

BZX84B2V4A-Q1 THRU BZX84B75A-Q1**List**

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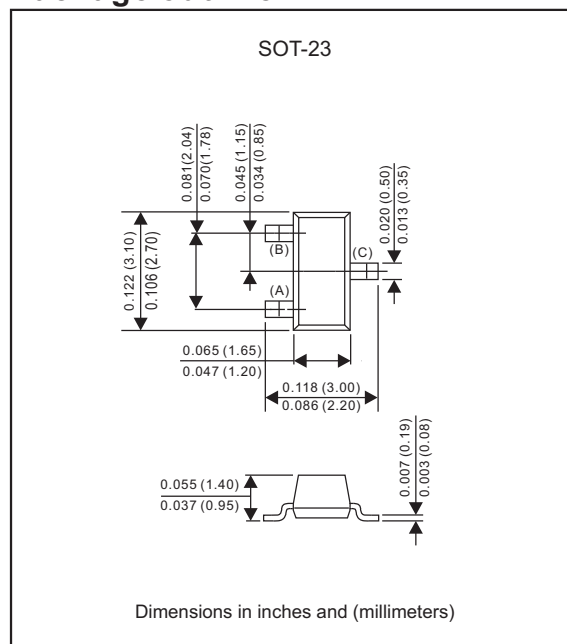
**300mW Surface Mount Zener
Diodes 2.4V-75V**

Features

- Non-wire bonding structure improves.
- High demand voltage range (2.4V-75V).
- This is a Pb-Free device.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Qualified to AEC-Q101 standards for high reliability.
- Suffix "-H" indicates Halogen-free part, ex.BZX84B2V0A-Q1-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** (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 FR-4 board.	P_D			300	mW
Operating junction temperature range		T_J	-55		+150	$^{\circ}\text{C}$
Storage temperature range		T_{STG}	-65		+150	$^{\circ}\text{C}$

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

Part No.	Marking code	Zener voltage			Test current	Zener impedance			Leakage current	
		V _Z @ I _{ZT}			I _{ZT}	Z _{ZT} @ I _{ZT}	Z _{ZK} @ I _{ZK}	I _{ZK}	I _R	V _R
		Min.(V)	Nom.(V)	Max.(V)	mA	Max(Ω)	Max(Ω)	mA	Max(uA)	Volts
BZX84B2V4A-Q1	CR	2.35	2.4	2.45	5	100	600	1.0	50.0	1.0
BZX84B2V7A-Q1	CX	2.65	2.7	2.75	5	100	600	1.0	20.0	1.0
BZX84B3V0A-Q1	CY	2.94	3.0	3.06	5	95	600	1.0	10.0	1.0
BZX84B3V3A-Q1	CZ	3.23	3.3	3.37	5	95	600	1.0	5.0	1.0
BZX84B3V6A-Q1	DA	3.53	3.6	3.67	5	90	600	1.0	5.0	1.0
BZX84B3V9A-Q1	DB	3.82	3.9	3.98	5	90	600	1.0	3.0	1.0
BZX84B4V3A-Q1	DC	4.21	4.3	4.39	5	90	600	1.0	3.0	1.0
BZX84B4V7A-Q1	DD	4.61	4.7	4.79	5	80	500	1.0	3.0	2.0
BZX84B5V1A-Q1	DE	5.00	5.1	5.20	5	60	480	1.0	2.0	2.0
BZX84B5V6A-Q1	DF	5.49	5.6	5.71	5	40	400	1.0	1.0	2.0
BZX84B6V2A-Q1	DH	6.08	6.2	6.32	5	10	150	1.0	3.0	4.0
BZX84B6V8A-Q1	DJ	6.66	6.8	6.94	5	15	80	1.0	2.0	4.0
BZX84B7V5A-Q1	DK	7.35	7.5	7.65	5	15	80	1.0	1.0	5.0
BZX84B8V2A-Q1	DM	8.04	8.2	8.36	5	15	80	1.0	0.7	5.0
BZX84B9V1A-Q1	DN	8.92	9.1	9.28	5	15	100	1.0	0.5	6.0
BZX84B10A-Q1	DP	9.80	10	10.20	5	20	150	1.0	0.2	7.0
BZX84B11A-Q1	DR	10.80	11	11.20	5	20	150	1.0	0.1	8.0
BZX84B12A-Q1	DX	11.80	12	12.20	5	25	150	1.0	0.1	8.0
BZX84B13A-Q1	DY	12.70	13	13.30	5	30	170	1.0	0.1	8.0
BZX84B15A-Q1	DZ	14.70	15	15.30	5	30	200	1.0	0.05	10.5
BZX84B16A-Q1	EA	15.70	16	16.30	5	40	200	1.0	0.05	11.2
BZX84B18A-Q1	EB	17.60	18	18.40	5	45	225	1.0	0.05	12.6
BZX84B20A-Q1	EC	19.60	20	20.40	5	55	225	1.0	0.05	14.0
BZX84B22A-Q1	ED	21.60	22	22.40	5	55	250	1.0	0.05	15.4
BZX84B24A-Q1	EE	23.50	24	24.50	5	70	250	1.0	0.05	16.8
BZX84B27A-Q1	EF	26.50	27	27.50	2	80	300	0.5	0.05	18.9
BZX84B30A-Q1	EH	29.40	30	30.60	2	80	300	0.5	0.05	21.0
BZX84B33A-Q1	EJ	32.30	33	33.70	2	80	325	0.5	0.05	23.1
BZX84B36A-Q1	EK	35.30	36	36.70	2	90	350	0.5	0.05	25.2
BZX84B39A-Q1	EM	38.20	39	39.80	2	130	350	0.5	0.05	27.3
BZX84B43A-Q1	EN	42.10	43	43.90	2	150	375	0.5	0.05	30.1
BZX84B47A-Q1	EP	46.10	47	47.90	2	170	375	0.5	0.05	32.9
BZX84B51A-Q1	ER	50.00	51	52.00	2	180	400	0.5	0.05	35.7
BZX84B56A-Q1	EX	54.90	56	57.10	2	200	425	0.5	0.05	39.2
BZX84B62A-Q1	EY	60.80	62	63.20	2	215	450	0.5	0.05	43.4
BZX84B68A-Q1	EZ	66.60	68	69.40	2	240	475	0.5	0.05	47.6
BZX84B75A-Q1	FA	73.50	75	76.50	2	255	500	0.5	0.05	52.5

Note 1. The Zener voltage(V_Z) is measured 40ms after power is supplied.2. The operating resistances(Z_Z , Z_{ZK}) are measured by superimposing a minute alternating current on the regulated current(I_Z).

Rating and characteristic curves (BZX84B2V4A-Q1 THRU BZX84B75A-Q1)

Fig.1 FORWARD CHARACTERISTICS

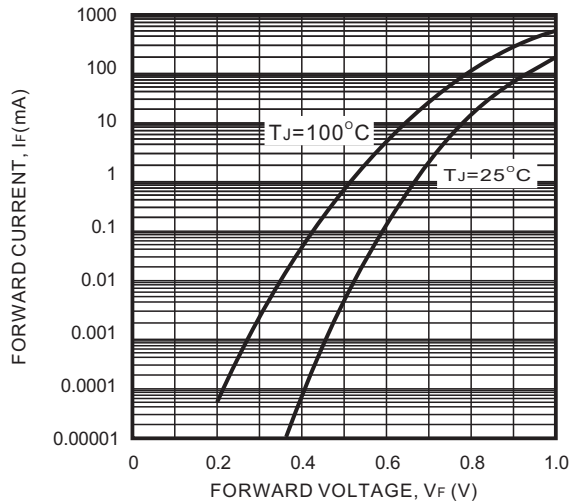


Fig.2 DERATING CURVE

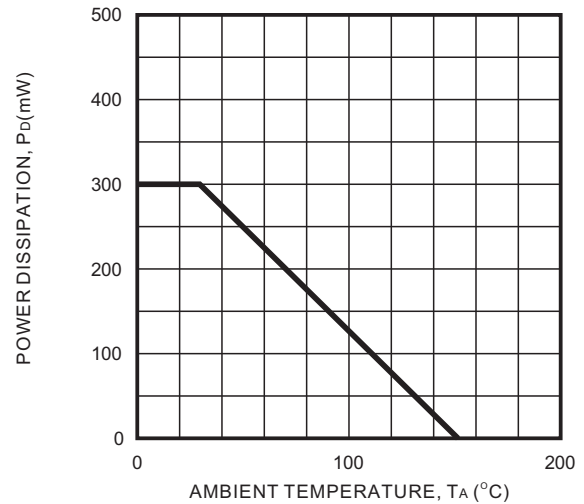


Fig.3 ZENER VOLTAGE CHARACTERISTICS

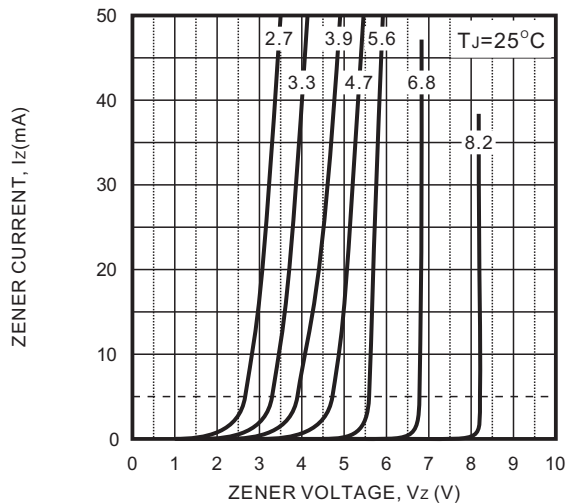


Fig.4 ZENER VOLTAGE CHARACTERISTICS

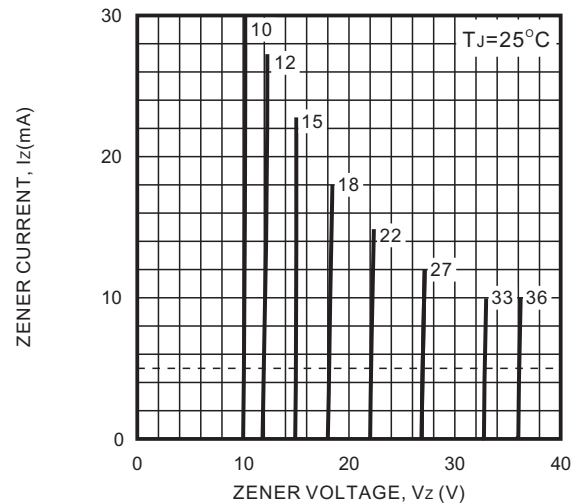
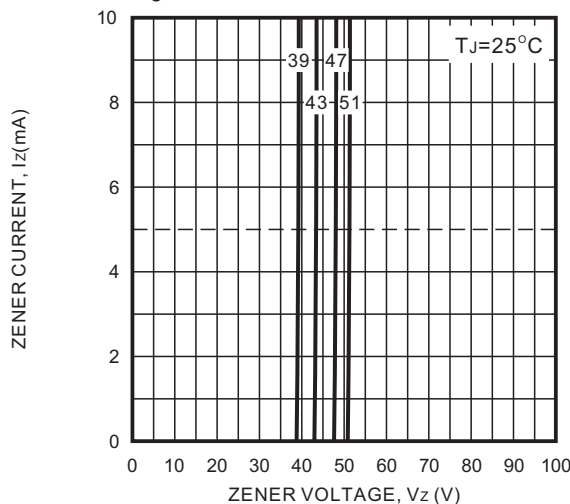
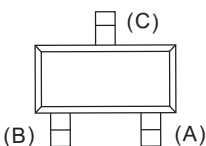
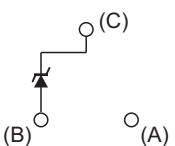
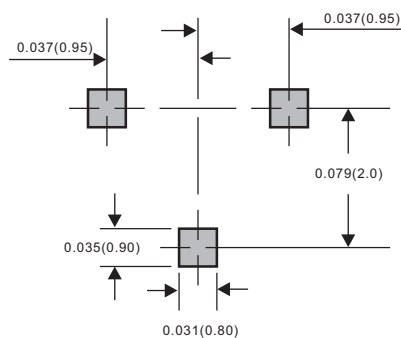


Fig.5 ZENER VOLTAGE CHARACTERISTICS

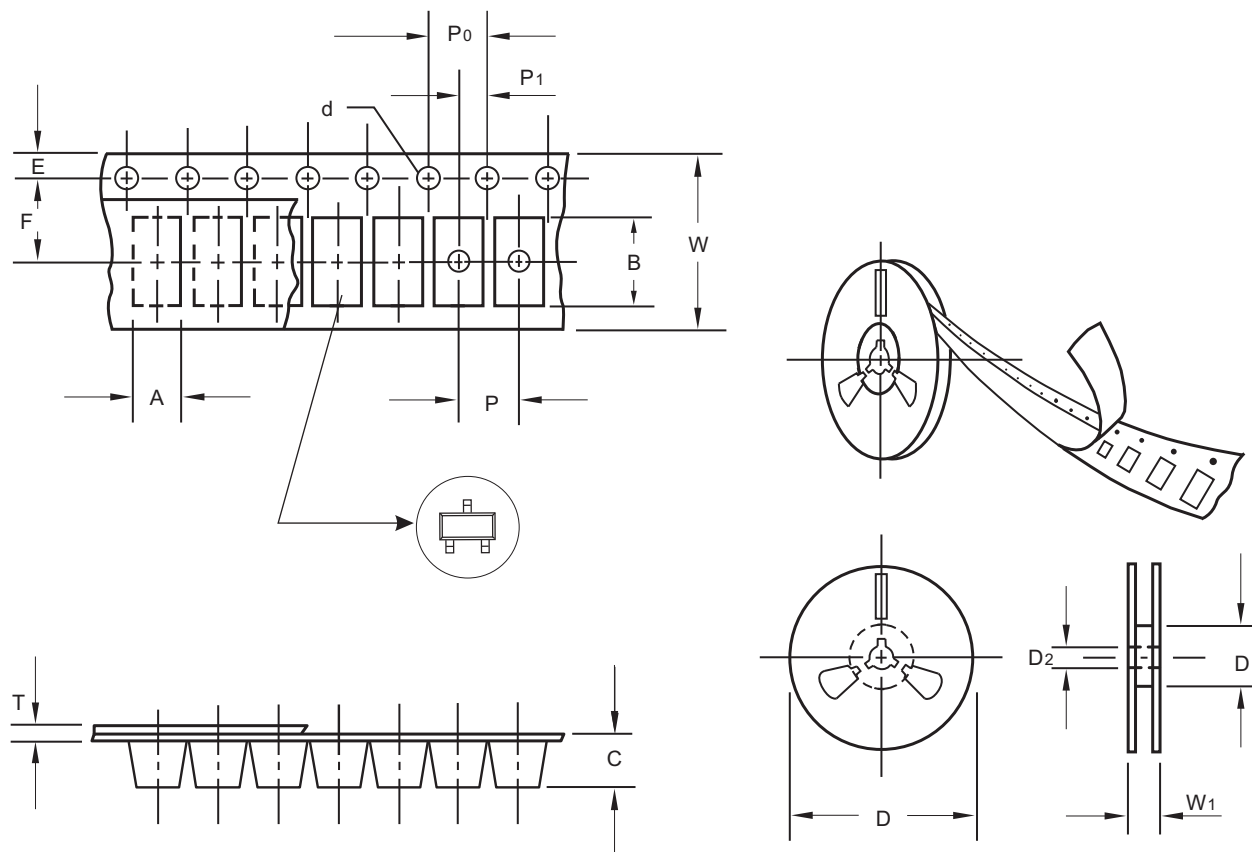


BZX84B2V4A-Q1 THRU BZX84B75A-Q1**Pinning information**

Pin	Simplified outline	Symbol
PinA no connection PinB anode PinC cathode		

Suggested solder pad layout**SOT-23**

Dimensions in inches and (millimeters)

BZX84B2V4A-Q1 THRU BZX84B75A-Q1**Packing information**

unit:mm

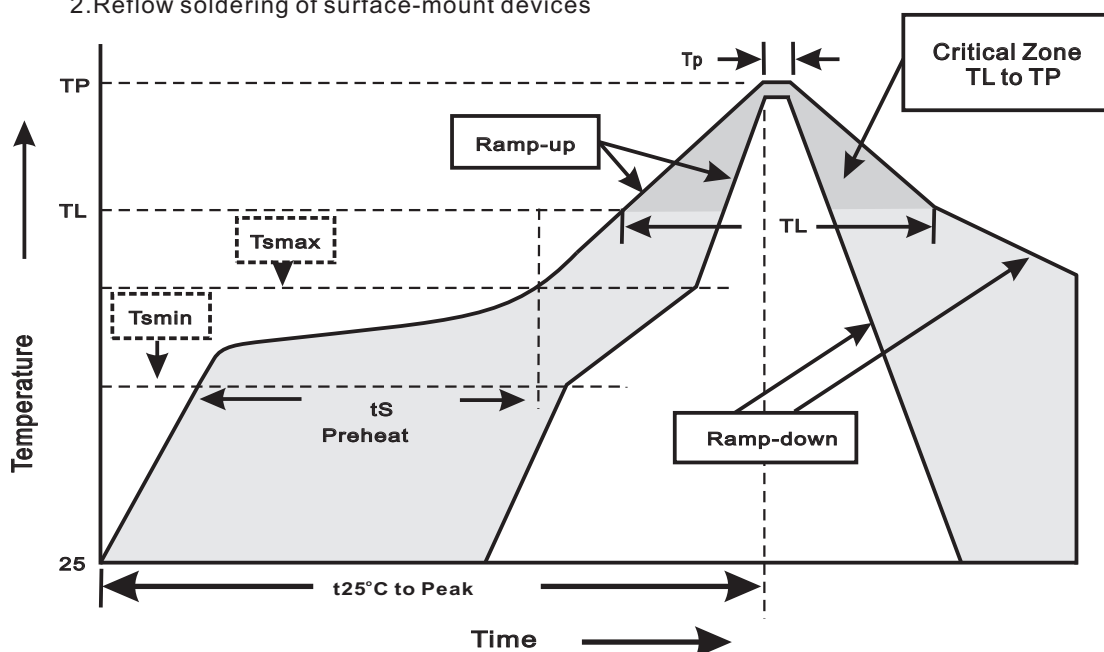
Item	Symbol	Tolerance	SOT-23
Carrier width	A	0.1	3.15
Carrier length	B	0.1	2.77
Carrier depth	C	0.1	1.22
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	62.00
Feed hole diameter	D2	0.5	13.00
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	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W1	1.0	11.40

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

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*183*123	178	382*262*387	240,000	11.6

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



Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	$<3^{\circ}\text{C}/\text{sec}$
Preheat -Temperature Min(T_{min}) -Temperature Max(T_{max}) -Time(min to max)(t_s)	150°C 200°C $60\sim 120\text{sec}$
T_{max} to T_L -Ramp-upRate	$<3^{\circ}\text{C}/\text{sec}$
Time maintained above: -Temperature(T_L) -Time(t_L)	217°C $60\sim 260\text{sec}$
Peak Temperature(T_P)	$255^{\circ}\text{C}-0/+5^{\circ}\text{C}$
Time within 5°C of actual Peak Temperature(t_P)	$10\sim 30\text{sec}$
Ramp-down Rate	$<6^{\circ}\text{C}/\text{sec}$
Time 25°C to Peak Temperature	$<6\text{minutes}$

BZX84B2V4A-Q1 THRU BZX84B75A-Q1**High reliability test capabilities**

Item Test	Conditions	Reference
1. MSL Preconditioning	24hr bake@125°C+168hrs@85°C /85%R.H. + 3xIR@260°C + 1flux immersion + alcohol + DI H ₂ O rinse	JESD22-A113
2. High Temperature Reverse Bias	V _z = V _z NOM * 80% (T _j = 150°C) Test Duration: 1000hrs	JESD22-A108
3. High Temperature Storage Life	T _a =125°C Test Duration: 1000hrs	JESD22A-103
4. Temperature Cycling	-55°C(15min) to 150°C (15min) Test Cycles: 1000cycles	JESD22A-104
5. Autoclave	P=2atm., T _a =121°C, R.H.=100% Test Duration: 96hrs	JESD22A-102
6. Solderability	245±5°C for 5 sec.	J-STD-002
7. Moisture Resistance	T _a =85°C/85% Relative humidity Test Duration: 1000hrs	MIL-STD-750E METHOD-1021.2
8. Resistance To Solder Heat	260±5°C for 10sec.	JESD22B-106
9. High Temperature High Humidity Reverse Bias	T _a =85°C,85%R.H.,with device reverse biased at 80% of rated breakdown voltage up to a maximum of 100V or limit of chamber Test Duration: 1000hrs	JESD22-A101