

BZD84C SERIES

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BZD84C SERIES

**350mW Surface Mount Dual Zener
Voltage Regulator Diodes 2.4V-75V**

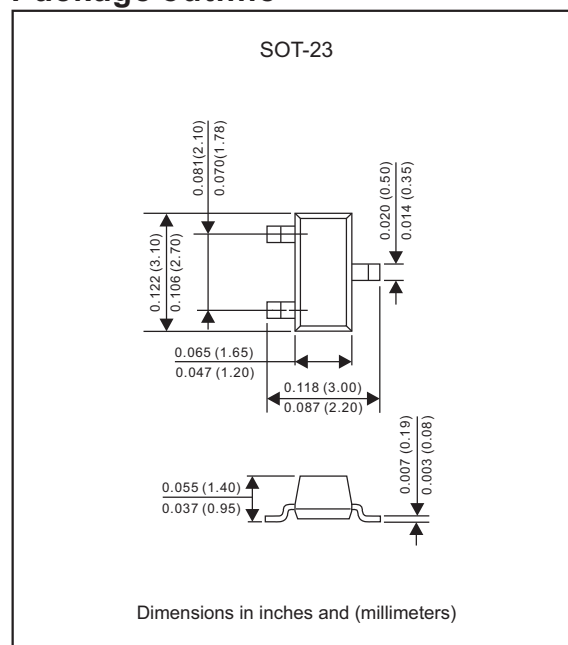
Features

- Planar die construction
- 350mW power dissipation rating
- Dual zeners in common anode configuration
- Ideally suited for automated assembly process
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free parts, ex.BZD84C2V4-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
- Weight : Approximated 0.008 gram

Package outline



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

Parameter	Conditions	Symbol	MIN.	TYP.	MAX.	Unit
Power dissipation	Alumina = 0.4 X 0.3 X 0.024 in. 99.5% alumina.	P_D			350	mW
Thermal resistance	Junction to ambient	$R_{\theta JA}$		417		$^{\circ}\text{C/W}$
Operating junction temperature range		T_J	-65		+150	$^{\circ}\text{C}$
Storage temperature range		T_{STG}	-65		+150	$^{\circ}\text{C}$
Forward voltage	@ $I_F=10\text{mA}$	V_F			0.9	V

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

Part No.	Marking code	Zener voltage			Zener impedance		Leakage current	
		V _Z @ I _{ZT} (Volts)			I _{ZT}	Z _{zT} @ I _{ZT}	I _R	V _R
		Min.	Nom.	Max.	mA	(Ω)Max	(μ A)Max	Volts
BZD84C2V4	7H	2.2	2.4	2.6	5.0	100	50	1.0
BZD84C2V7	7J	2.5	2.7	2.9	5.0	100	20	1.0
BZD84C3V0	MR	2.8	3.0	3.2	5.0	95	10	1.0
BZD84C3V3	MX	3.1	3.3	3.5	5.0	95	5	1.0
BZD84C3V6	MY	3.4	3.6	3.8	5.0	90	5	1.0
BZD84C3V9	MZ	3.7	3.9	4.1	5.0	90	3	1.0
BZD84C4V3	NA	4.00	4.3	4.60	5.0	90	3	1.0
BZD84C4V7	NB	4.4	4.7	5.0	5.0	80	3	2.0
BZD84C5V1	NC	4.8	5.1	5.4	5.0	60	2	2.0
BZD84C5V6	ND	5.2	5.6	6.0	5.0	40	1	2.0
BZD84C6V2	NE	5.8	6.2	6.6	5.0	10	3	4.0
BZD84C6V8	NF	6.4	6.8	7.2	5.0	15	2	4.0
BZD84C7V5	NH	7.0	7.5	7.9	5.0	15	1	5.0
BZD84C8V2	NJ	7.7	8.2	8.7	5.0	15	0.7	5.0
BZD84C9V1	NK	8.5	9.1	9.6	5.0	15	0.5	6.0
BZD84C10	NM	9.4	10	10.6	5.0	20	0.2	7.0
BZD84C11	NN	10.4	11	11.6	5.0	20	0.1	8.0
BZD84C12	NP	11.4	12	12.7	5.0	25	0.1	8.0
BZD84C13	NX	12.4	13	14.1	5.0	30	0.1	8.0
BZD84C15	NY	14.3	15	15.8	5.0	30	0.05	10.5
BZD84C16	NZ	15.3	16	17.1	5.0	40	0.05	11.2
BZD84C18	PA	16.8	18	19.1	5.0	45	0.05	12.6
BZD84C20	PB	18.8	20	21.2	5.0	55	0.05	14.0
BZD84C22	PC	20.8	22	23.3	5.0	55	0.05	15.4
BZD84C24	PD	22.8	24	25.6	5.0	70	0.05	16.8
BZD84C27	PE	25.1	27	28.9	5.0	80	0.05	18.9
BZD84C30	PF	28.0	30	32.0	5.0	80	0.05	21.0
BZD84C33	PH	31.0	33	35.0	5.0	80	0.05	23.1
BZD84C36	PJ	34.0	36	38.0	5.0	90	0.05	25.2
BZD84C39	PM	37.0	39	41.0	5.0	130	0.05	27.3
BZD84C43	PN	40.0	43	46.0	5.0	150	0.05	30.1
BZD84C47	PP	44.0	47	50.0	5.0	170	0.05	32.9
BZD84C51	7K	48.0	51	54.0	5.0	180	0.05	35.7
BZD84C56	7M	52.0	56	60.0	5.0	200	0.05	39.2
BZD84C62	7N	58.0	62	66.0	5.0	215	0.05	43.4
BZD84C68	7P	64.0	68	72.0	5.0	240	0.05	47.6
BZD84C75	7R	70.0	75	79.0	5.0	255	0.05	52.5

Rating and characteristic curves (BZD84C SERIES)

Fig.1 TEMPERATURE COEFFICIENT

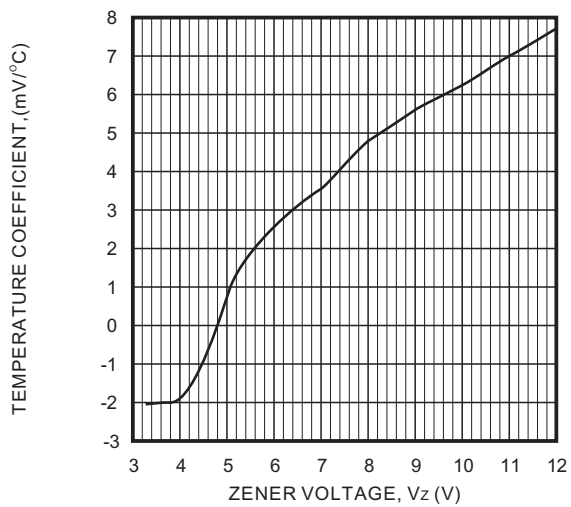


Fig.2 TEMPERATURE COEFFICIENT

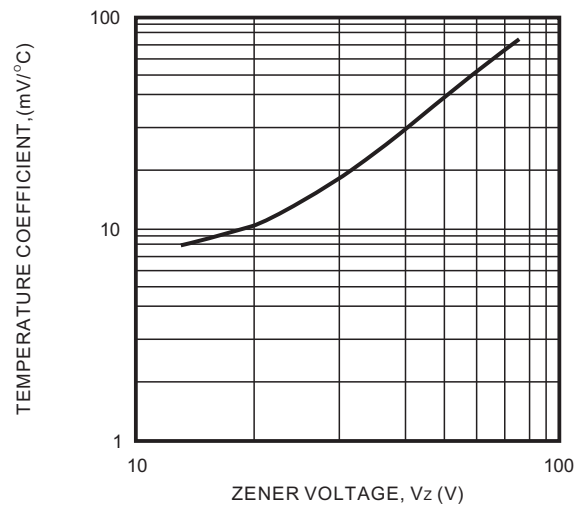


Fig.3 TYPICAL FORWARD VOLTAGE

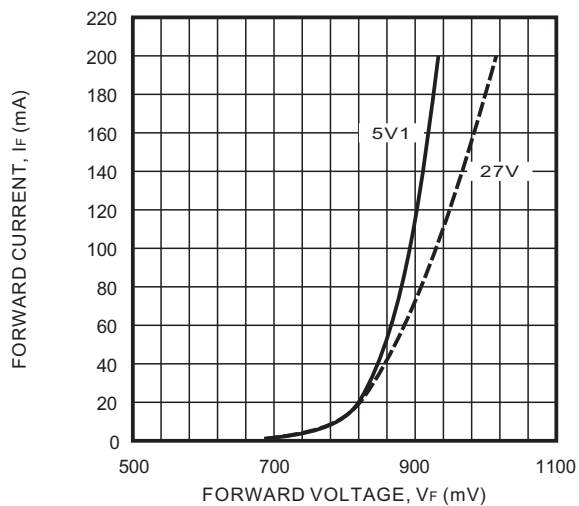
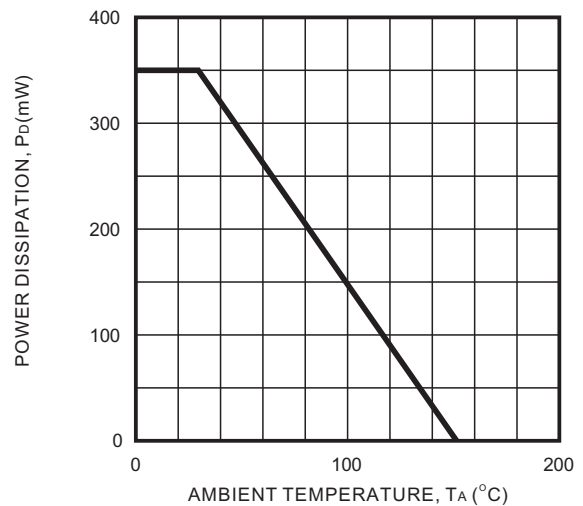
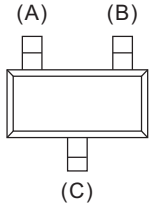
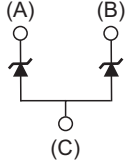


Fig.4 DERATING CURVE



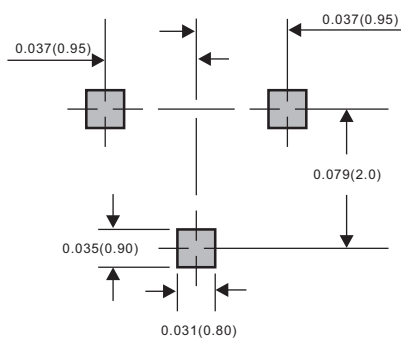
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Pinning information

Pin	Simplified outline	Symbol
PinA cathode PinB cathode PinC anode		

Suggested solder pad layout

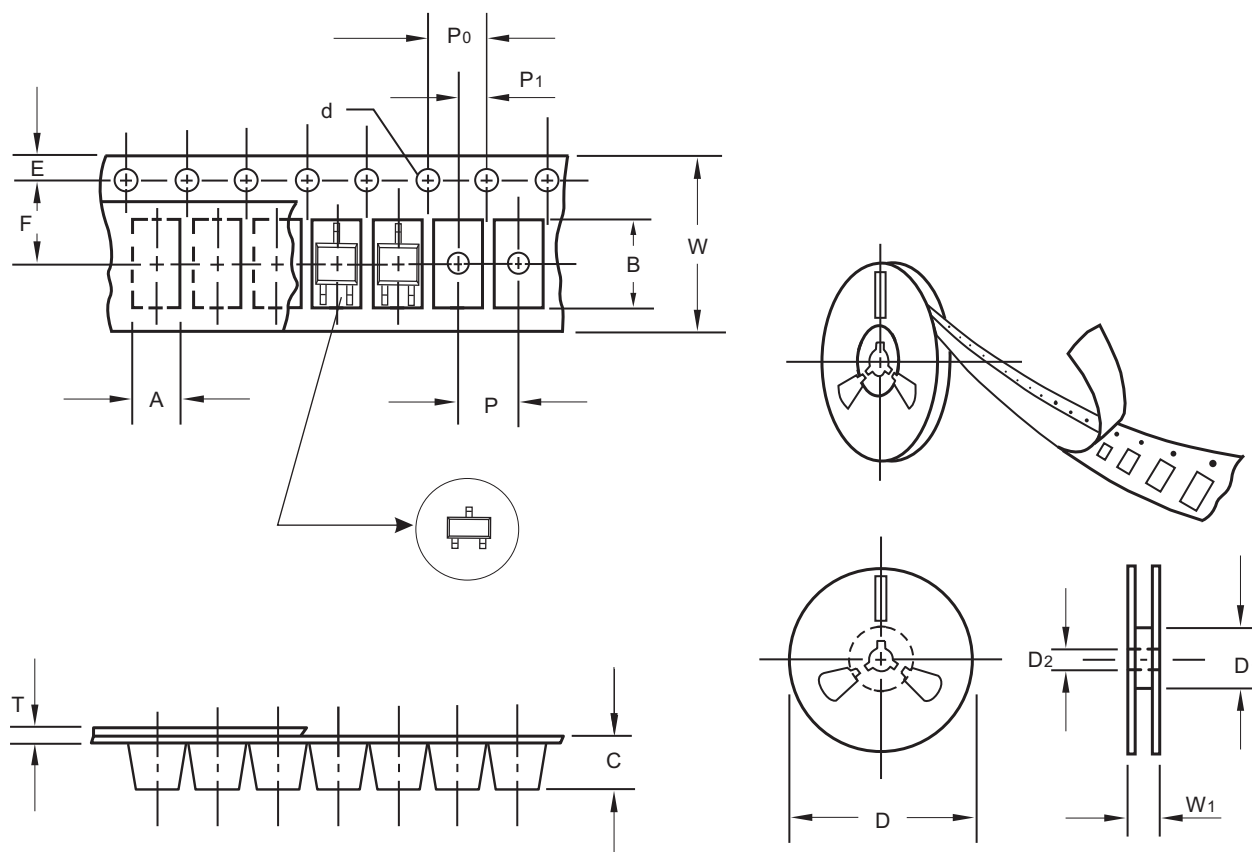
SOT-23



Dimensions in inches and (millimeters)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOT-23
Carrier width	A	0.1	3.15
Carrier length	B	0.1	2.77
Carrier depth	C	0.1	1.22
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D ₁	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D ₁	min	62.00
Feed hole diameter	D ₂	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P ₀	0.1	4.00
Embossment center	P ₁	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W ₁	1.0	11.40

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

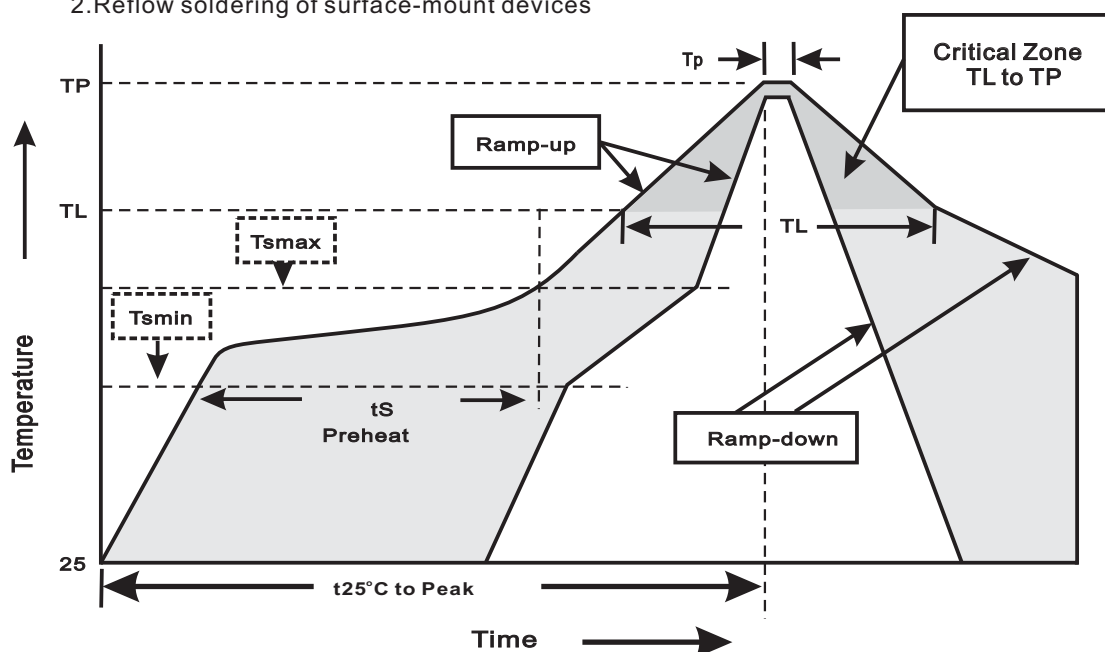
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOT-23	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000	11.6

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 _L to T _P)	<3°C/sec
Preheat -Temperature Min(T _{smin}) -Temperature Max(T _{smax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smax} to T _L -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T _L) -Time(t _L)	217°C 60~260sec
Peak Temperature(T _P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t _P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^{\circ}\text{C}$ for $10 \pm 2\text{sec.}$	MIL-STD-750D METHOD-2031
2. Solderability	at $245 \pm 5^{\circ}\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_z = V_z \text{ Nom} * 80\%$ at $T_j = 150^{\circ}\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Pressure Cooker	$15P_{\text{SIG}}$ at $T_A = 121^{\circ}\text{C}$ for 4 hrs.	JESD22-A102
5. Temperature Cycling	-55°C to $+125^{\circ}\text{C}$ dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
6. Humidity	at $T_A = 85^{\circ}\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
7. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031