

BZX84C2V4W-Q1 THRU BZX84C39W-Q1**List**

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BZX84C2V4W-Q1 THRU BZX84C39W-Q1

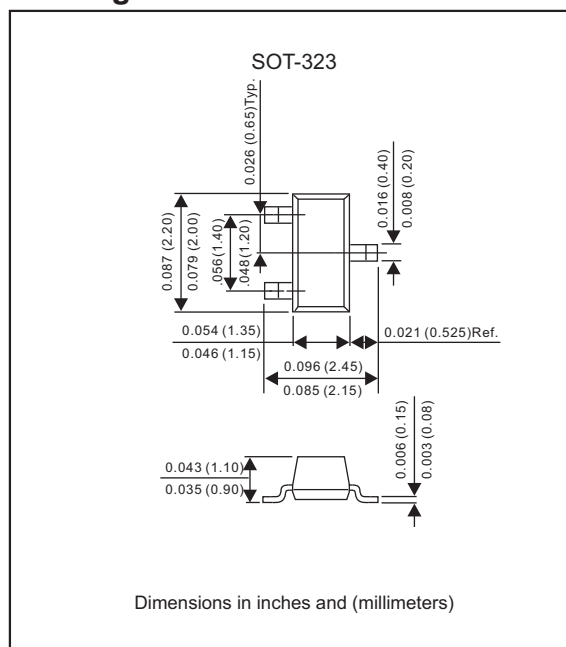
**200mW Surface Mount
Zener Diodes : 2.4V-39V**

Features

- Planar die construction.
- 200mW power dissipation.
- Zener voltages from 2.4V ~ 39V
- Ultra-small surface mount package power dissipation,
- Lead free parts meet RoHS requirements.
- Qualified to AEC-Q101 standards for high reliability.
- Suffix "-H" indicates Halogen-free part, ex. BZX84C2V4W-Q1-H

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-323
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.006 gram

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

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 10 \text{ mA}$	V_F			0.9	V
Power dissipation	$T_A=25^\circ\text{C}$ (note 1)	P_D			200	mW
Thermal resistance	Junction to ambient	$R_{\theta JA}$		625		$^\circ\text{C/W}$
Operating junction temperature range		T_J	-55		+150	$^\circ\text{C}$
Storage temperature range		T_{STG}	-55		+150	$^\circ\text{C}$

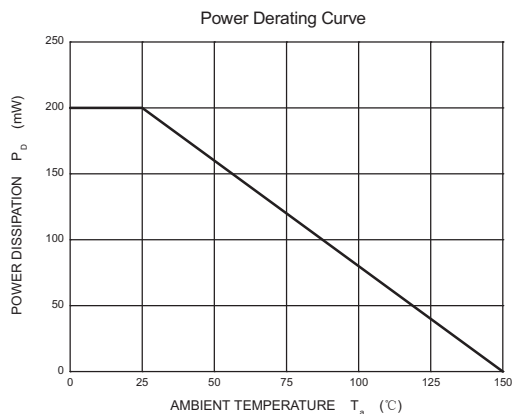
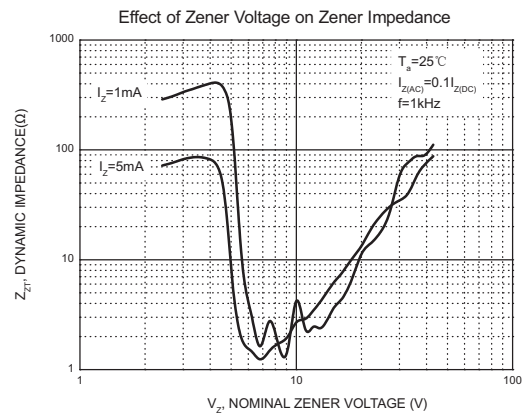
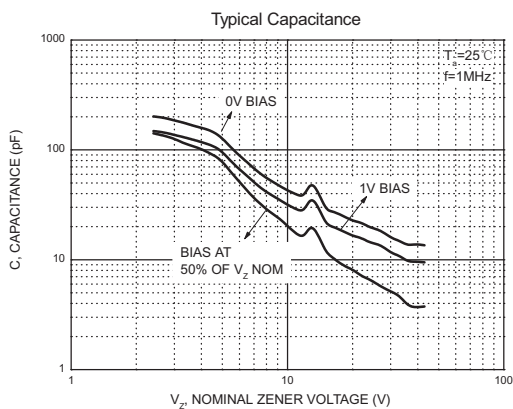
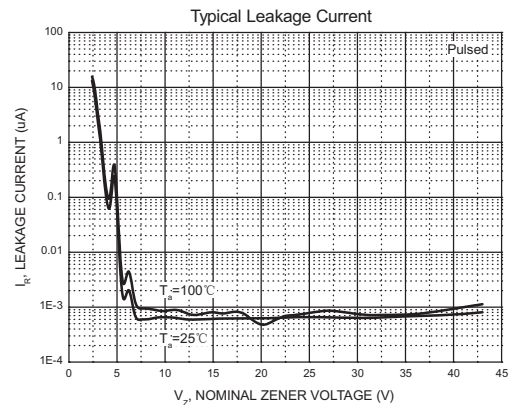
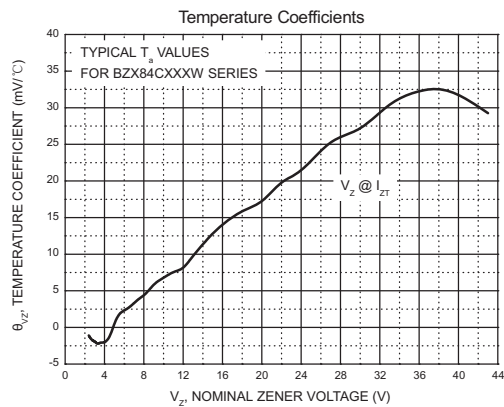
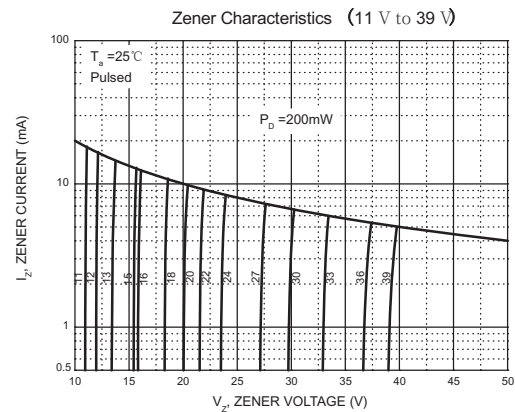
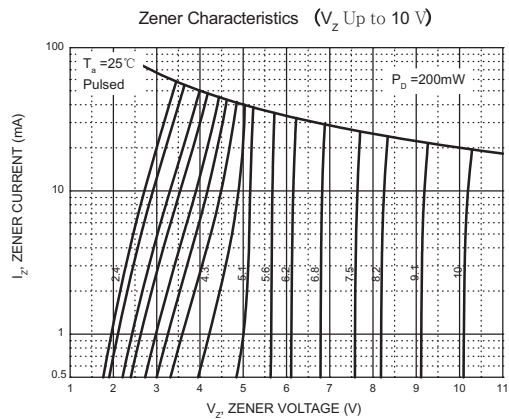
Note 1: Valid provided that device terminals are kept at ambient temperature.

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

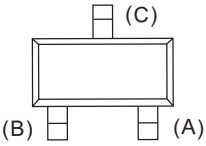
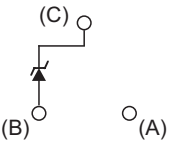
Part No.	Marking code	Zener voltage (note 1)			Zener impedance (note 2)				Leakage current		Temperature coefficient of Zener voltage $I_{ZT} = 5\text{mA}$ (mV/ $^{\circ}\text{C}$)	
		$V_Z @ I_{ZT}$ (Volts)			I_{ZT}	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	I_{ZK}	I_R	V_R		
		Min.	Nom.	Max.	mA	Max(Ω)	Max(Ω)	mA	Max(μA)	Volts	Min	Max
BZX84C2V4W-Q1	KRB,EA	2.2	2.4	2.6	5.0	100	600	1	50	1.0	-3.5	0
BZX84C2V7W-Q1	KRC,EB	2.5	2.7	2.9	5.0	100	600	1	20	1.0	-3.5	0
BZX84C3V0W-Q1	KRD,EC	2.8	3.0	3.2	5.0	95	600	1	20	1.0	-3.5	0
BZX84C3V3W-Q1	KRE,ED	3.1	3.3	3.5	5.0	95	600	1	5	1.0	-3.5	0
BZX84C3V6W-Q1	KRF,EE	3.4	3.6	3.8	5.0	90	600	1	5	1.0	-3.5	0
BZX84C3V9W-Q1	KRG,EF	3.7	3.9	4.1	5.0	90	600	1	3	1.0	-3.5	0
BZX84C4V3W-Q1	KRH,EH	4.0	4.3	4.6	5.0	90	600	1	3	1.0	-3.5	0
BZX84C4V7W-Q1	KR1,EJ	4.4	4.7	5.0	5.0	80	600	1	3	2.0	-3.5	0.2
BZX84C5V1W-Q1	KR2,EK	4.8	5.1	5.4	5.0	60	500	1	2	2.0	-2.7	1.2
BZX84C5V6W-Q1	KR3,EM	5.2	5.6	6.0	5.0	40	480	1	1	2.0	-2.0	2.5
BZX84C6V2W-Q1	KR4,EN	5.8	6.2	6.6	5.0	10	400	1	3	4.0	0.4	3.7
BZX84C6V8W-Q1	KR5,EP	6.4	6.8	7.2	5.0	15	150	1	2	4.0	1.2	4.5
BZX84C7V5W-Q1	KR6,ER	7.0	7.5	7.9	5.0	15	80	1	1	5.0	2.5	5.3
BZX84C8V2W-Q1	KR7,EX	7.7	8.2	8.7	5.0	15	80	1	0.7	5.0	3.2	6.2
BZX84C9V1W-Q1	KR8,EY	8.5	9.1	9.6	5.0	15	80	1	0.5	6.0	3.8	7.0
BZX84C10W-Q1	KR9,EZ	9.4	10	10.6	5.0	20	100	1	0.2	7.0	4.5	8.0
BZX84C11W-Q1	KP1,FA	10.4	11	11.6	5.0	20	150	1	0.1	8.0	5.4	9.0
BZX84C12W-Q1	KP2,FB	11.4	12	12.7	5.0	25	150	1	0.1	8.0	6.0	10.0
BZX84C13W-Q1	KP3,FC	12.4	13	14.1	5.0	30	150	1	0.1	8.0	7.0	11.0
BZX84C15W-Q1	KP4,FD	13.8	15	15.6	5.0	30	170	1	0.1	10.5	9.2	13.0
BZX84C16W-Q1	KP5,FE	15.3	16	17.1	5.0	40	200	1	0.1	11.2	10.4	14.0
BZX84C18W-Q1	KP6,FF	16.8	18	19.1	5.0	45	200	1	0.1	12.6	12.4	16.0
BZX84C20W-Q1	KP7,FH	18.8	20	21.2	5.0	55	225	1	0.1	14.0	14.4	18.0
BZX84C22W-Q1	KP8,FJ	20.8	22	23.3	5.0	55	225	1	0.1	15.4	16.4	20.0
BZX84C24W-Q1	KP9,FK	22.8	24	25.6	5.0	70	250	1	0.1	16.8	18.4	22.0
BZX84C27W-Q1	KPA,FM	25.1	27	28.9	2.0	80	250	0.5	0.1	18.9	21.4	25.3
BZX84C30W-Q1	KPB,FN	28.0	30	32.0	2.0	80	300	0.5	0.1	21.0	24.4	29.4
BZX84C33W-Q1	KPC,FP	31.0	33	35.0	2.0	80	300	0.5	0.1	23.1	27.4	33.4
BZX84C36W-Q1	KPD,FR	34.0	36	38.0	2.0	90	325	0.5	0.1	25.2	30.4	37.4
BZX84C39W-Q1	KPE,FX	37.0	39	41.0	2.0	130	350	0.5	0.1	27.3	33.4	41.2

Notes 1: Tested with pulses, 300 μs pulse width, 2% duty cycle.
2: $f = 1\text{kHz}$.

Rating and characteristic curves (BZX84C2V4W-Q1 THRU BZX84C39W-Q1)

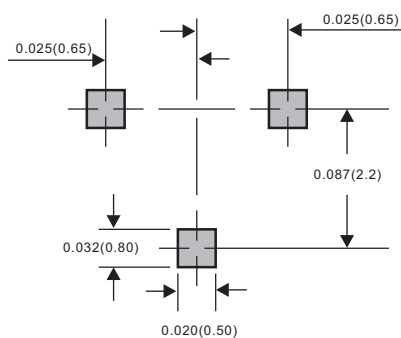


BZX84C2V4W-Q1 THRU BZX84C39W-Q1**Pinning information**

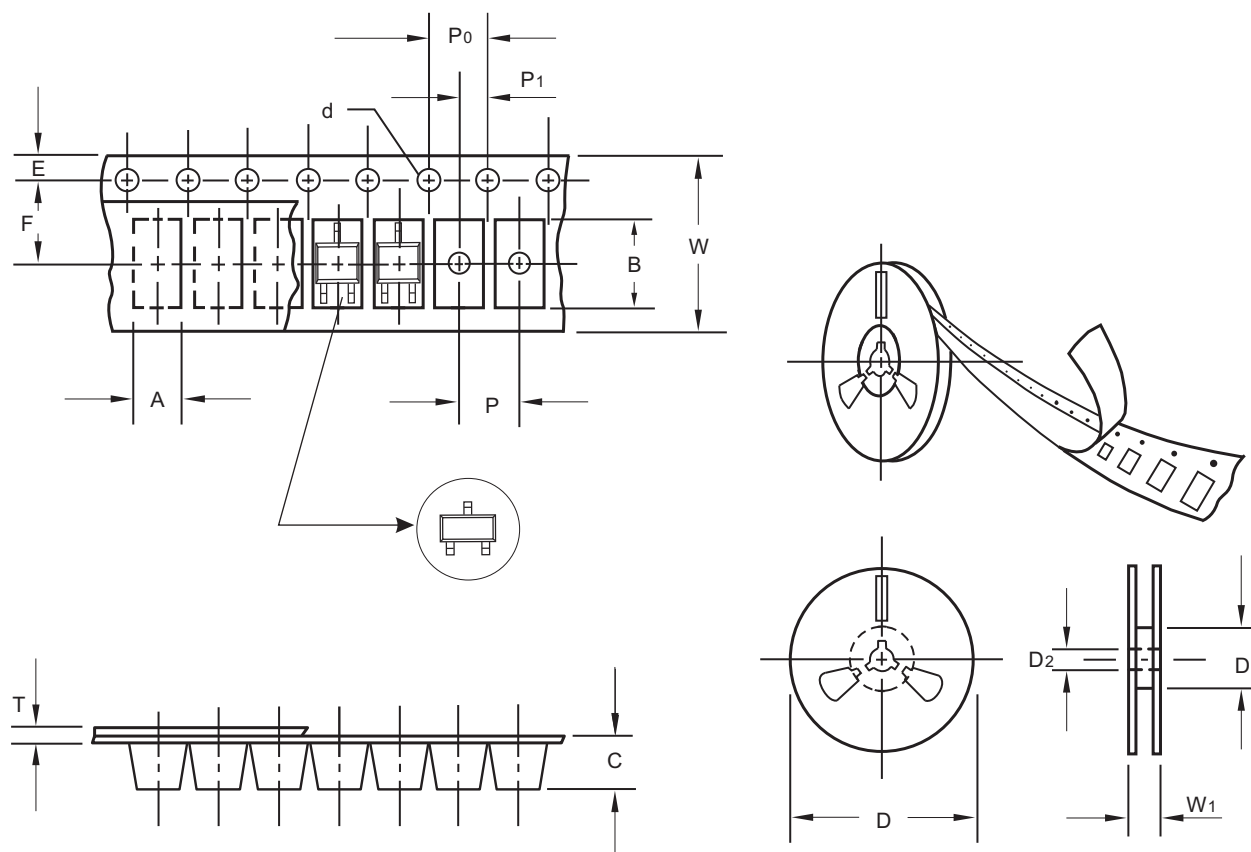
Pin	Simplified outline	Symbol
PinA no connection PinB anode PinC cathode		

Suggested solder pad layout

SOT-323



Dimensions in inches and (millimeters)

BZX84C2V4W-Q1 THRU BZX84C39W-Q1**Packing information**

unit:mm

Item	Symbol	Tolerance	SOT-323
Carrier width	A	0.1	2.25
Carrier length	B	0.1	2.55
Carrier depth	C	0.1	1.19
Sprocket hole	d	0.1	1.55
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	54.40
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	12.30

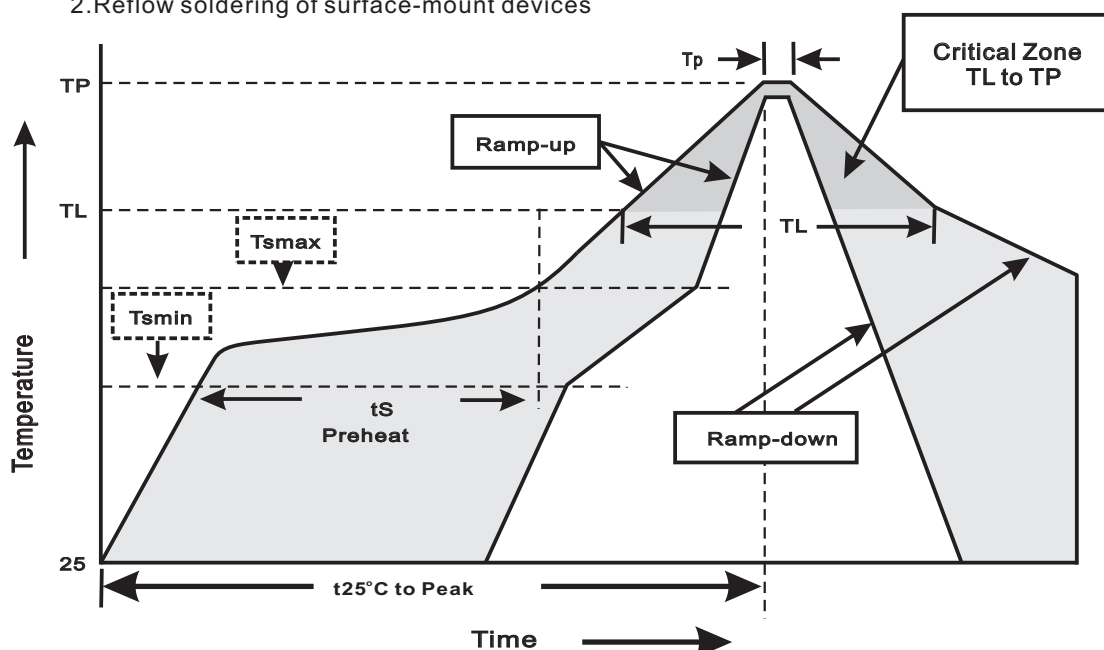
Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

BZX84C2V4W-Q1 THRU BZX84C39W-Q1**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-323	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000	9.5

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

BZX84C2V4W-Q1 THRU BZX84C39W-Q1**High reliability test capabilities**

Item Test	Conditions	Reference
1. MSL Preconditioning	24hr bake@125°C+168hrs@85°C /85%RH+3xIR@260°C+1flux immersion+alcohol+DI H2O rinse	JESD22-A113
2. High Temperature Reverse Bias	Vz=Vz Nom*80% (Tj=150°C)Test Duration:1000hrs	JESD22-A108
3. High Temperature Storage Life	Ta=125°C Test Duration: 1000hrs	JESD22 A-103
4. Temperature Cycle	-55°C (15min) to 150°C (15min)Test Cycles: 1000cycles	JESD22 A-104
5. Autoclave	P=2atm Ta=121°C RH=100% Test Duration:96hrs	JESD22 A-102
6. Solderability	245±5°C for 5sec	J-STD-002
7. Moisture Resistance	Ta=85°C/85% Relative humidity Test Duration:1000hrs	MIL-STD-750E METHOD 1021.2
8. Resistance To Solder Heat	260±5°C for 10sec	JESD22 B-106
9. High Temperature High Humidity Reverse Bias	Ta=85°C, 85%RH, 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