

200mW 2% Zener Diodes

FEATURES

- Wide zener voltage range selection: 2.7V to 75V
- VZ Tolerance Selection of $\pm 2\%$
- Surface device type mountin
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

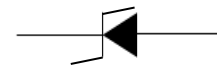
APPLICATIONS

- Constant Voltage control

MECHANICAL DATA

- Case: SOD-523F
- Molding compound: UL flammability classification rating 94V-0
- Moisture sensitivity level: level 1, per J-STD-020
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight: 1.68 mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
V_Z	2.2-75	V
Test current I_{ZT}	5	mA
P_{tot}	200	mW
T_J Max.	150	$^{\circ}\text{C}$
Package	SOD-523F	
Configuration	Single dice	



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	PART NUMBER	UNIT
Total power dissipation	P_{tot}	200	mW
Junction temperature range	T_J	-65 ~ 150	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-65 ~ 150	$^{\circ}\text{C}$

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	625	$^{\circ}\text{C/W}$

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PART NUMBER	MARKING CODE	ZENER VOLTAGE			TEST CURRENT	REGULAR IMPEDANCE		TEST CURRENT	LEAKAGE CURRENT	
		$V_Z @ I_{ZT}$			I_{ZT}	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	I_{ZK}	$I_R @ V_R$	
		V			mA	Ω	Ω	mA	μA	V
		Min.	Nom.	Max.		Max.	Max.		Max.	
BZT52C2V7K	A8	2.5	2.7	2.9	5	100	1000	1	120	1
BZT52C3V0K	B8	2.8	3	3.2	5	100	1000	1	50	1
BZT52C3V3K	C8	3.1	3.3	3.5	5	95	1000	1	20	1
BZT52C3V6K	D8	3.4	3.6	3.8	5	90	1000	1	10	1
BZT52C3V9K	E8	3.7	3.9	4.1	5	90	1000	1	5	1
BZT52C4V3K	F8	4	4.3	4.6	5	90	1000	1	5	1
BZT52C4V7K	G8	4.4	4.7	5	5	80	800	1	2	1
BZT52C5V1K	H8	4.8	5.1	5.4	5	60	500	1	2	1.5
BZT52C5V6K	I8	5.2	5.6	6	5	40	200	1	1	2.5
BZT52C6V2K	J8	5.8	6.2	6.6	5	10	100	1	1	3
BZT52C6V8K	K8	6.4	6.8	7.2	5	15	160	1	0.5	3.5
BZT52C7V5K	L8	7	7.5	7.9	5	15	160	1	0.5	4
BZT52C8V2K	M8	7.7	8.2	8.7	5	15	160	1	0.5	5
BZT52C9V1K	N8	8.5	9.1	9.6	5	15	160	1	0.5	6
BZT52C10K	O8	9.4	10	10.6	5	20	160	1	0.1	7
BZT52C11K	P8	10.4	11	11.6	5	20	160	1	0.1	8
BZT52C12K	Q8	11.4	12	12.7	5	25	80	1	0.1	9
BZT52C13K	R8	12.4	13	14.1	5	30	80	1	0.1	10
BZT52C15K	S8	14.3	15	15.8	5	30	80	1	0.1	11
BZT52C16K	T8	15.3	16	17.1	5	40	80	1	0.1	12
BZT52C18K	U8	16.8	18	19.1	5	45	80	1	0.1	13
BZT52C20K	V8	18.8	20	21.2	5	55	100	1	0.1	15
BZT52C22K	W8	20.8	22	23.3	5	55	100	1	0.1	17
BZT52C24K	X8	22.8	24	25.6	5	70	120	1	0.1	19
BZT52C27K	Y8	25.1	27	28.9	5	80	300	1	0.1	21
BZT52C30K	Z8	28	30	32	5	80	300	1	0.1	23
BZT52C33K	A9	31	33	35	5	80	300	1	0.1	25
BZT52C36K	B9	34	36	38	5	90	500	1	0.1	27
BZT52C39K	C9	37	39	41	5	130	500	1	2	30
BZT52C43K	D9	40	43	46	5	150	500	1	2	33
BZT52C47K	E9	44	47	50	5	170	500	1	2	36
BZT52C51K	F9	48	51	54	5	180	500	1	1	39
BZT52C56K	G9	52	56	60	5	200	500	1	1	43
BZT52C62K	H9	58	62	66	5	215	500	1	0.2	47
BZT52C68K	I9	64	68	72	5	240	500	1	0.2	52
BZT52C75K	J9	70	75	79	5	255	500	1	0.2	57

Notes:

1. The Zener Voltage (VZ) is tested under pulse condition of 20ms
2. The device numbers listed have a standard tolerance on the nominal zener voltage of $\pm 2\%$
3. For detailed information on price, availability and delivery of nominal zener voltages between the voltages shown and tighter voltage tolerances, contact your nearest Taiwan Semiconductor representative
4. 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}

ORDERING INFORMATION				
PART NO.	PACKING CODE	PACKING CODE SUFFIX(*)	PACKAGE	PACKING
BZT52CxxxK (Note1)	RK	G	SOD-523F	3K / 7" Reel
	RS			8K / 7" Reel

Notes:

1. "xxx" defines voltage from 2.7V (BZT52C2V7K) to 75V (BZT52C75K)

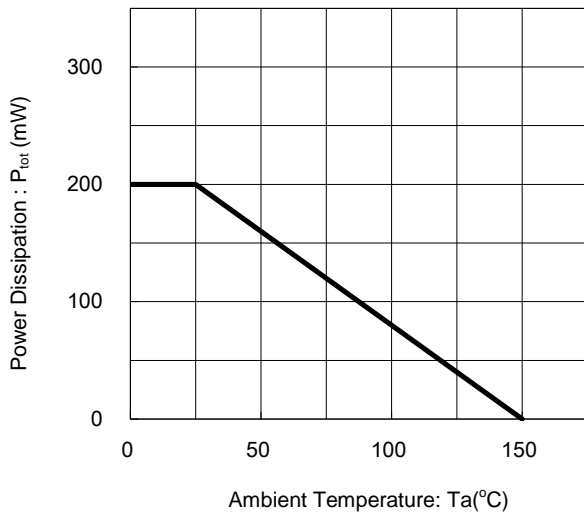
*: optional available

EXAMPLE				
EXAMPLE P/N	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
BZT52C2V7K RSG	BZT52C2V7K	RS	G	Green compound

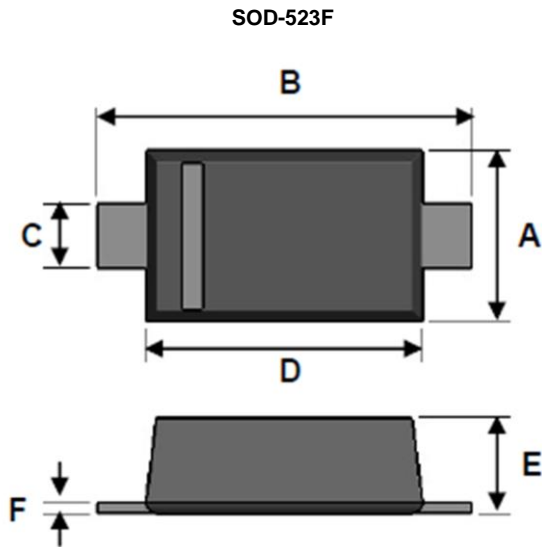
CHARACTERISTICS CURVES

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

Fig. 1 Derating Curve

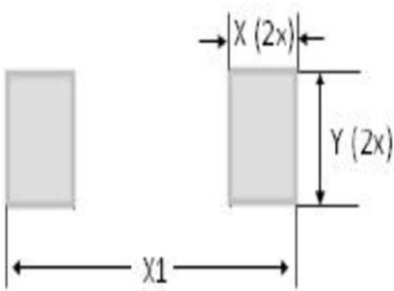


PACKAGE OUTLINE DIMENSION



DIM.	Unit(mm)		Unit(inch)	
	Min	Max	Min	Max
A	0.70	0.90	0.028	0.035
B	1.50	1.70	0.059	0.067
C	0.25	0.40	0.010	0.016
D	1.10	1.30	0.043	0.051
E	0.50	0.77	0.020	0.030
F	0.07	0.20	0.003	0.008

SUGGEST PAD LAYOUT



DIM.	Unit(mm)	Unit(inch)
	Typ.	Typ.
X	0.60	0.024
X1	2.30	0.091
Y	0.80	0.031

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