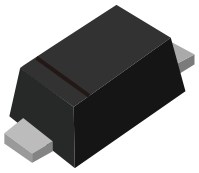
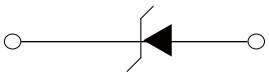
FEATURES

- SOD-523 Package
- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1
- Meet AEC-Q101 Requirements



SOD-523



Schematic Symbol

APPLICATION

- Linear voltage regulator
- DC regulator
- Small-signal surge protection

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS (T_A=25°C)

Parameter	Symbol	Value	Unit
Power Dissipation(Note 1)	P_D	200	mW
Maximum forward voltage at I_F=10mA(Note 2)	V_F	0.9	V
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	625	°C/W
Storage temperature range	T_{STG}	-65 to +150	°C

1)Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm².
2)Short duration test pulse used to minimize self-heating effect

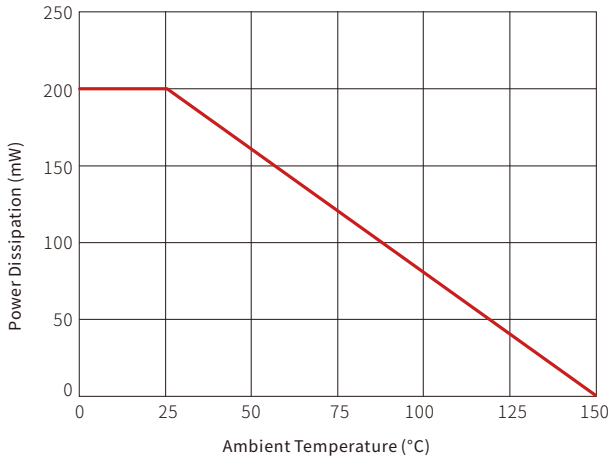
ELECTRICAL CHARACTERISTICS

Part Number	Device Marking Code	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Typical Temperature coefficent @IZTC=mV/°C		Test Current IZTC
		V_Z@I_{ZT}			I_{ZT}(mA)	Z_{ZT}@I_{ZT}	Z_{ZK}@I_{ZK}	I_{ZK}(mA)	I_R	V_R			
		Nom.(V)	Min.(V)	Max.(V)	mA	Ω	Ω	mA	uA	V	Min.	Max.	mA
BZT52C2V0CTQ	WY	2.0	1.80	2.15	5	150	600	1.0	100	1.0	-3.5	0	5
BZT52C2V4CTQ	WX	2.4	2.2	2.6	5	100	600	1.0	50	1.0	-3.5	0	5
BZT52C2V7CTQ	W1	2.7	2.5	2.9	5	100	600	1.0	20	1.0	-3.5	0	5
BZT52C3V0CTQ	W2	3.0	2.8	3.2	5	95	600	1.0	10	1.0	-3.5	0	5
BZT52C3V3CTQ	W3	3.3	3.1	3.5	5	95	600	1.0	5	1.0	-3.5	0	5
BZT52C3V6CTQ	W4	3.6	3.4	3.8	5	90	600	1.0	5	1.0	-3.5	0	5
BZT52C3V9CTQ	W5	3.9	3.7	4.1	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52C4V3CTQ	W6	4.3	4.0	4.6	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52C4V7CTQ	W7	4.7	4.4	5.0	5	80	500	1.0	3	2.0	-3.5	0.2	5
BZT52C5V1CTQ	W8	5.1	4.8	5.4	5	60	480	1.0	2	2.0	-2.7	1.2	5
BZT52C5V6CTQ	W9	5.6	5.2	6.0	5	40	400	1.0	1	2.0	-2.0	2.5	5
BZT52C6V2CTQ	WA	6.2	5.8	6.6	5	10	150	1.0	3	4.0	0.4	3.7	5
BZT52C6V8CTQ	WB	6.8	6.4	7.2	5	15	80	1.0	2	4.0	1.2	4.5	5
BZT52C7V5CTQ	WC	7.5	7.0	7.9	5	15	80	1.0	1	5.0	2.5	5.3	5
BZT52C8V2CTQ	WD	8.2	7.7	8.7	5	15	80	1.0	0.7	5.0	3.2	6.2	5
BZT52C9V1CTQ	WE	9.1	8.5	9.6	5	15	100	1.0	0.5	6.0	3.8	7.0	5
BZT52C10CTQ	WF	10	9.4	10.6	5	20	150	1.0	0.2	7.0	4.5	8.0	5
BZT52C11CTQ	WG	11	10.4	11.6	5	20	150	1.0	0.1	8.0	5.4	9.0	5
BZT52C12CTQ	WH	12	11.4	12.7	5	25	150	1.0	0.1	8.0	6.0	10.0	5
BZT52C13CTQ	WI	13	12.4	14.1	5	30	170	1.0	0.1	8.0	7.0	11.0	5
BZT52C15CTQ	WJ	15	13.8	15.6	5	30	200	1.0	0.1	10.5	9.2	13.0	5
BZT52C16CTQ	WK	16	15.3	17.1	5	40	200	1.0	0.1	11.2	10.4	14.0	5
BZT52C18CTQ	WL	18	16.8	19.1	5	45	225	1.0	0.1	12.6	12.4	16.0	5
BZT52C20CTQ	WM	20	18.8	21.2	5	55	225	1.0	0.1	14.0	14.4	18.0	5
BZT52C22CTQ	WN	22	20.8	23.3	5	55	250	1.0	0.1	15.4	16.4	20.0	5
BZT52C24CTQ	WO	24	22.8	25.6	5	70	250	1.0	0.1	16.8	18.4	22.0	5
BZT52C27CTQ	WP	27	25.1	28.9	2	80	300	0.5	0.1	18.9	21.4	25.3	2
BZT52C30CTQ	WQ	30	28.0	32.0	2	80	300	0.5	0.1	21.0	24.4	29.4	2
BZT52C33CTQ	WR	33	31.0	35.0	2	80	325	0.5	0.1	23.1	27.4	33.4	2
BZT52C36CTQ	WS	36	34.0	38.0	2	90	350	0.5	0.1	25.2	30.4	37.4	2
BZT52C39CTQ	WT	39	37.0	41.0	2	130	350	0.5	0.1	27.3	33.4	41.2	2

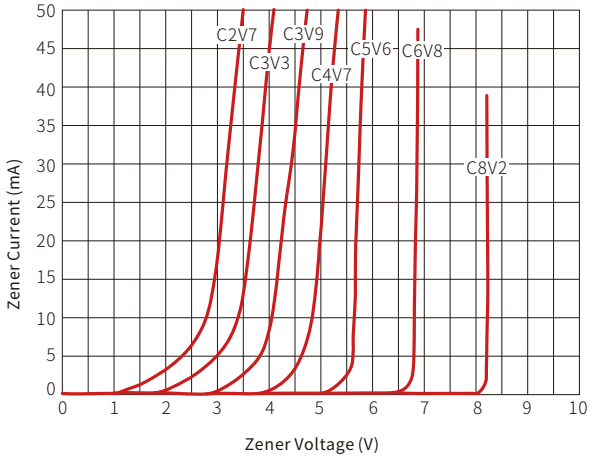
Part Number	Device Marking Code	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Typical Temperature coefficent @IZTC=mV/°C		Test Current IZTC
		V_Z@I_{ZT}			I_{ZT}(mA)	Z_{ZT}@I_{ZT}	Z_{ZK}@I_{ZK}	I_{ZK}(mA)	I_R	V_R			
		Nom.(V)	Min.(V)	Max.(V)	mA	Ω	Ω	mA	uA	V	Min.	Max.	mA
BZT52C43CTQ	WU	43	40.0	46.0	2	100	700	1.0	0.1	32.0	10.0	12.0	2
BZT52C47CTQ	WV	47	44.0	50.0	2	100	750	1.0	0.1	35.0	10.0	12.0	2
BZT52C51CTQ	WW	51	48.0	54.0	2	125	750	1.0	0.1	38.0	10.0	12.0	2
BZT52C56CTQ	XW	56	52.0	60.0	2	135	700	1.0	0.1	39.0	10.0	12.0	2
BZT52C62CTQ	6E	62	58.0	66.0	2	200	1000	1.0	0.2	47.0	10.0	12.0	2
BZT52C68CTQ	6F	68	64.0	72.0	2	250	1000	1.0	0.2	52.0	10.0	12.0	2
BZT52C75CTQ	6H	75	70.0	79.0	2	300	1000	1.0	0.2	57.0	10.0	12.0	2

CHARACTERISTIC CURVES

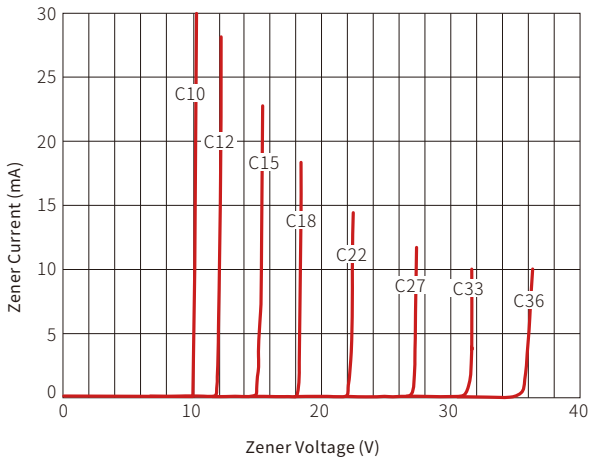
Power Derating Curve



Typical Zener Breakdown Characteristics

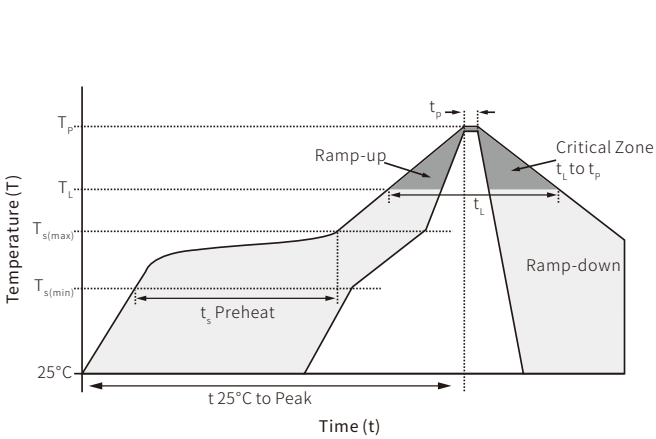


Typical Zener Breakdown Characteristics

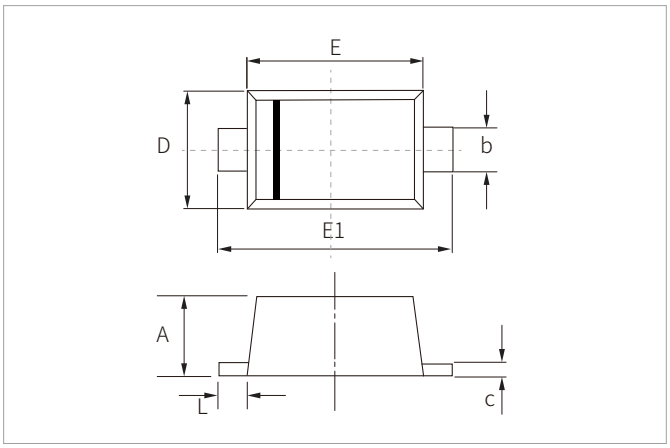


SOLDERING PARAMETERS

Reflow Condition		Lead–free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes max.
Do not exceed		260°C

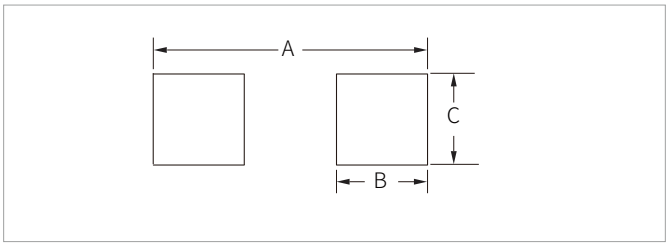


SOD-523 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.50	0.80	0.020	0.031
b	0.25	0.35	0.010	0.014
c	0.07	0.20	0.003	0.008
D	0.70	0.90	0.028	0.035
E	1.10	1.30	0.043	0.051
E1	1.50	1.70	0.059	0.067
L	0.15	0.25	0.006	0.010

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
	Min.	Min.
A	2.00	0.0787
B	0.60	0.0236
C	0.70	0.0276

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
BZT52CxxCTQ	SOD-523	8000PCS	7”

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