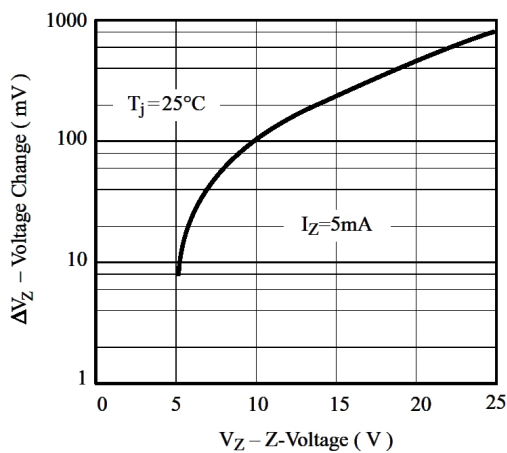


Figure 3. Typical Change of Working Voltage under Operating Conditions at $T_{\text{amb}}=25^\circ\text{C}$

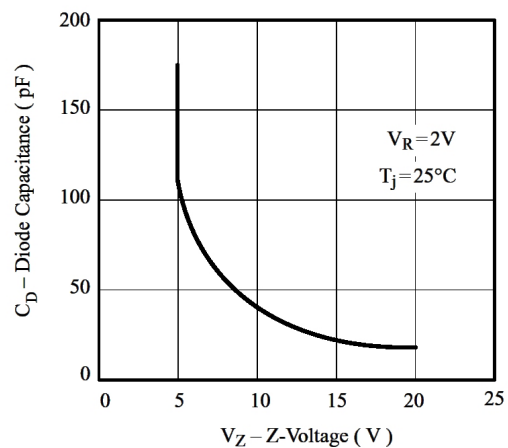


Figure 6. Diode Capacitance vs. Z-voltage

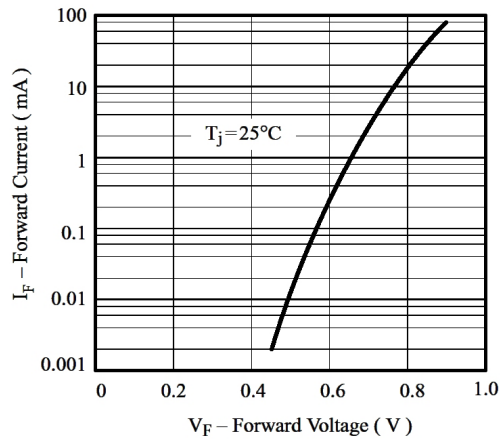


Figure 7. Forward Current vs. Forward Voltage

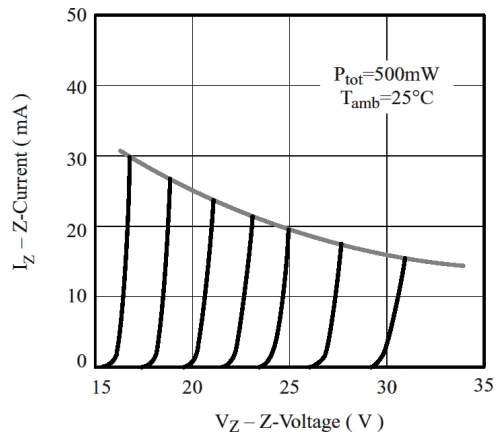


Figure 9. Z-Current vs. Z-Voltage

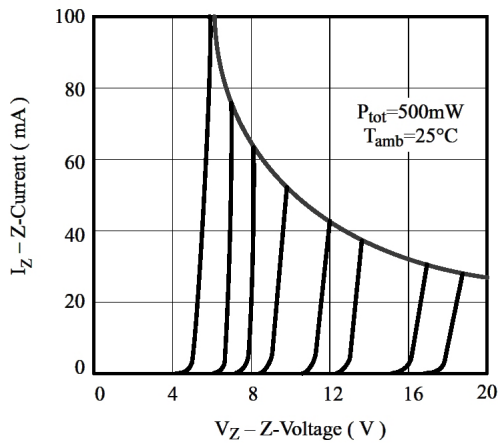


Figure 8. Z-Current vs. Z-Voltage

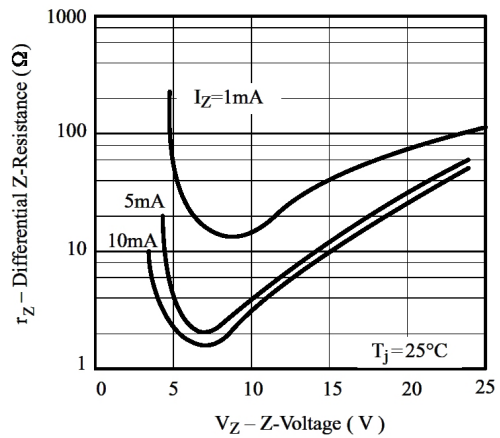


Figure 10. Differential Z-Resistance Vz vs. Z-Voltage

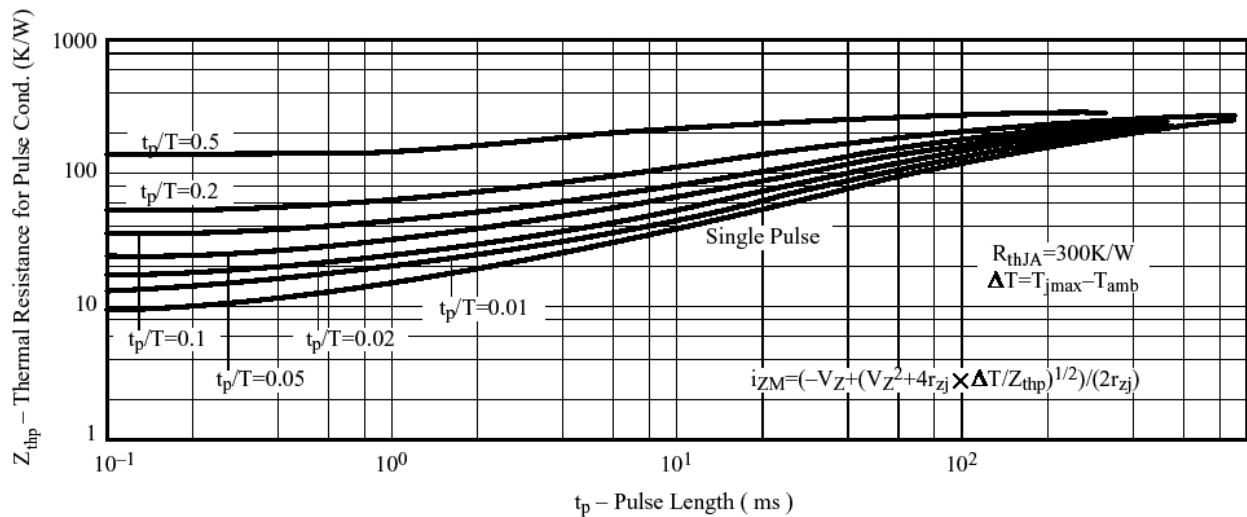
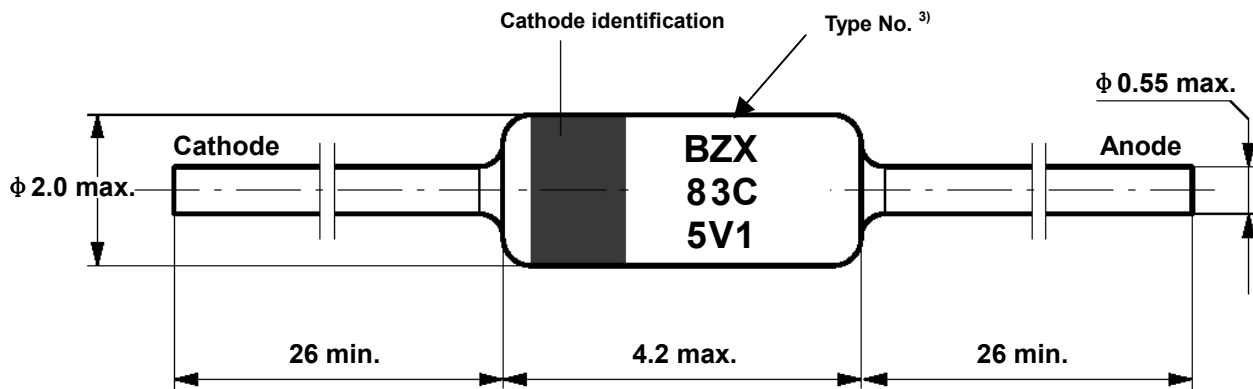


Figure 11. Thermal Response

Dimensions in mm



Standard Glass Case
JEDEC DO 35

³⁾ Type No.

BZX83 C 5V1

① ② ③

- ① Series name
- ② Tighter tolerances available request:
B -----±2% of V_{Znom}
C -----±5% of V_{Znom}
- ③ Zener Voltage (V_{Znom}), for example:
5V1 ----- 5.1V
12 ----- 12V