

BZT52B2V4S THRU BZT52B75S**List**

List.....	1
Package outline.....	2
Features.....	2
Mechanical data.....	2
Maximum ratings	2
Electrical characteristics.....	3
Rating and characteristic curves.....	4
Pinning information.....	5
Suggested solder pad layout.....	5
Packing information.....	6
Reel packing.....	7
Suggested thermal profiles for soldering processes.....	7
High reliability test capabilities.....	8

BZT52B2V4S THRU BZT52B75S

200mW Surface Mount
Zener Diodes 2.4V~75V

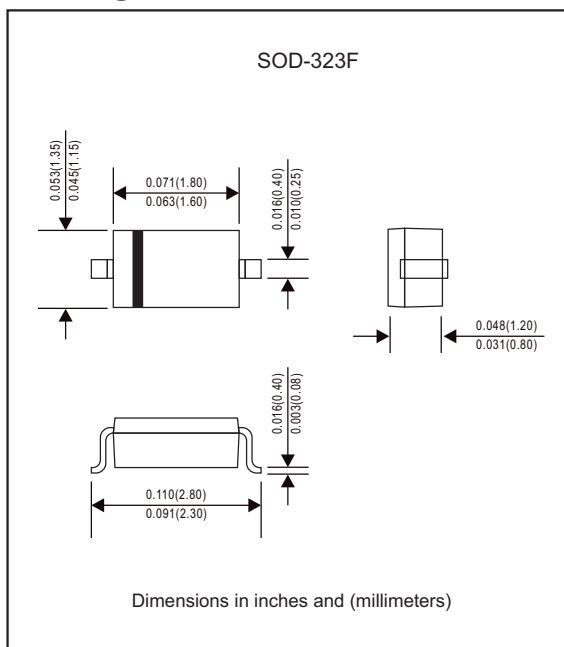
Features

- Wide zener voltage range selection, 2.4V to 75V
- 2% tolerance of zener voltage for suffix "B" ex: BZT52B2V4S
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen free parts, ex. BZT52B2V4S-H

Mechanical data

- Epoxy: UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-323F
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.004 gram

Package outline



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

Parameter	Symbol	Value	Unit
Forward voltage at $I_F=10\text{mA}$	V_F	0.9	V
Power dissipation at $T_A=25^{\circ}\text{C}$	P_D	200	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	625	$^{\circ}\text{C}/\text{W}$
Operating junction temperature range	T_J	-55 to +150	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

Note1: Valid provided that electrodes are kept at ambient temperature

BZT52B2V4S THRU BZT52B75S

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.(μA)	Volts
BZT52B2V4S	2WX	2.35	2.4	2.45	5	100	600	1.0	50	1.0
BZT52B2V7S	2W1	2.65	2.7	2.75	5	100	600	1.0	20	1.0
BZT52B3V0S	2W2	2.94	3.0	3.06	5	100	600	1.0	10	1.0
BZT52B3V3S	2W3	3.23	3.3	3.37	5	95	600	1.0	5	1.0
BZT52B3V6S	2W4	3.53	3.6	3.67	5	90	600	1.0	5	1.0
BZT52B3V9S	2W5	3.82	3.9	3.98	5	90	600	1.0	3	1.0
BZT52B4V3S	2W6	4.21	4.3	4.39	5	90	600	1.0	3	1.0
BZT52B4V7S	2W7	4.61	4.7	4.79	5	80	500	1.0	3	2.0
BZT52B5V1S	2W8	5.00	5.1	5.20	5	60	480	1.0	2	2.0
BZT52B5V6S	2W9	5.49	5.6	5.71	5	40	400	1.0	1	2.0
BZT52B6V2S	2WA	6.08	6.2	6.32	5	10	150	1.0	3	4.0
BZT52B6V8S	2WB	6.66	6.8	6.94	5	15	80	1.0	2	4.0
BZT52B7V5S	2WC	7.35	7.5	7.65	5	15	80	1.0	1	5.0
BZT52B8V2S	2WD	8.04	8.2	8.36	5	15	80	1.0	0.7	5.0
BZT52B9V1S	2WE	8.92	9.1	9.28	5	15	100	1.0	0.5	6.0
BZT52B10S	2WF	9.80	10	10.20	5	20	150	1.0	0.2	7.0
BZT52B11S	2WG	10.78	11	11.22	5	20	150	1.0	0.1	8.0
BZT52B12S	2WH	11.76	12	12.24	5	25	150	1.0	0.1	8.0
BZT52B13S	2WI	12.74	13	13.26	5	30	170	1.0	0.1	8.0
BZT52B15S	2WJ	14.70	15	15.30	5	30	200	1.0	0.1	10.5
BZT52B16S	2WK	15.68	16	16.32	5	40	200	1.0	0.1	11.2
BZT52B18S	2WL	17.64	18	18.36	5	45	225	1.0	0.1	12.6
BZT52B20S	2WM	19.60	20	20.40	5	55	225	1.0	0.1	14.0
BZT52B22S	2WN	21.56	22	22.44	5	55	250	1.0	0.1	15.4
BZT52B24S	2WO	23.52	24	24.48	5	70	250	1.0	0.1	16.8
BZT52B27S	2WP	26.46	27	27.54	2	80	300	0.5	0.1	18.9
BZT52B30S	2WQ	29.40	30	30.60	2	80	300	0.5	0.1	21.0
BZT52B33S	2WR	32.34	33	33.66	2	80	325	0.5	0.1	23.1
BZT52B36S	2WS	35.28	36	36.72	2	90	350	0.5	0.1	25.2
BZT52B39S	2WT	38.22	39	39.78	2	130	350	0.5	0.1	27.3
BZT52B43S	2WU	41.16	43	43.86	2	150	353	0.5	0.1	30.1
BZT52B47S	2WV	46.06	47	47.94	2	170	353	0.5	0.1	33.0
BZT52B51S	2X1	49.98	51	52.02	2	180	376	0.5	0.1	35.7
BZT52B56S	2X2	54.88	56	57.12	2	200	400	0.5	0.1	39.2
BZT52B62S	2X3	60.76	62	63.24	2	215	423	0.5	0.1	43.4
BZT52B68S	2X4	66.64	68	69.36	2	240	447	0.5	0.1	47.6
BZT52B75S	2X5	73.05	75	76.50	2	255	470	0.5	0.1	52.5

Notes 1: The Zener Voltage (V_Z) is tested under pulse condition of 10ms2: The device numbers listed have a standard tolerance on the nominal zener voltage of $\pm 2\%$ 3: The zener impedance is derived from the 60-cycle ac voltage, which results when an ac current having an rms value equal to 10% of the dc zener current (I_{ZT} or I_{ZK}) is superimposed to I_{ZT} or I_{ZK}

Rating and characteristic curves (BZT52B2V4S Thru BZT52B75S)

FIG. 1 POWER DISSIPATION VS. AMBIENT TEMP.

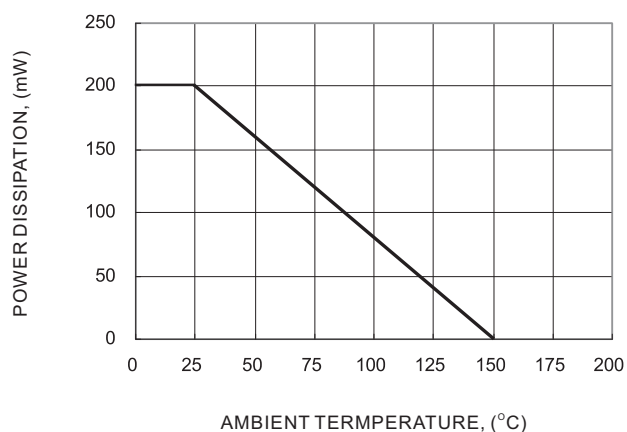


FIG. 2 TEMPERATURE COEFFICIENTS

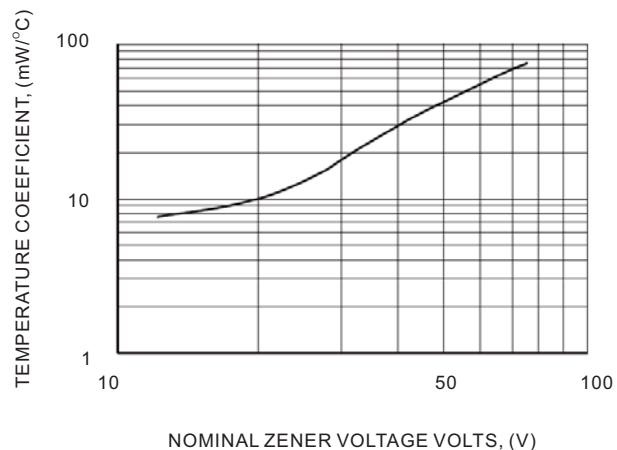


FIG. 3 TYPICAL FORWARD VOLTAGE

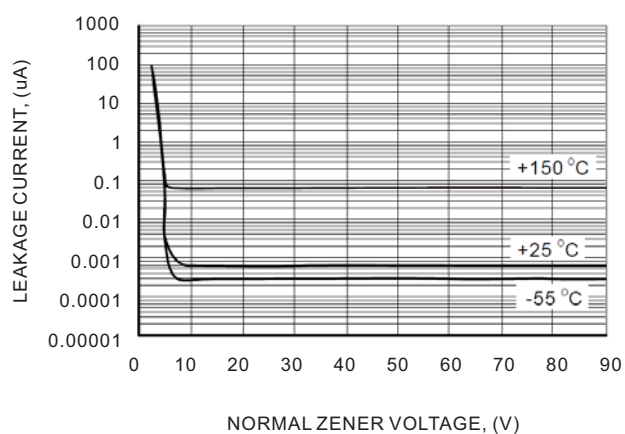
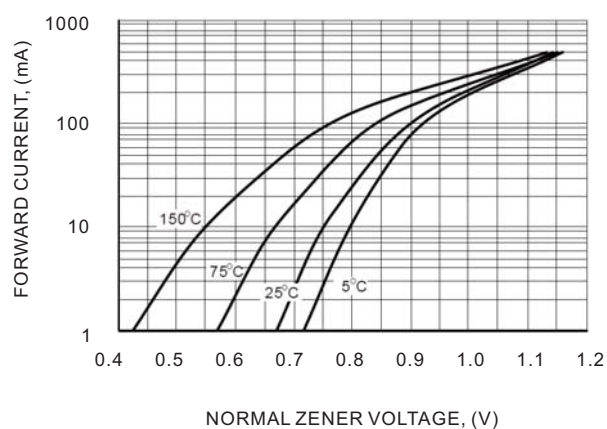


FIG. 4 TYPICAL FORWARD VOLTAGE

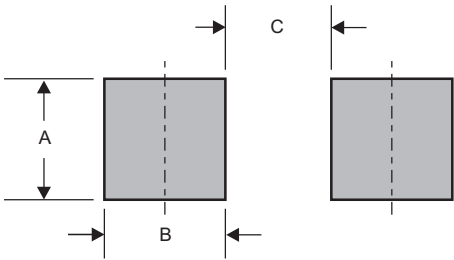


BZT52B2V4S THRU BZT52B75S

Pinning information

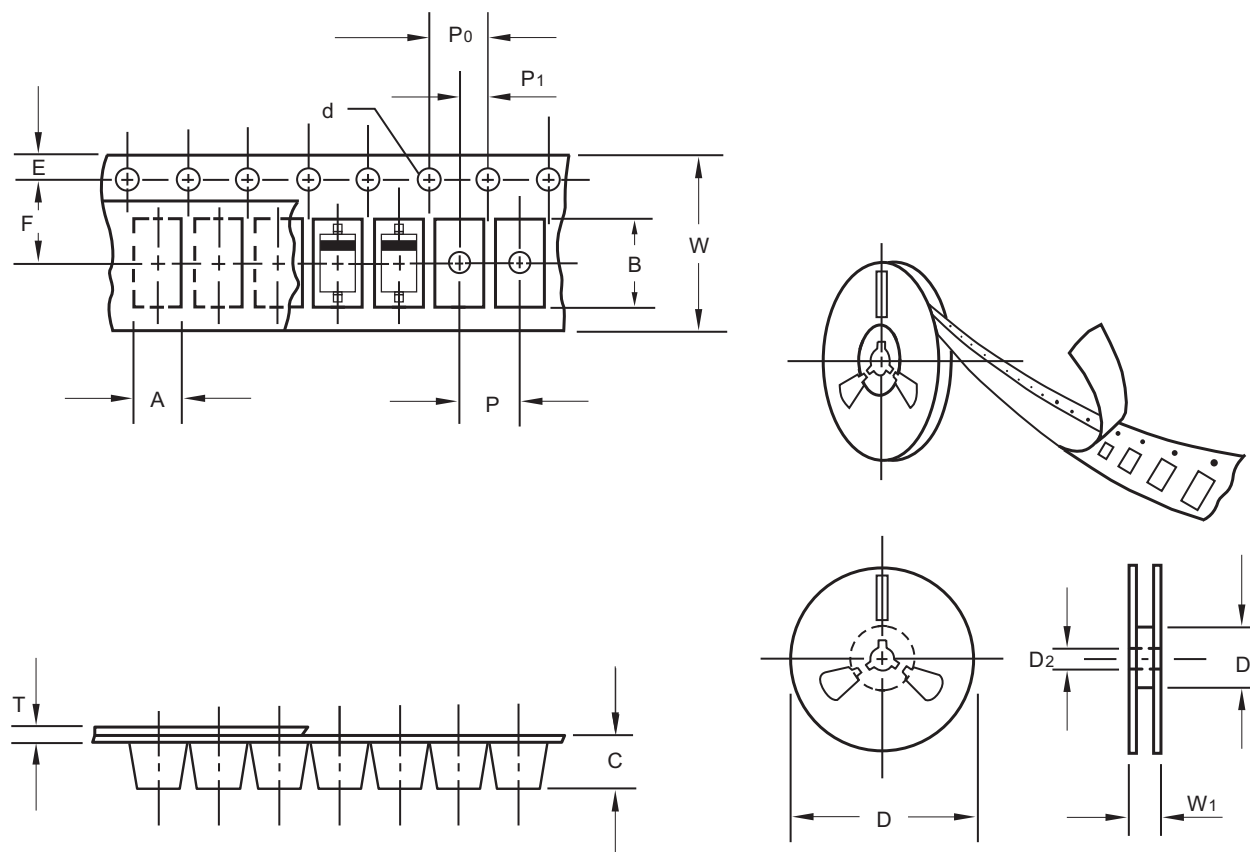
Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-323F	0.033 (0.83)	0.025 (0.63)	0.063 (1.60)

BZT52B2V4S THRU BZT52B75S**Packing information**

unit:mm

Item	Symbol	Tolerance	SOD-323F
Carrier width	A	0.1	1.46
Carrier length	B	0.1	2.95
Carrier depth	C	0.1	1.25
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.

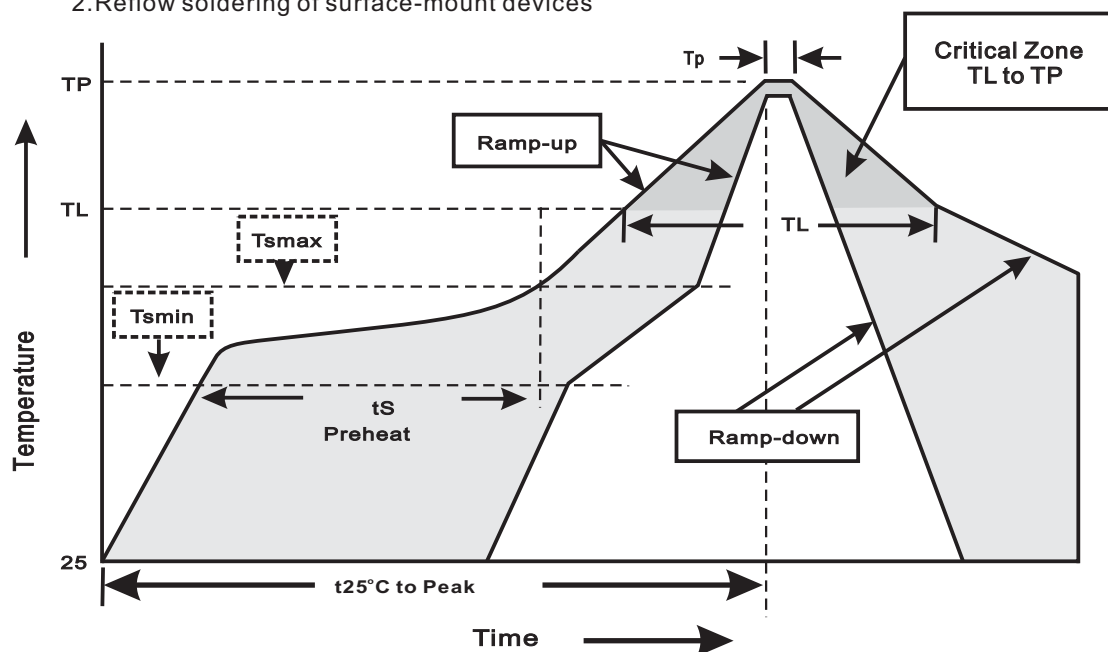
BZT52B2V4S THRU BZT52B75S

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)
SOD-323F	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000	8.0

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 _{smmin}) -Temperature Max(T _{smmax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smmax} 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

BZT52B2V4S THRU BZT52B75S**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