

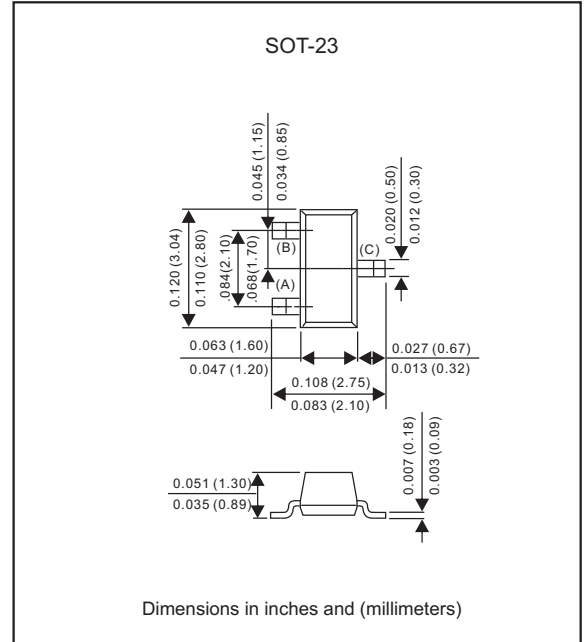
### Features

- Silicon epitaxial planar chip structure.
- Wide zener reverse voltage range 2.4V to 75V.
- Small package size for high density applications.
- Ideally suited for automated assembly processes.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Suffix "-H" indicates Halogen-free parts, ex. BZX84C2V4-H.

### Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-23
- Terminals :Plated terminals, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any

### Package outline



### Maximum ratings (at $T_A=25^\circ\text{C}$ unless otherwise noted)

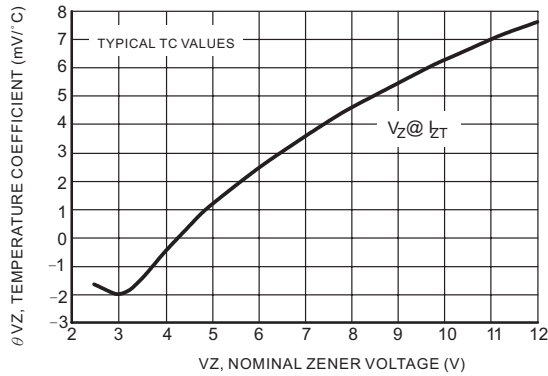
PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Power Dissipation at $T_A=25^\circ\text{C}$	Mounted on Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.	$P_D$			300	mW
Thermal Resistance	Junction to Ambient	$R_{\theta JA}$		417		$^\circ\text{C}/\text{W}$
Operating junction temperature range		$T_J$	-55		+150	$^\circ\text{C}$
Storage temperature range		$T_{STG}$	-55		+150	$^\circ\text{C}$

### Electrical characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

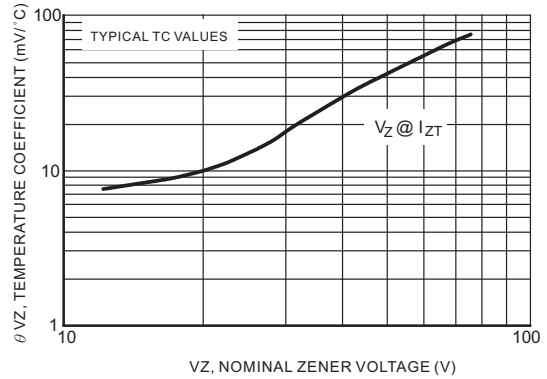
Part No.	Marking code	Zener voltage			Zener impedance				Leakage current		$\theta V_z$ (mV/k) @ $I_{ZT}$		$C$ @ $V_R=0V$ $f=1\text{MHz}$
		$V_z$ @ $I_{ZT}$ (Volts)			$I_{ZT}$	$Z_{ZT}$ @ $I_{ZT}$	$Z_{ZK}$ @ $I_{ZK}$	$I_{ZK}$	$I_R$	$V_R$	Min.	Max.	pF
		Min.	Nom.	Max.	mA	( $\Omega$ )Max	( $\Omega$ )Max	mA	( $\mu\text{A}$ )Max	Volts			
BZX84C2V4	Z11	2.28	2.4	2.52	5.0	100	600	1	50	1.0	-3.5	0	450
BZX84C2V7	Z12	2.57	2.7	2.84	5.0	100	600	1	20	1.0	-3.5	0	450
BZX84C3V0	Z13	2.85	3.0	3.15	5.0	95	600	1	10	1.0	-3.5	0	450
BZX84C3V3	Z14	3.14	3.3	3.47	5.0	95	600	1	5	1.0	-3.5	0	450
BZX84C3V6	Z15	3.42	3.6	3.78	5.0	90	600	1	5	1.0	-3.5	0	450
BZX84C3V9	Z16	3.71	3.9	4.1	5.0	90	600	1	3	1.0	-3.5	-2.5	450
BZX84C4V3	W9	4.09	4.3	4.52	5.0	90	600	1	3	1.0	-3.5	0	450
BZX84C4V7	Z1	4.47	4.7	4.94	5.0	80	500	1	3	2.0	-3.5	0.2	260
BZX84C5V1	Z2	4.85	5.1	5.36	5.0	60	480	1	2	2.0	-2.7	1.2	225
BZX84C5V6	Z3	5.32	5.6	5.88	5.0	40	400	1	1	2.0	-2.0	2.5	200
BZX84C6V2	Z4	5.89	6.2	6.51	5.0	10	150	1	3	4.0	0.4	3.7	185
BZX84C6V8	Z5	6.46	6.8	7.14	5.0	15	80	1	2	4.0	1.2	4.5	155
BZX84C7V5	Z6	7.13	7.5	7.88	5.0	15	80	1	1	5.0	2.5	5.3	140
BZX84C8V2	Z7	7.79	8.2	8.61	5.0	15	80	1	0.7	5.0	3.2	6.2	135
BZX84C9V1	Z8	8.65	9.1	9.56	5.0	15	100	1	0.5	6.0	3.8	7.0	130
BZX84C10	Z9	9.50	10	10.50	5.0	20	150	1	0.2	7.0	4.5	8.0	130
BZX84C11	Y1	10.45	11	11.55	5.0	20	150	1	0.1	8.0	5.4	9.0	130
BZX84C12	Y2	11.40	12	12.60	5.0	25	150	1	0.1	8.0	6.0	10	130
BZX84C13	Y3	12.35	13	13.65	5.0	30	170	1	0.1	8.0	7.0	11	120
BZX84C15	Y4	14.25	15	15.75	5.0	30	200	1	0.1	10.5	9.2	13	110
BZX84C16	Y5	15.20	16	16.80	5.0	40	200	1	0.1	11.2	10.4	14	105
BZX84C18	Y6	17.10	18	18.90	5.0	45	225	1	0.1	12.6	12.4	16	100
BZX84C20	Y7	19.00	20	21.00	5.0	55	225	1	0.1	14.0	14.4	18	85
BZX84C22	Y8	20.90	22	23.10	5.0	55	250	1	0.1	15.4	16.4	20	85
BZX84C24	Y9	22.80	24	25.20	5.0	70	250	1	0.1	16.8	18.4	22	80
BZX84C27	Y10	25.65	27	28.35	2.0	80	300	0.5	0.1	18.9	21.4	25.3	70
BZX84C30	Y11	28.50	30	31.50	2.0	80	300	0.5	0.1	21.0	24.4	29.4	70
BZX84C33	Y12	31.35	33	34.65	2.0	80	325	0.5	0.1	23.1	27.4	33.4	70
BZX84C36	Y13	34.20	36	37.80	2.0	90	350	0.5	0.1	25.2	30.4	37.4	70
BZX84C39	Y14	37.05	39	40.95	2.0	130	350	0.5	0.1	27.3	33.4	41.2	45
BZX84C43	Y15	40.85	43	45.15	2.0	150	375	0.5	0.1	30.1	37.6	46.6	40
BZX84C47	Y16	44.65	47	49.35	2.0	170	375	0.5	0.1	32.9	42.0	51.8	40
BZX84C51	Y17	48.45	51	53.55	2.0	180	400	0.5	0.1	35.7	46.6	57.2	40
BZX84C56	Y18	53.20	56	58.80	2.0	200	425	0.5	0.1	39.2	52.2	63.8	40
BZX84C62	Y19	58.90	62	65.10	2.0	215	450	0.5	0.1	43.4	58.8	71.6	35
BZX84C68	Y20	64.60	68	71.40	2.0	240	475	0.5	0.1	47.6	65.6	79.8	35
BZX84C75	Y21	71.25	75	78.75	2.0	255	500	0.5	0.1	52.5	73.4	88.6	35

Note : 1. 5% tolerance of Zener voltage  
 2. Zener voltage is measured with a pulse test current  $I_Z$  at an ambient temperature of  $25^\circ\text{C}$ .

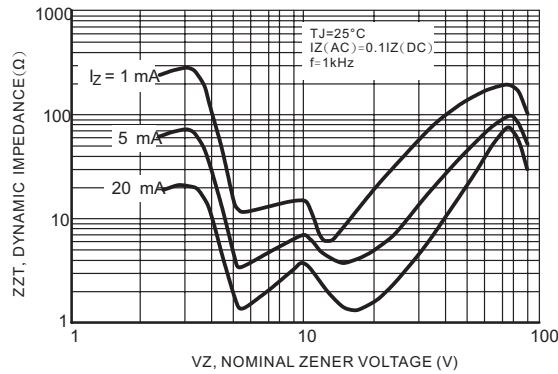
### Rating and characteristic curves



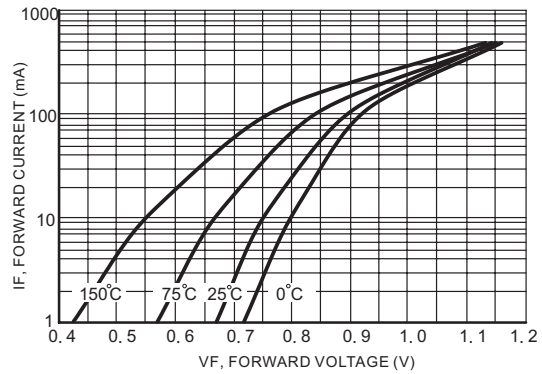
**Figure 1. Temperature Coefficients**  
(Temperature Range -55°C to +150°C)



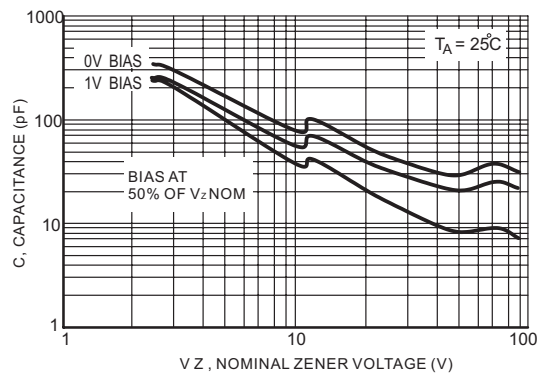
**Figure 2. Temperature Coefficients**  
(Temperature Range -55°C to +150°C)



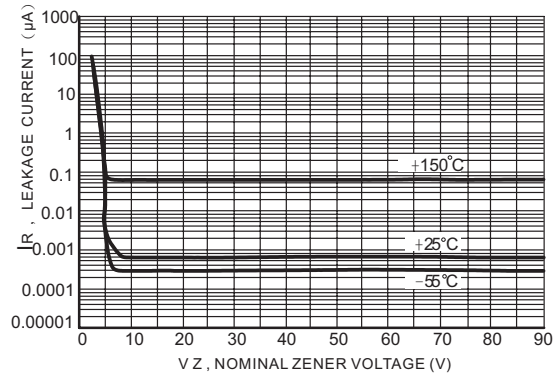
**Figure 3. Effect of Zener Voltage on Zener Impedance**



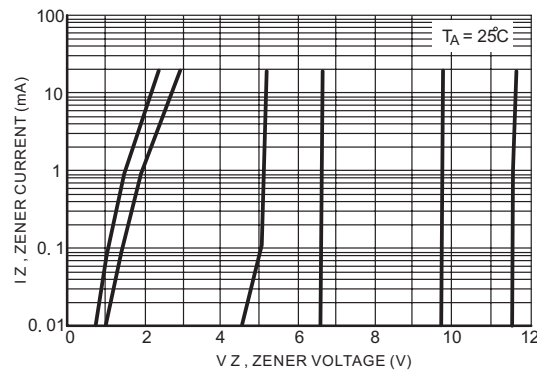
**Figure 4. Typical Forward Voltage**



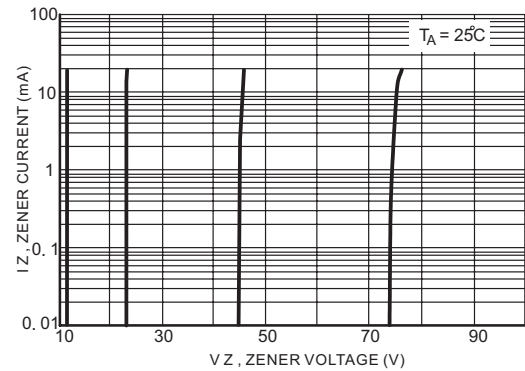
**Figure 5. Typical Capacitance**



**Figure 6. Typical Leakage Current**



**Figure 7. Zener Voltage versus Zener Current**  
(Vz Up to 12 V)

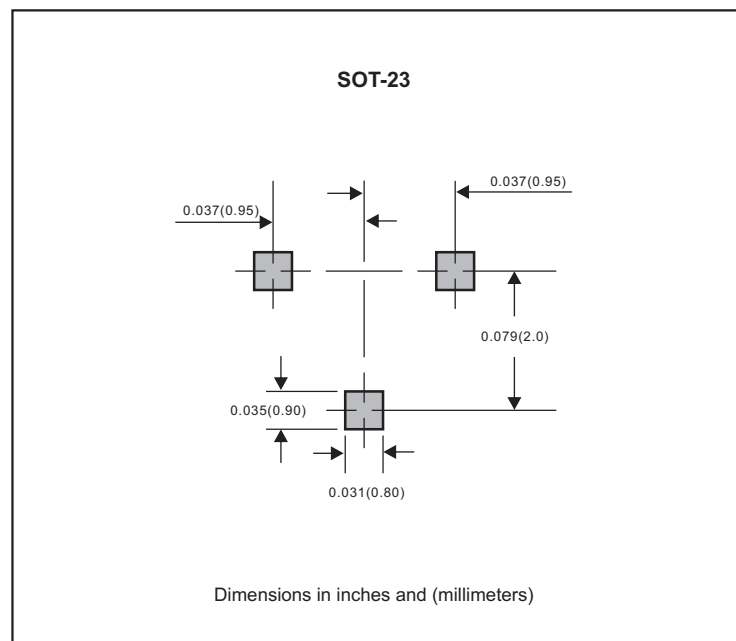


**Figure 8. Zener Voltage versus Zener Current**  
(12V to 75V)

## Pinning information

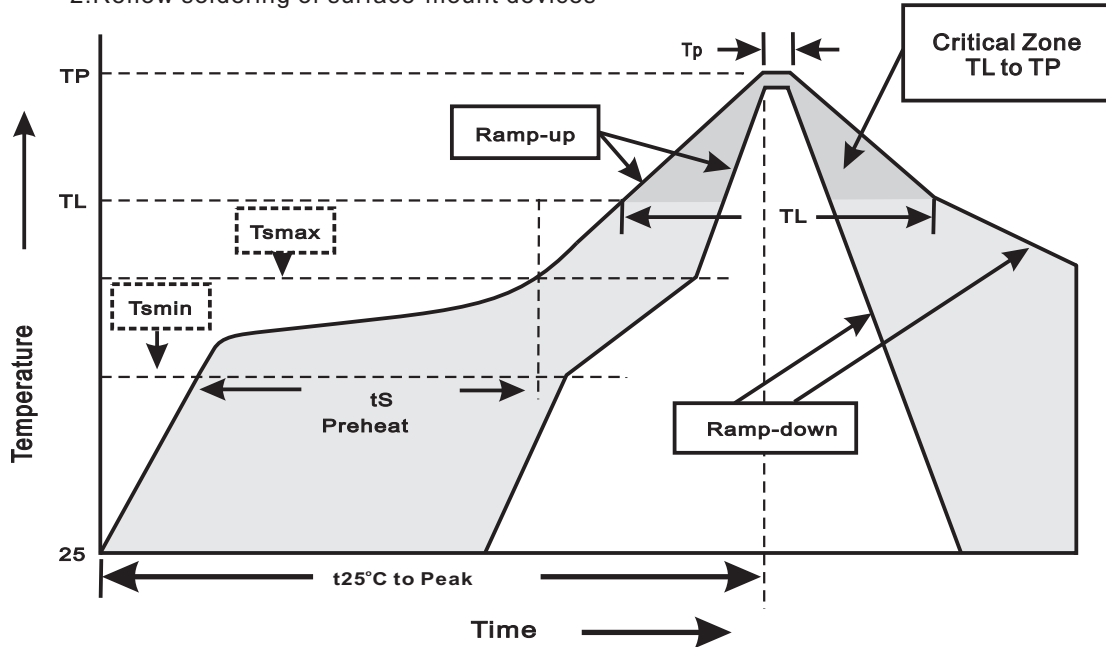
Pin	Simplified outline	Symbol
PinA no connection PinB anode PinC cathode		

## Suggested solder pad layout



## Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



### 3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T <sub>L</sub> to T <sub>P</sub> )	<3°C/sec
Preheat -Temperature Min(T <sub>smin</sub> ) -Temperature Max(T <sub>smax</sub> ) -Time(min to max)(t <sub>s</sub> )	150°C 200°C 60~120sec
T <sub>smax</sub> to T <sub>L</sub> -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T <sub>L</sub> ) -Time(t <sub>L</sub> )	217°C 60~260sec
Peak Temperature(T <sub>P</sub> )	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t <sub>P</sub> )	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes