

## 0.8W, 11V - 220V Zener Diode

### FEATURES

- AEC-Q101 qualified
- 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
$V_Z$	11 - 220	V
Test current $I_{ZT}$	4 - 50	mA
$P_{tot}$	0.8	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	$P_{tot}$	$T_L = 80^\circ\text{C}$	2.3
		$T_A = 25^\circ\text{C}^{(1)}$	0.8
Non-repetitive peak pulse power dissipation 100 $\mu\text{s}$ square pulse <sup>(2)</sup>	$P_{ZSM}$	300	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

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-lead thermal resistance	$R_{\theta JL}$	30	°C/W
Junction-to-ambient thermal resistance <sup>(1)</sup>	$R_{\theta JA}$	180	°C/W

**Notes:**

1. Mounted on Cu-Pad size 5mm x 5mm

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE<sup>(1)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
BZD17CxPH	Sub SMA	10,000 / Tape & Reel

**Notes:**

1. "x" defines voltage from 11V(BZD17C11PH) to 220V(BZD17C220PH)

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)										
<b>Part number</b>	<b>Marking code</b>	<b>Working Voltage</b>		<b>Differential Resistance</b>		<b>Temperature Coefficient</b>		<b>Test Current</b>	<b>Reverse Current@ Reverse Voltage</b>	
		$V_Z @ I_{ZT}^{(1)}$		$r_{dif} @ I_Z$		$\alpha_Z @ I_Z$		$I_{ZT}$	$I_R$	$V_R$
		V		$\Omega$		%/°C		mA	$\mu\text{A}$	V
		Min	Max	Typ	Max	Min	Max		Max	
BZD17C11PH	J2	10.4	11.6	4	7	0.05	0.10	50	4.0	8.2
BZD17C12PH	J3	11.4	12.7	4	7	0.05	0.10	50	3.0	9.1
BZD17C13PH	J4	12.4	14.1	5	10	0.05	0.10	50	2.0	10
BZD17C15PH	J5	13.8	15.6	5	10	0.05	0.10	25	1.0	11
BZD17C16PH	J6	15.3	17.1	6	15	0.06	0.11	25	1.0	12
BZD17C18PH	J7	16.8	19.1	6	15	0.06	0.11	25	1.0	13
BZD17C24PH	K0	22.8	25.6	7	15	0.06	0.11	25	1.0	18
BZD17C27PH	K1	25.1	28.9	7	15	0.06	0.11	25	1.0	20
BZD17C33PH	K3	31	35	8	15	0.06	0.11	25	1.0	24
BZD17C36PH	K4	34	38	21	40	0.06	0.11	10	1.0	27
BZD17C39PH	K5	37	41	21	40	0.06	0.11	10	1.0	30
BZD17C43PH	K6	40	46	24	45	0.07	0.12	10	1.0	33
BZD17C47PH	K7	44	50	24	45	0.07	0.12	10	1.0	36
BZD17C51PH	K8	48	54	25	60	0.07	0.12	10	1.0	39
BZD17C62PH	L0	58	66	25	80	0.08	0.13	10	1.0	47
BZD17C68PH	L1	64	72	25	80	0.08	0.13	10	1.0	51
BZD17C75PH	L2	70	79	30	100	0.08	0.13	10	1.0	56
BZD17C100PH	L5	94	106	60	200	0.09	0.13	4	1.0	75
BZD17C120PH	L7	114	127	150	300	0.09	0.13	4	1.0	91
BZD17C180PH	M1	168	191	280	450	0.09	0.13	4	1.0	130
BZD17C200PH	M2	188	212	350	750	0.09	0.13	4	1.0	150
BZD17C220PH	M3	208	233	430	900	0.09	0.13	4	1.0	160

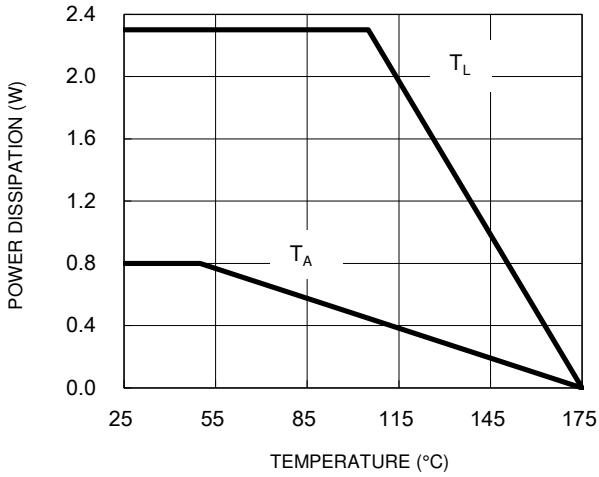
**Notes:**

1. Pulse test:  $t_p \leq 5\text{ms}$ .

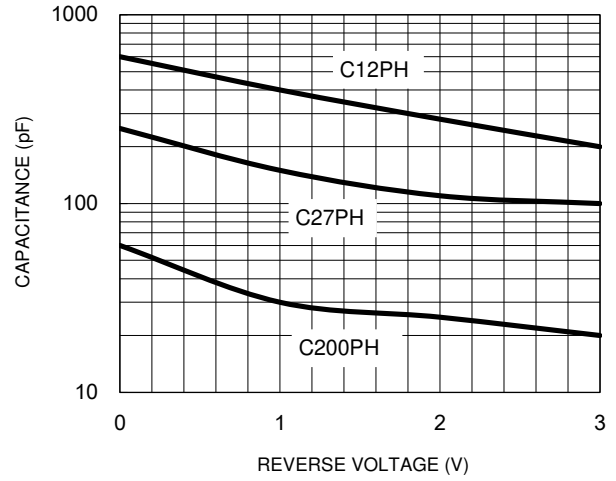
**CHARACTERISTICS CURVES**

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

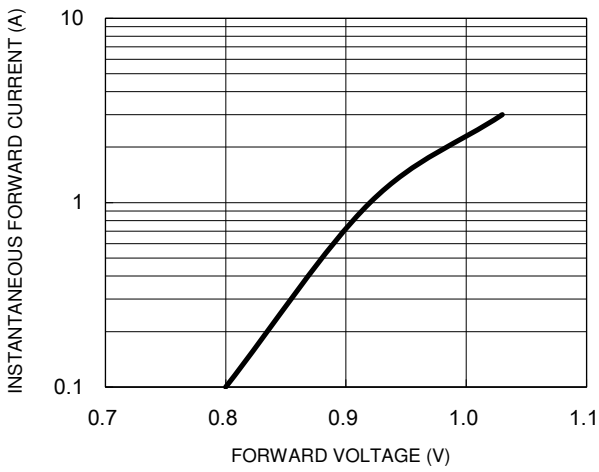
**Fig.1 Power Dissipation vs. Ambient Temperature**



**Fig.2 Typical Junction Capacitance**

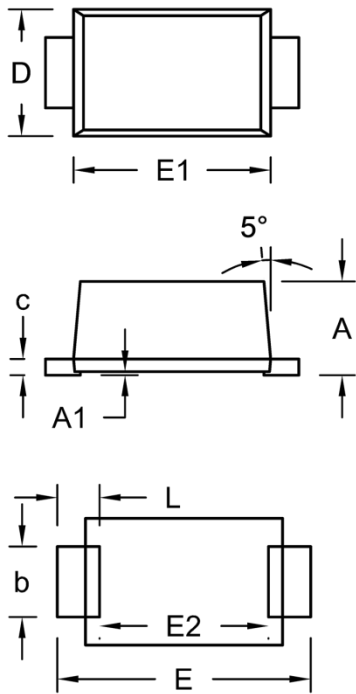


**Fig.3 Typical Forward Characteristics**



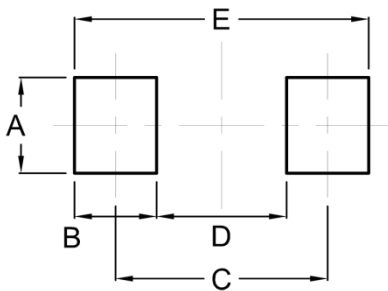
**PACKAGE OUTLINE DIMENSIONS**

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

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