

1W, 10V - 220V Zener Diode

FEATURES

- Silicon zener diodes
- Low profile surface-mount package
- Zener and surge current specification
- Low leakage current
- Excellent stability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Voltage regulating
- Reference voltage
- Protection circuit

MECHANICAL DATA

- Case: Sub SMA
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.019g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
V_Z	10 - 220	V
Test current I_{ZT}	5 - 50	mA
P_{tot}	1	W
T_{JMAX}	175	°C
Package	Sub SMA	
Configuration	Single die	



Sub SMA



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Forward voltage @ $I_F = 0.2\text{A}$	V_F	1.2	V
Power dissipation	P_{tot}	$T_L = 73^\circ\text{C}$	2.3
		$T_A = 25^\circ\text{C}^{(1)}$	1.0
Non-repetitive peak pulse power dissipation 100 μs square pulse ⁽²⁾	P_{ZSM}	300	W
Non-repetitive peak pulse power dissipation 10/1000 μs waveform (BZD27C10P to BZD27C100P)	P_{RSM}	150	W
Non-repetitive peak pulse power dissipation 10/1000 μs waveform (BZD27C110P to BZD27C220P)	P_{RSM}	100	W
Junction temperature	T_J	- 55 to +175	°C
Storage temperature	T_{STG}	- 55 to +175	°C

Notes:

1. Mounted on Cu-Pad size 5mm x 5mm
2. $T_J = 25^\circ\text{C}$ prior to surge

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	44	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	88	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	48	°C/W

Thermal Performance Note: Units mounted on PCB (5mm x 5mm Cu pad test board)

ORDERING INFORMATION		
ORDERING CODE⁽¹⁾	PACKAGE	PACKING
BZD27CxP	Sub SMA	10,000 / Tape & Reel

Notes:

1. “x” defines voltage from 10V(BZD27C10P) to 220V(BZD27C220P)

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)											
Part number	Marking code	Working Voltage			Differential Resistance		Temperature Coefficient		Test Current	Reverse Current@ Reverse Voltage	
		$V_Z @ I_{ZT}$			$r_{dif} @ I_Z$		$\alpha_Z @ I_Z$		I_{ZT}	I_R	V_R
		V			Ω		%/°C		mA	μA	V
		Min	Nom	Max	Typ	Max	Min	Max		Max	
BZD27C10P	E1	9.4	10	10.6	2	4	0.05	0.09	50	7	7.5
BZD27C11P	E2	10.4	11	11.6	4	7	0.05	0.10	50	4	8.2
BZD27C12P	E3	11.4	12.05	12.7	4	7	0.05	0.10	50	3	9.1
BZD27C13P	E4	12.4	13.25	14.1	5	10	0.05	0.10	50	2	10
BZD27C15P	E5	13.8	14.7	15.6	5	10	0.05	0.10	25	1	11
BZD27C16P	E6	15.3	16.2	17.1	6	15	0.06	0.11	25	1	12
BZD27C18P	E7	16.8	17.95	19.1	6	15	0.06	0.11	25	1	13
BZD27C20P	E8	18.8	20	21.2	6	15	0.06	0.11	25	1	15
BZD27C22P	E9	20.8	22.05	23.3	6	15	0.06	0.11	25	1	16
BZD27C24P	F0	22.8	24.2	25.6	7	15	0.06	0.11	25	1	18
BZD27C27P	F1	25.1	27	28.9	7	15	0.06	0.11	25	1	20
BZD27C30P	F2	28	30	32	8	15	0.06	0.11	25	1	22
BZD27C33P	F3	31	33	35	8	15	0.06	0.11	25	1	24
BZD27C36P	F4	34	36	38	21	40	0.06	0.11	10	1	27
BZD27C39P	F5	37	39	41	21	40	0.06	0.11	10	1	30
BZD27C43P	F6	40	43	46	24	45	0.07	0.12	10	1	33
BZD27C47P	F7	44	47	50	24	45	0.07	0.12	10	1	36
BZD27C51P	F8	48	51	54	25	60	0.07	0.12	10	1	39
BZD27C56P	F9	52	56	60	25	60	0.07	0.12	10	1	43
BZD27C62P	G0	58	62	66	25	80	0.08	0.13	10	1	47
BZD27C68P	G1	64	68	72	25	80	0.08	0.13	10	1	51
BZD27C75P	G2	70	74.5	79	30	100	0.08	0.13	10	1	56
BZD27C82P	G3	77	82	87	60	200	0.08	0.13	10	1	62
BZD27C91P	G4	85	90.5	96	60	200	0.08	0.13	5	1	68
BZD27C100P	G5	94	100	106	60	200	0.09	0.13	5	1	75
BZD27C110P	G6	104	110	116	80	250	0.09	0.13	5	1	82
BZD27C120P	G7	114	120.5	127	150	300	0.09	0.13	5	1	91
BZD27C130P	G	124	132.5	141	150	300	0.09	0.13	5	1	100
BZD27C150P	G9	138	147	156	150	300	0.09	0.13	5	1	110
BZD27C160P	H0	153	162	171	150	350	0.09	0.13	5	1	120
BZD27C180P	H1	168	179.5	191	280	450	0.09	0.13	5	1	130
BZD27C200P	H2	188	200	212	350	750	0.09	0.13	5	1	150
BZD27C220P	H3	208	220.5	233	430	900	0.09	0.13	5	1	160

CHARACTERISTICS CURVES

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

Fig.1 Power Dissipation

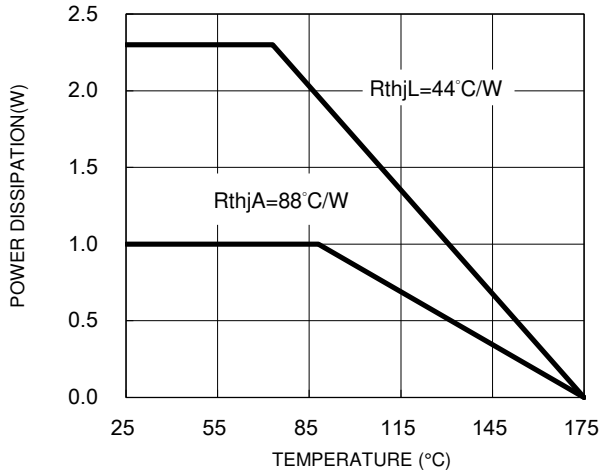


Fig.2 Typical Junction Capacitance

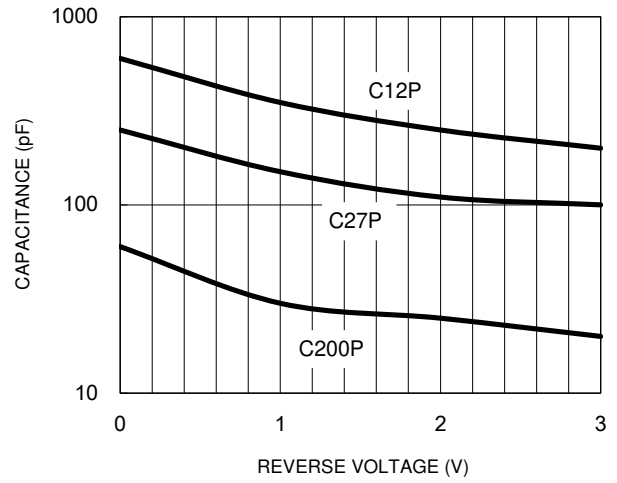
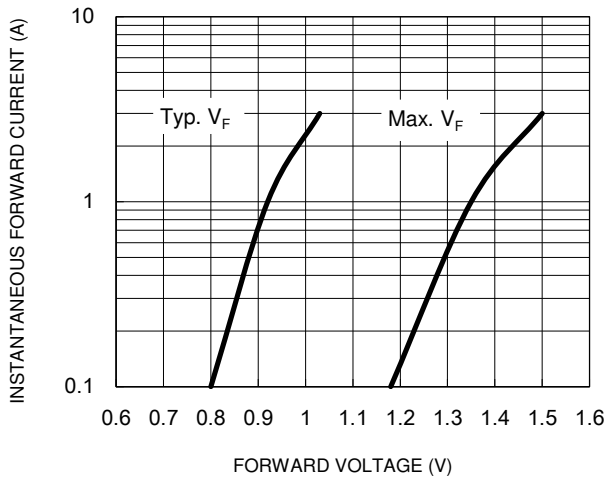
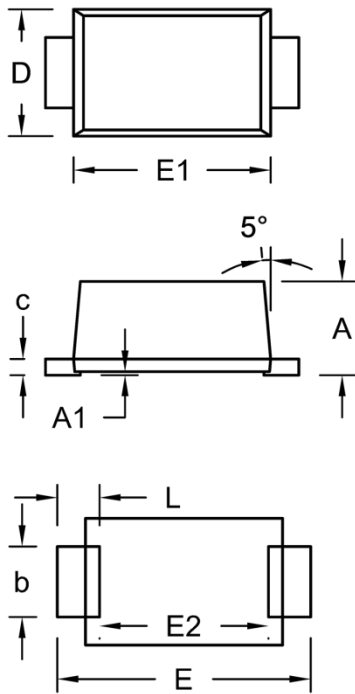


Fig.3 Typical Forward Characteristics



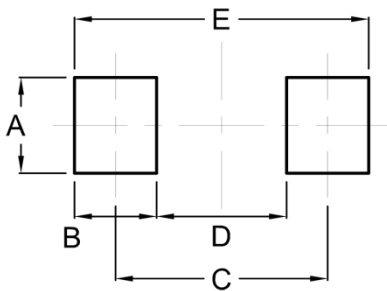
PACKAGE OUTLINE DIMENSIONS

Sub SMA



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.23	1.43	0.048	0.056
A1	0.00	0.10	0.000	0.004
b	0.80	1.20	0.031	0.047
c	0.16	0.30	0.006	0.012
D	1.70	1.90	0.067	0.075
E	3.40	3.80	0.134	0.150
E1	2.70	2.90	0.106	0.114
E2	2.45	2.60	0.096	0.102
L	0.35	0.85	0.014	0.033

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.40	0.055
B	1.20	0.047
C	3.10	0.122
D	1.90	0.075
E	4.30	0.169

MARKING DIAGRAM



- P/N = Marking Code
- G = Green Compound
- YW = Date Code
- F = Factory Code

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.