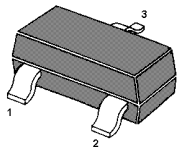
BZX84C / CC…Series

ZENER VOLTAGE REGULATORS

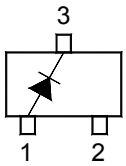
This series of Zener diodes is offered in the convenient, surface mount plastic SOT-23 package. These devices are designed to provide voltage regulation with minimum space requirement. They are well suited for applications such as cellular phones, hand held portables, and high density PC boards.



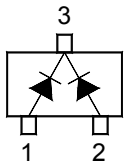
1. ANODE 3. CATHODE

SOT-23 Plastic Package

BZX84C



BZX84CC



Features

- Zener breakdown voltage range – 2.0 V to 75 V
- Package designed for optimal automated board assembly
- Small package size for high density applications

Absolute Maximum Ratings (T_a = 25 °C)

Parameter	Symbol	Value	Unit
Total Power Dissipation	P_D	350	mW
Thermal Resistance, Junction to Ambient [1)]	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature Range	T_j ,T_S	- 65 to + 150	°C

[1)] Alumina = 0.4 X 0.3 X 0.024 in, 99.5% alumina

BZX84C / CC…Series

Electrical Characteristics (T_a = 25 °C unless otherwise noted, V_F < 0.9 V at I_F = 10 mA)

Type	Marking Code	V_{Z1} (V) @ I_{ZT1} = 5 mA [1]			Z_{ZT1} (Ohms) @I_{ZT1} = 5mA	V_{Z2}(V) @ I_{ZT2} = 1 mA [1]		Z_{ZT2} (Ohms) @I_{ZT2} = 1mA [2]	V_{Z3}(V) @ I_{ZT3} = 20 mA [1]		Z_{ZT3} (Ohms) @I_{ZT3} = 20 mA	Max Reverse Leakage Current		Y_{VZ} (mV/k) @ I_{ZT1} = 5 mA		C(pF) @V_R=0 f=1MHz
		Min	Nom	Max		Min	Max		Min	Max		I_R @ μA	V_R V	Min	Max	
BZX84C2V0	A8	1.8	2.0	2.15	100	-	-	-	-	-	-	120	0.5	-3.5	0	450
BZX84C2V2	B8	2.08	2.2	2.33	100	-	-	-	-	-	-	120	0.7	-3.5	0	450
BZX84C2V4	C8	2.2	2.4	2.6	100	1.7	2.1	600	2.6	3.2	50	50	1	-3.5	0	450
BZX84C2V7	D8	2.5	2.7	2.9	100	1.9	2.4	600	3	3.6	50	20	1	-3.5	0	450
BZX84C3V0	E8	2.8	3	3.2	95	2.1	2.7	600	3.3	3.9	50	10	1	-3.5	0	450
BZX84C3V3	F8	3.1	3.3	3.5	95	2.3	2.9	600	3.6	4.2	40	5	1	-3.5	0	450
BZX84C3V6	H8	3.4	3.6	3.8	90	2.7	3.3	600	3.9	4.5	40	5	1	-3.5	0	450
BZX84C3V9	J8	3.7	3.9	4.1	90	2.9	3.5	600	4.1	4.7	30	3	1	-3.5	-2.5	450
BZX84C4V3	K8	4	4.3	4.6	90	3.3	4	600	4.4	5.1	30	3	1	-3.5	0	450
BZX84C4V7	M8	4.4	4.7	5	80	3.7	4.7	500	4.5	5.4	15	3	2	-3.5	0.2	260
BZX84C5V1	N8	4.8	5.1	5.4	60	4.2	5.3	480	5	5.9	15	2	2	-2.7	1.2	225
BZX84C5V6	P8	5.2	5.6	6	40	4.8	6	400	5.2	6.3	10	1	2	-2.0	2.5	200
BZX84C6V2	R8	5.8	6.2	6.6	10	5.6	6.6	150	5.8	6.8	6	3	4	0.4	3.7	185
BZX84C6V8	X8	6.4	6.8	7.2	15	6.3	7.2	80	6.4	7.4	6	2	4	1.2	4.5	155
BZX84C7V5	Y8	7	7.5	7.9	15	6.9	7.9	80	7	8	6	1	5	2.5	5.3	140
BZX84C8V2	Z8	7.7	8.2	8.7	15	7.6	8.7	80	7.7	8.8	6	0.7	5	3.2	6.2	135
BZX84C9V1	A9	8.5	9.1	9.6	15	8.4	9.6	100	8.5	9.7	8	0.5	6	3.8	7.0	130
BZX84C10	B9	9.4	10	10.6	20	9.3	10.6	150	9.4	10.7	10	0.2	7	4.5	8.0	130
BZX84C11	C9	10.4	11	11.6	20	10.2	11.6	150	10.4	11.8	10	0.1	8	5.4	9.0	130
BZX84C12	D9	11.4	12	12.7	25	11.2	12.7	150	11.4	12.9	10	0.1	8	6.0	10.0	130
BZX84C13	E9	12.4	13	14.1	30	12.3	14	170	12.5	14.2	15	0.1	8	7.0	11.0	120
BZX84C15	F9	14.3	15	15.8	30	13.7	15.5	200	13.9	15.7	20	0.05	10.5	9.2	13.0	110
BZX84C16	H9	15.3	16	17.1	40	15.2	17	200	15.4	17.2	20	0.05	11.2	10.4	14.0	105
BZX84C18	J9	16.8	18	19.1	45	16.7	19	225	16.9	19.2	20	0.05	12.6	12.4	16.0	100
BZX84C20	K9	18.8	20	21.2	55	18.7	21.1	225	18.9	21.4	20	0.05	14	14.4	18.0	85
BZX84C22	M9	20.8	22	23.3	55	20.7	23.2	250	20.9	23.4	25	0.05	15.4	16.4	20.0	85
BZX84C24	N9	22.8	24	25.6	70	22.7	25.5	250	22.9	25.7	25	0.05	16.8	18.4	22.0	80
Type	Marking Code	V_{Z1} Below @I_{ZT1}=2 mA			Z_{ZT1} Below @I_{ZT1}= 2mA	V_{Z2} Below @ I_{ZT2}=0.1mA		Z_{ZT2} Below @I_{ZT4}= 0.5mA [2]	V_{Z3} Below @ I_{ZT3}=10mA		Z_{ZT3} Below @I_{ZT3}= 10mA	Max Reverse Leakage Current		Y_{VZ} (mV/k) Below @ I_{ZT1}=2mA		C(pF) @V_R=0 f=1MHz
		Min	Nom	Max		Min	Max		Min	Max		I_R @ μA	V_R V	Min	Max	
BZX84C27	P9	25.1	27	28.9	80	25	28.9	300	25.2	29.3	45	0.05	18.9	21.4	25.3	70
BZX84C30	R9	28	30	32	80	27.8	32	300	28.1	32.4	50	0.05	21	24.4	29.4	70
BZX84C33	X9	31	33	35	80	30.8	35	325	31.1	35.4	55	0.05	23.1	27.4	33.4	70
BZX84C36	Y9	34	36	38	90	33.8	38	350	34.1	38.4	60	0.05	25.2	30.4	37.4	70
BZX84C39	Z9	37	39	41	130	36.7	41	350	37.1	41.5	70	0.05	27.3	33.4	41.2	45
BZX84C43	A0	40	43	46	150	39.7	46	375	40.1	46.5	80	0.05	30.1	37.6	46.6	40
BZX84C47	B0	44	47	50	170	43.7	50	375	44.1	50.5	90	0.05	32.9	42.0	51.8	40
BZX84C51	C0	48	51	54	180	47.6	54	400	48.1	54.6	100	0.05	35.7	46.6	57.2	40
BZX84C56	D0	52	56	60	200	51.5	60	425	52.1	60.8	110	0.05	39.2	52.2	63.8	40
BZX84C62	E0	58	62	66	215	57.4	66	450	58.2	67	120	0.05	43.4	58.8	71.6	35
BZX84C68	F0	64	68	72	240	63.4	72	475	64.2	73.2	130	0.05	47.6	65.6	79.8	35
BZX84C75	H0	70	75	79	255	69.4	79	500	70.3	80.2	140	0.05	52.5	73.4	88.6	35

[1] Tested with pulses tp = 20 ms.
[2] The Zener impedance, Z_{ZT2}, for the 27 through 75 volt types is tested at 0.5 mA rather than the test current of 0.1 mA used for V_{Z2}

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 14001:2004 Certificate No. 7116
ISO 9001:2000 Certificate No. 0506098

Dated : 14/06/2006

BZX84C / CC…Series

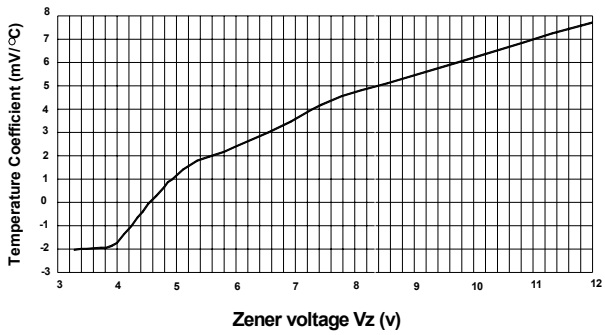
Electrical Characteristics (T_a = 25 °C unless otherwise noted, V_F < 0.9 V at I_F = 10 mA)

Type	Marking Code	V_{Z1} (V) @ I_{ZT1} = 5 mA [1]			Z_{ZT1} (Ohms) @I_{ZT1} = 5mA	V_{Z2}(V) @ I_{ZT2} = 1 mA [1]		Z_{ZT2} (Ohms) @I_{ZT2} = 1mA [2]	V_{Z3}(V) @ I_{ZT3} = 20 mA [1]		Z_{ZT3} (Ohms) @I_{ZT3} = 20 mA	Max Reverse Leakage Current		Y_{VZ} (mV/k) @ I_{ZT1} = 5 mA		C(pF) @V_R=0 f=1MHz
		Min	Nom	Max		Min	Max		Min	Max		I_R @ μA	V_R V	Min	Max	
BZX84CC2V0	JH	1.8	2.0	2.15	100	-	-	-	-	-	-	120	0.5	-3.5	0	450
BZX84CC2V2	JJ	2.08	2.2	2.33	100	-	-	-	-	-	-	120	0.7	-3.5	0	450
BZX84CC2V4	JK	2.2	2.4	2.6	100	1.7	2.1	600	2.6	3.2	50	50	1	-3.5	0	450
BZX84CC2V7	JM	2.5	2.7	2.9	100	1.9	2.4	600	3	3.6	50	20	1	-3.5	0	450
BZX84CC3V0	JN	2.8	3	3.2	95	2.1	2.7	600	3.3	3.9	50	10	1	-3.5	0	450
BZX84CC3V3	JP	3.1	3.3	3.5	95	2.3	2.9	600	3.6	4.2	40	5	1	-3.5	0	450
BZX84CC3V6	JR	3.4	3.6	3.8	90	2.7	3.3	600	3.9	4.5	40	5	1	-3.5	0	450
BZX84CC3V9	JX	3.7	3.9	4.1	90	2.9	3.5	600	4.1	4.7	30	3	1	-3.5	-2.5	450
BZX84CC4V3	JY	4	4.3	4.6	90	3.3	4	600	4.4	5.1	30	3	1	-3.5	0	450
BZX84CC4V7	JZ	4.4	4.7	5	80	3.7	4.7	500	4.5	5.4	15	3	2	-3.5	0.2	260
BZX84CC5V1	KA	4.8	5.1	5.4	60	4.2	5.3	480	5	5.9	15	2	2	-2.7	1.2	225
BZX84CC5V6	KB	5.2	5.6	6	40	4.8	6	400	5.2	6.3	10	1	2	-2.0	2.5	200
BZX84CC6V2	KC	5.8	6.2	6.6	10	5.6	6.6	150	5.8	6.8	6	3	4	0.4	3.7	185
BZX84CC6V8	KD	6.4	6.8	7.2	15	6.3	7.2	80	6.4	7.4	6	2	4	1.2	4.5	155
BZX84CC7V5	KE	7	7.5	7.9	15	6.9	7.9	80	7	8	6	1	5	2.5	5.3	140
BZX84CC8V2	KF	7.7	8.2	8.7	15	7.6	8.7	80	7.7	8.8	6	0.7	5	3.2	6.2	135
BZX84CC9V1	KH	8.5	9.1	9.6	15	8.4	9.6	100	8.5	9.7	8	0.5	6	3.8	7.0	130
BZX84CC10	KJ	9.4	10	10.6	20	9.3	10.6	150	9.4	10.7	10	0.2	7	4.5	8.0	130
BZX84CC11	KK	10.4	11	11.6	20	10.2	11.6	150	10.4	11.8	10	0.1	8	5.4	9.0	130
BZX84CC12	KM	11.4	12	12.7	25	11.2	12.7	150	11.4	12.9	10	0.1	8	6.0	10.0	130
BZX84CC13	KN	12.4	13	14.1	30	12.3	14	170	12.5	14.2	15	0.1	8	7.0	11.0	120
BZX84CC15	KP	14.3	15	15.8	30	13.7	15.5	200	13.9	15.7	20	0.05	10.5	9.2	13.0	110
BZX84CC16	KR	15.3	16	17.1	40	15.2	17	200	15.4	17.2	20	0.05	11.2	10.4	14.0	105
BZX84CC18	KX	16.8	18	19.1	45	16.7	19	225	16.9	19.2	20	0.05	12.6	12.4	16.0	100
BZX84CC20	KY	18.8	20	21.2	55	18.7	21.1	225	18.9	21.4	20	0.05	14	14.4	18.0	85
BZX84CC22	KZ	20.8	22	23.3	55	20.7	23.2	250	20.9	23.4	25	0.05	15.4	16.4	20.0	85
BZX84CC24	MA	22.8	24	25.6	70	22.7	25.5	250	22.9	25.7	25	0.05	16.8	18.4	22.0	80
Type	Marking Code	V_{Z1} Below @I_{ZT1}=2 mA			Z_{ZT1} Below @I_{ZT1}= 2mA	V_{Z2} Below @ I_{ZT2}=0.1mA		Z_{ZT2} Below @I_{ZT4}= 0.5mA [2]	V_{Z3} Below @ I_{ZT3}=10mA		Z_{ZT3} Below @I_{ZT3}= 10mA	Max Reverse Leakage Current		Y_{VZ} (mV/k) Below @ I_{ZT1}=2mA		C(pF) @V_R=0 f=1MHz
		Min	Nom	Max		Min	Max		Min	Max		I_R @ μA	V_R V	Min	Max	
BZX84CC27	MB	25.1	27	28.9	80	25	28.9	300	25.2	29.3	45	0.05	18.9	21.4	25.3	70
BZX84CC30	MC	28	30	32	80	27.8	32	300	28.1	32.4	50	0.05	21	24.4	29.4	70
BZX84CC33	MD	31	33	35	80	30.8	35	325	31.1	35.4	55	0.05	23.1	27.4	33.4	70
BZX84CC36	ME	34	36	38	90	33.8	38	350	34.1	38.4	60	0.05	25.2	30.4	37.4	70
BZX84CC39	MF	37	39	41	130	36.7	41	350	37.1	41.5	70	0.05	27.3	33.4	41.2	45
BZX84CC43	MH	40	43	46	150	39.7	46	375	40.1	46.5	80	0.05	30.1	37.6	46.6	40
BZX84CC47	MJ	44	47	50	170	43.7	50	375	44.1	50.5	90	0.05	32.9	42.0	51.8	40
BZX84CC51	MK	48	51	54	180	47.6	54	400	48.1	54.6	100	0.05	35.7	46.6	57.2	40
BZX84CC56	MM	52	56	60	200	51.5	60	425	52.1	60.8	110	0.05	39.2	52.2	63.8	40
BZX84CC62	MN	58	62	66	215	57.4	66	450	58.2	67	120	0.05	43.4	58.8	71.6	35
BZX84CC68	MP	64	68	72	240	63.4	72	475	64.2	73.2	130	0.05	47.6	65.6	79.8	35
BZX84CC75	MR	70	75	79	255	69.4	79	500	70.3	80.2	140	0.05	52.5	73.4	88.6	35

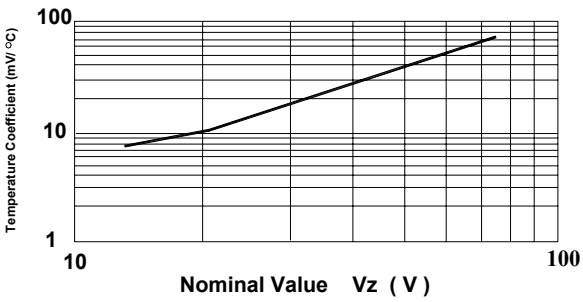
[1] Tested with pulses tp = 20 ms.

[2] The Zener impedance, Z_{ZT2}, for the 27 through 75 volt types is tested at 0.5 mA rather than the test current of 0.1 mA used for V_{Z2}

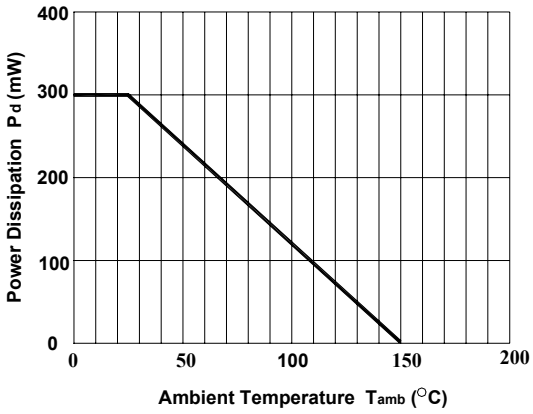
Temperature Coefficient



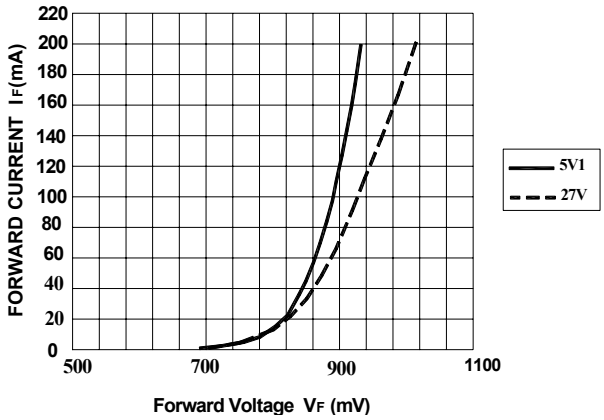
Temperature Coefficient

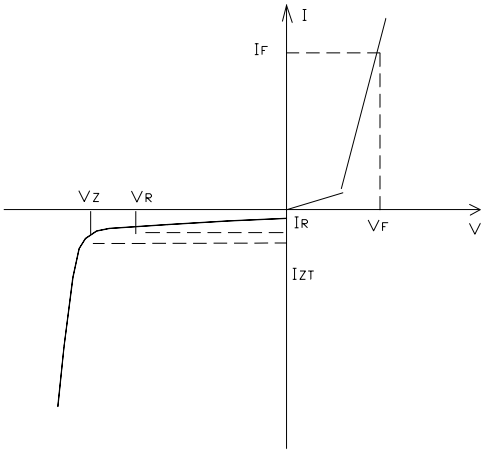


Power Derating Curve



Typical Forward Voltage





Zener Voltage Regulator