

# BZV55 Series

## VOLTAGE REGULATOR DIODES

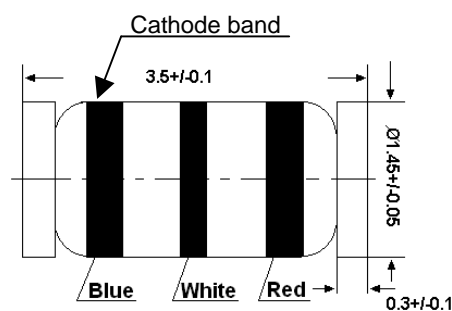
LL-34

### Features

- Total power dissipation: max. 500 mW
- Two tolerance series:  $\pm 2\%$  and approx.  $\pm 5\%$
- Working voltage range: nom. 2.4 to 75 V (E24 range)
- Non-repetitive peak reverse power dissipation: max.40W

### Applications

- Low-power voltage stabilizers or voltage references



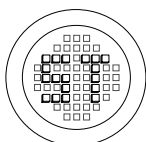
Glass case MiniMELF  
Dimensions in mm

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

PARAMETER	SYMBOL	MIN	MAX	UNIT
Total power dissipation	$P_{tot}$	-	400	mW
		-	500	mW
Junction temperature	$T_j$	-65	+200	?
Storage temperature	$T_s$	-65	+200	?
Continuous forward current	$I_F$	-	250	mA
Non-repetitive peak reverse current At $t_p = 100\mu\text{s}$ ; square wave; $T_j = 25^\circ\text{C}$ prior to surge	$I_{ZSM}$	See tables 1 and 2		-
Non-repetitive peak reverse power dissipation At $t_p = 100\mu\text{s}$ ; square wave; $T_j = 25^\circ\text{C}$ prior to surge	$P_{ZSM}$	-	40	W

Note:

1. Device mounted on a ceramic substrate of  $10 \times 10 \times 0.6$  mm



®

РАДИОТЕХ

Тел.: (495) 795-0805  
Факс: (495) 234-1603  
Эл. почта: info@rct.ru  
Веб: www.rct.ru

# BZV55 Series

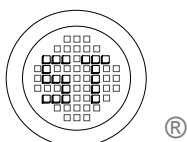
## ELECTRICAL CHARACTERISTICS

### Total BZV55-B and C Series

T<sub>j</sub> = 25°C unless otherwise specified.

PARAMETER	SYMBOL	MAX	UNIT
Forward voltage at: I <sub>F</sub> = 10mA	V <sub>F</sub>	0.9	V
Reverse current	I <sub>R</sub>		
BZV55-B/C2V4 at: V <sub>R</sub> = 1V		50	μA
BZV55-B/C2V7 at: V <sub>R</sub> = 1V		20	
BZV55-B/C3V0 at: V <sub>R</sub> = 1V		10	
BZV55-B/C3V3 at: V <sub>R</sub> = 1V		5	
BZV55-B/C3V6 at: V <sub>R</sub> = 1V		5	
BZV55-B/C3V9 at: V <sub>R</sub> = 1V		3	
BZV55-B/C4V3 at: V <sub>R</sub> = 1V		3	
BZV55-B/C4V7 at: V <sub>R</sub> = 2V		3	μA
BZV55-B/C5V1 at: V <sub>R</sub> = 2V		2	
BZV55-B/C5V6 at: V <sub>R</sub> = 2V		1	μA
BZV55-B/C6V2 at: V <sub>R</sub> = 4V		3	
BZV55-B/C6V8 at: V <sub>R</sub> = 4V		2	μA
BZV55-B/C7V5 at: V <sub>R</sub> = 5V		1	μA
BZV55-B/C8V2 at: V <sub>R</sub> = 5V		700	nA
BZV55-B/C9V1 at: V <sub>R</sub> = 6V		500	nA
BZV55-B/C10 at: V <sub>R</sub> = 7V		200	nA
BZV55-B/C11 at: V <sub>R</sub> = 8V		100	nA
BZV55-B/C12 at: V <sub>R</sub> = 8V		100	
BZV55-B/C13 at: V <sub>R</sub> = 8V		100	nA
BZV55-B/C15 to 75 at: V <sub>R</sub> = 0.7V <sub>Znom</sub>	50		

1). Tested with pulses t<sub>p</sub> = 20 ms.

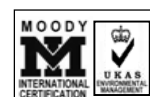


**SEMTECH ELECTRONICS LTD.**

(Subsidiary of Semtech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)



ISO/TS 16949 : 2002  
Certificate No. 05103



ISO 14001  
Certificate No. 7116



ISO 9001 : 2000  
Certificate No. 559-1996-A2-RCC-204

Dated : 02/04/2005

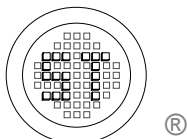
# BZV55 Series

**Table 1 Per type BZV55-B/C2V4 to B/C24**

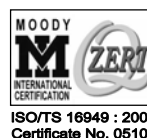
T<sub>j</sub> = 25°C unless otherwise specified.

BZV55-B or C XXX	WORKING VOLTAGE V <sub>z</sub> (V) at I <sub>Ztest</sub> = 5mA				DIFFERENTIAL RESISTANCE r <sub>dif</sub> (Ω)				TEMP. COEFF. S <sub>z</sub> (mV/K) at I <sub>Ztest</sub> = 5mA			DIODE CAP. C <sub>d</sub> (pF) at f=1MHz V <sub>R</sub> = 0V	NON-REPETITIVE PEAK REVERSE CURRENT I <sub>ZSM</sub> (A) At t <sub>p</sub> = 100µs T <sub>amb</sub> = 25°C
	Tol. ±2%(B)		Tol. approx. ±5%(C)		at I <sub>Ztest</sub> = 1mA		at I <sub>Ztest</sub> = 5mA		MIN.	TYP.	MAX.	MAX.	MAX.
	MIN.	MAX.	MIN.	MAX.	TYP.	MAX.	TYP.	MAX.	MIN.	TYP.	MAX.	MAX.	MAX.
2V4	2.35	2.45	2.2	2.6	275	600	70	100	-3.5	-1.6	0	450	6.0
2V7	2.65	2.75	2.5	2.9	300	600	75	100	-3.5	-2.0	0	450	6.0
3V0	2.94	3.06	2.8	3.2	325	600	80	95	-3.5	-2.1	0	450	6.0
3V3	3.23	3.37	3.1	3.5	350	600	85	95	-3.5	-2.4	0	450	6.0
3V6	3.53	3.67	3.4	3.8	375	600	85	90	-3.5	-2.4	0	450	6.0
3V9	3.82	3.98	3.7	4.1	400	600	85	90	-3.5	-2.5	0	450	6.0
4V3	4.21	4.39	4.0	4.6	410	600	80	90	-3.5	-2.5	0	450	6.0
4V7	4.61	4.79	4.4	5.0	425	500	50	80	-3.5	-1.4	0.2	300	6.0
5V1	5.00	5.20	4.8	5.4	400	480	40	60	-2.7	-0.8	1.2	300	6.0
5V6	5.49	5.71	5.2	6.0	80	400	15	40	-2.0	1.2	2.5	300	6.0
6V2	6.08	6.32	5.8	6.6	40	150	6	10	0.4	2.3	3.7	200	6.0
6V8	6.66	6.94	6.4	7.2	30	80	6	15	1.2	3.0	4.5	200	6.0
7V5	7.35	7.65	7.0	7.9	30	80	6	15	2.5	4.0	5.3	150	4.0
8V2	8.04	8.36	7.7	8.7	40	80	6	15	3.2	4.6	6.2	150	4.0
9V1	8.92	9.28	8.5	9.6	40	100	6	15	3.8	5.5	7.0	150	3.0
10	9.80	10.20	9.4	10.6	50	150	8	20	4.5	6.4	8.0	90	3.0
11	10.80	11.20	10.4	11.6	50	150	10	20	5.4	7.4	9.0	85	2.5
12	11.80	12.20	11.4	12.7	50	150	10	25	6.0	8.4	10.0	85	2.5
13	12.70	13.30	12.4	14.1	50	170	10	30	7.0	9.4	11.0	80	2.5
15	14.70	15.30	13.8	15.6	50	200	10	30	9.2	11.4	13.0	75	2.0
16	15.70	16.30	15.3	17.1	50	200	10	40	10.4	12.4	14.0	75	1.5
18	17.60	18.40	16.8	19.1	50	225	10	45	12.4	14.4	16.0	70	1.5
20	19.60	20.40	18.8	21.2	60	225	15	55	14.4	16.4	18.0	60	1.5
22	21.60	22.40	20.8	23.3	60	250	20	55	16.4	18.4	20.0	60	1.25
24	23.50	24.50	22.8	25.6	60	250	25	70	18.4	20.4	22.0	55	1.25

1). Tested with pulses t<sub>p</sub> = 20 ms.



**SEMTECH ELECTRONICS LTD.**  
 (Subsidiary of Semtech International Holdings Limited, a company  
 listed on the Hong Kong Stock Exchange, Stock Code: 724)



# BZV55 Series

**Table 2 Per type BZV55-B/C27 to B/C75**

T<sub>j</sub> = 25°C unless otherwise specified

BZV55-B or C XXX	WORKING VOLTAGE V <sub>z</sub> (V) at I <sub>ztest</sub> = 2mA				DIFFERENTIAL RESISTANCE r <sub>dif</sub> (Ω)				TEMP. COEFF. S <sub>z</sub> (mV/K) at I <sub>ztest</sub> = 2mA			DIODE CAP. C <sub>d</sub> (pF) at f=1MHz V <sub>R</sub> = 0V	NON-REPETITIVE PEAK REVERSE CURRENT I <sub>zsm</sub> (A) At t <sub>p</sub> = 100µs T <sub>amb</sub> = 25°C
	Tol. ±2%(B)		Tol. approx. ±5%(C)		at I <sub>ztest</sub> = 0.5mA		at I <sub>ztest</sub> = 2mA		MIN.	TYP.	MAX.	MAX.	MAX.
	MIN.	MAX.	MIN.	MAX.	TYP.	MAX.	TYP.	MAX.	MIN.	TYP.	MAX.	MAX.	MAX.
27	26.50	27.50	25.1	28.9	65	300	25	80	21.4	23.4	25.3	50	1.0
30	29.40	30.60	28.0	32.0	70	300	30	80	24.4	26.6	29.4	50	1.0
33	32.30	33.70	31.0	35.0	75	325	35	80	27.4	29.7	33.4	45	0.9
36	35.30	36.70	34.0	38.0	80	350	35	90	30.4	33.0	37.4	45	0.8
39	38.20	39.80	37.0	41.0	80	350	40	130	33.4	36.4	41.2	45	0.7
43	42.10	43.90	40.0	46.0	85	375	45	150	37.6	41.2	46.6	40	0.6
47	46.10	47.90	44.0	50.0	85	375	50	170	42.0	46.1	51.8	40	0.5
51	50.00	52.00	48.0	54.0	90	400	60	180	46.6	51.0	57.2	40	0.4
56	54.90	57.10	52.0	60.0	100	425	70	200	52.2	57.0	63.8	40	0.3
62	60.80	63.20	58.0	66.0	120	450	80	215	58.8	64.4	71.6	35	0.3
68	66.60	69.40	64.0	72.0	150	475	90	240	65.6	71.7	79.8	35	0.25
75	73.50	76.50	70.0	79.0	170	500	95	255	73.4	80.2	88.6	35	0.2

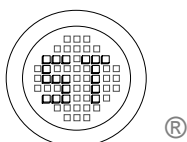
1). Tested with pulses t<sub>p</sub> = 20 ms.

## THERMAL CHARACTERISTICS

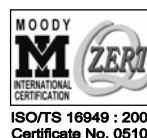
PARAMETER	SYMBOL	VALUE	UNIT
Thermal resistance from junction to tie-point	R <sub>th j-tp</sub>	300	K/W
Thermal resistance from junction to ambient (see note 1)	R <sub>th j-a</sub>	380	K/W

### NOTE

1. Device mounted on a ceramic substrate of 10\*10\*0.6 mm.



**SEMTECH ELECTRONICS LTD.**  
 (Subsidiary of Semtech International Holdings Limited, a company  
 listed on the Hong Kong Stock Exchange, Stock Code: 724)



# BZV55 Series

## Graphical Data

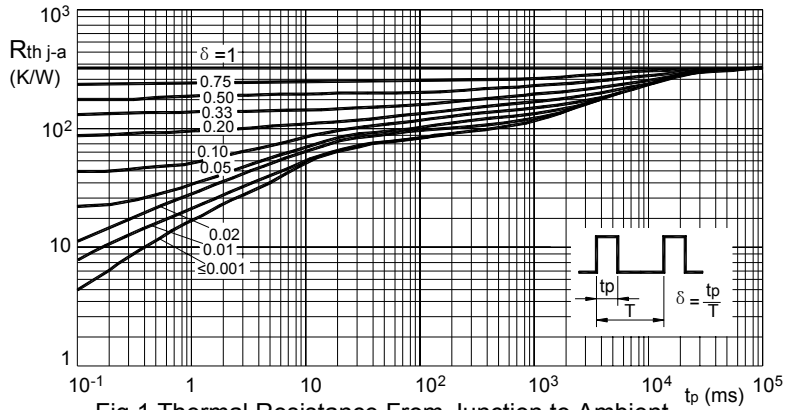
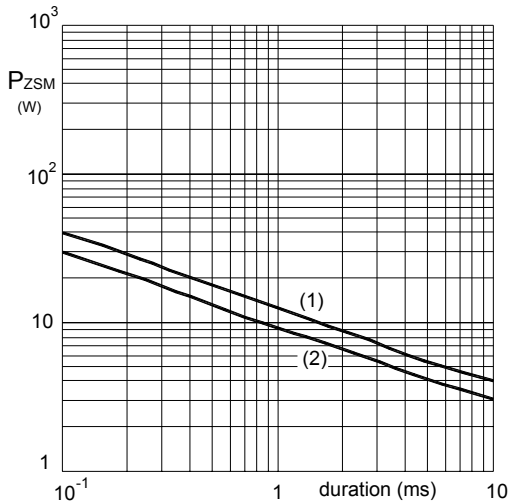
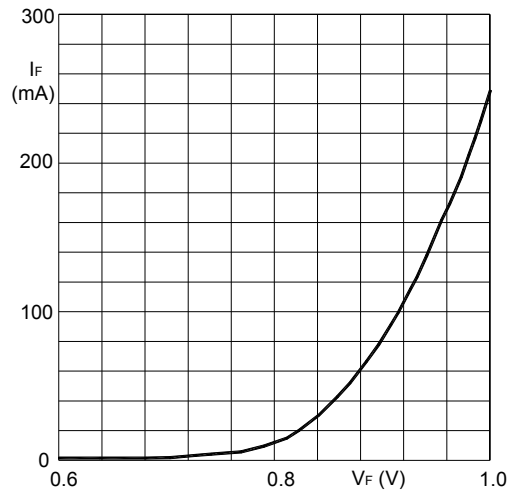


Fig. 1 Thermal Resistance From Junction to Ambient as a Function of Pulse Duration.

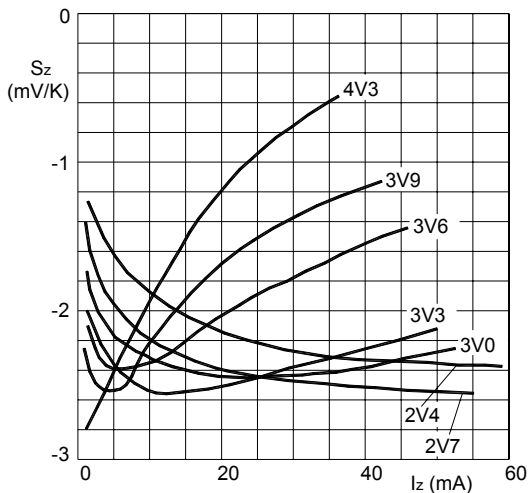


(1)  $T_j=25^\circ\text{C}$  (prior to surge).  
 (2)  $T_j=150^\circ\text{C}$  (prior to surge).

Fig. 2 Maximum Permissible Non-repetitive Peak Reverse Power Dissipation Versus Duration.

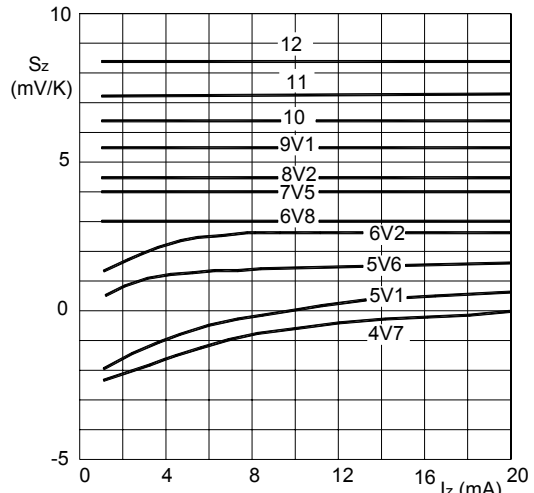


$T_j=25^\circ\text{C}$   
 Fig. 3 Forward Current as a Function of Forward Voltage; Typical Values.



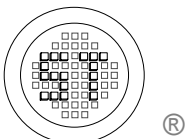
**BZV55-B/C2V4 to B/C4V3.**  
 $T_j=25$  to  $150^\circ\text{C}$

Fig. 4 Temperature Coefficient as a Function of Working Current; Typical Values.



**BZV55-B/C4V7 to B/C12.**  
 $T_j=25$  to  $150^\circ\text{C}$

Fig. 5 Temperature Coefficient as a Function of Working Current; Typical Values.



**SEMTECH ELECTRONICS LTD.**  
 (Subsidiary of Semtech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)

