



New Product

# BZD27 Series

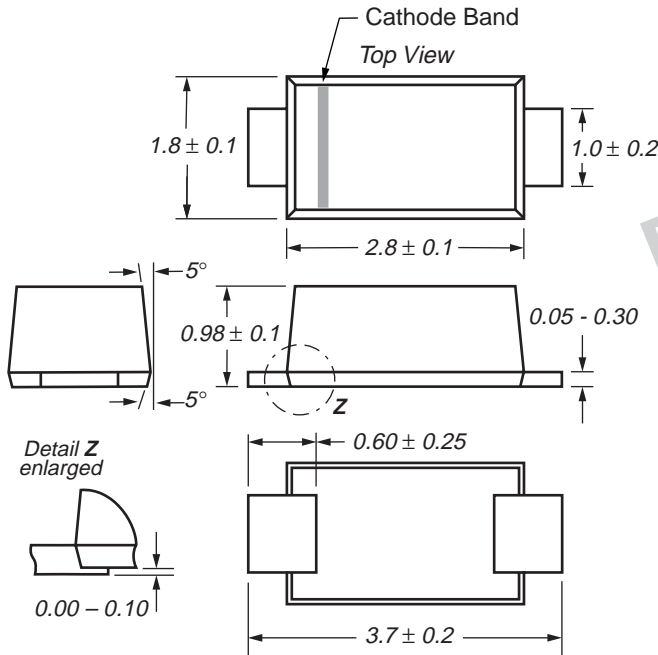
Vishay Semiconductors  
formerly General Semiconductor

## Zener Diodes

V<sub>Z</sub> Range 3.6 to 200V  
TVS V<sub>WM</sub> Range 6.2 to 160V  
Power Dissipation 2.3W

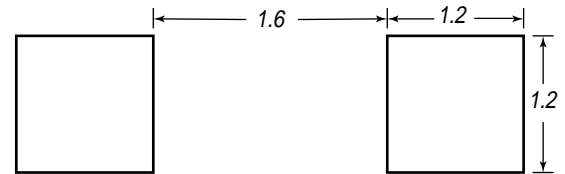


DO-219AB (SMF)



Patented

Mounting Pad Layout



Dimensions in millimeters

### Mechanical Data

**Case:** JEDEC DO-219 Plastic Case

**Weight:** approx. 0.01g

**Packaging codes-options:**

G1-10K per 13" reel (8mm tape), 50K/box

G2-3K per 7" reel (8mm tape), 30K/box

### Features

- Silicon Planar Power Zener Diodes.
- Low profile surface-mount package.
- Zener and TVS specification.

### Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Power Dissipation at T <sub>L</sub> = 105°C	P <sub>tot</sub>	2.3	W
Power Dissipation at T <sub>A</sub> = 25°C	P <sub>tot</sub>	0.8 <sup>(1)</sup>	W
Non-repetitive peak pulse power dissipation with 100µs square pulse <sup>(2)</sup>	P <sub>ZSM</sub>	300	W
Non-repetitive peak pulse power dissipation with 10/1000µs waveform (BZ027-C7V5 to -C200) <sup>(2)</sup>	P <sub>RSM</sub>	150	W
Thermal Resistance Junction to Ambient Air <sup>(1)</sup>	R <sub>θJA</sub>	188	°C/W
Thermal Resistance Junction to Lead	R <sub>θJL</sub>	30	°C/W
Maximum Junction Temperature	T <sub>j</sub>	175	°C
Storage Temperature Range	T <sub>s</sub>	-65 to +175	°C

**Notes:** (1) Mounted on epoxy-glass PCB with 3 x 3mm Cu pads (≥ 40µm thick)

(2) T<sub>J</sub> = 25°C prior to surge

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## Electrical Characteristics

### Total Series (T<sub>J</sub> = 25°C unless otherwise noted)

Parameter	Symbol	Conditions	Minimum	Maximum	Unit
Forward voltage	V <sub>F</sub>	I <sub>F</sub> = 0.2A	–	1.2	V

### When used as voltage regulator diodes (T<sub>J</sub> = 25°C unless otherwise noted)

Type	Marking Code	Working Voltage			Differential Resistance		Temperature Coefficient		Test Current I <sub>ZT</sub> (mA)	Reverse Current at Reverse Voltage	
		Min.	V <sub>Z</sub> (V) @ I <sub>Z</sub> Nom.	Max.	r <sub>dif</sub> (Ω) @ I <sub>Z</sub> Typ.	Max.	α <sub>Z</sub> @ I <sub>Z</sub> (%/°C) Min.	Max.		I <sub>R</sub> (μA) Max	V <sub>R</sub> (V)
BZD27-C3V6P	D0	3.4	3.6	3.8	4	8	-0.14	-0.04	100	100	1
BZD27-C3V9P	D1	3.7	3.9	4.1	4	8	-0.14	-0.04	100	50	1
BZD27-C4V3P	D2	4.0	4.3	4.6	4	7	-0.12	-0.02	100	25	1
BZD27-C4V7P	D3	4.4	4.7	5.0	3	7	-0.10	0.00	100	10	1
BZD27-C5V1P	D4	4.8	5.1	5.4	3	6	-0.08	0.02	100	5	1
BZD27-C5V6P	D5	5.2	5.6	6.0	2	4	-0.04	0.04	100	10	2
BZD27-C6V2P	D6	5.8	6.2	6.6	2	3	-0.01	0.06	100	5	2
BZD27-C6V8P	D7	6.4	6.8	7.2	1	3	0.00	0.07	100	10	3
BZD27-C7V5P	D8	7.0	7.5	7.9	1	2	0.00	0.07	100	50	3
BZD27-C8V2P	D9	7.7	8.2	8.7	1	2	0.03	0.08	100	10	3
BZD27-C9V1P	E0	8.5	9.1	9.6	2	4	0.03	0.08	50	10	5
BZD27-C10P	E1	9.4	10	10.6	2	4	0.05	0.09	50	7	7.5
BZD27-C11P	E2	10.4	11	11.6	4	7	0.05	0.10	50	4	8.2
BZD27-C12P	E3	11.4	12	12.7	4	7	0.05	0.10	50	3	9.1
BZD27-C13P	E4	12.4	13	14.1	5	10	0.05	0.10	50	2	10
BZD27-C15P	E5	13.8	15	15.6	5	10	0.05	0.10	50	1	11
BZD27-C16P	E6	15.3	16	17.1	6	15	0.06	0.11	25	1	12
BZD27-C18P	E7	16.8	18	19.1	6	15	0.06	0.11	25	1	13
BZD27-C20P	E8	18.8	20	21.2	6	15	0.06	0.11	25	1	15
BZD27-C22P	E9	20.8	22	23.3	6	15	0.06	0.11	25	1	16
BZD27-C24P	F0	22.8	24	25.6	7	15	0.06	0.11	25	1	18
BZD27-C27P	F1	25.1	27	28.9	7	15	0.06	0.11	25	1	20
BZD27-C30P	F2	28	30	32	8	15	0.06	0.11	25	1	22
BZD27-C33P	F3	31	33	35	8	15	0.06	0.11	25	1	24
BZD27-C36P	F4	34	36	38	21	40	0.06	0.11	10	1	27
BZD27-C39P	F5	37	39	41	21	40	0.06	0.11	10	1	30
BZD27-C43P	F6	40	43	46	24	45	0.07	0.12	10	1	33
BZD27-C47P	F7	44	47	50	24	45	0.07	0.12	10	1	36

**When used as voltage regulator diodes** ( $T_J = 25^\circ\text{C}$  unless otherwise noted)

Type	Marking Code	Working Voltage			Differential Resistance		Temperature Coefficient		Test Current	Reverse Current at Reverse Voltage	
		$V_Z$ (V) @ $I_Z$			$r_{dif}$ ( $\Omega$ ) @ $I_Z$		$\alpha_Z$ @ $I_Z$ (%/°C)		$I_{ZT}$ (mA)	$I_R$ ( $\mu\text{A}$ ) Max	$V_R$ (V)
		Min.	Nom.	Max.	Typ.	Max.	Min.	Max.			
BZD27-C51P	F8	48	51	54	25	60	0.07	0.12	10	1	39
BZD27-C56P	F9	52	56	60	25	60	0.07	0.12	10	1	43
BZD27-C62P	G0	58	62	66	25	80	0.08	0.13	10	1	47
BZD27-C68P	G1	64	68	72	25	80	0.08	0.13	10	1	51
BZD27-C75P	G2	70	75	79	30	100	0.08	0.13	10	1	56
BZD27-C82P	G3	77	82	87	30	100	0.08	0.13	10	1	62
BZD27-C91P	G4	85	91	96	60	200	0.09	0.13	5	1	68
BZD27-C100P	G5	94	100	106	60	200	0.09	0.13	5	1	75
BZD27-C110P	G6	104	110	116	80	250	0.09	0.13	5	1	82
BZD27-C120P	G7	114	120	127	80	250	0.09	0.13	5	1	91
BZD27-C130P	G8	124	130	141	110	300	0.09	0.13	5	1	100
BZD27-C150P	G9	138	150	156	130	300	0.09	0.13	5	1	110
BZD27-C160P	H0	153	160	171	150	350	0.09	0.13	5	1	120
BZD27-C180P	H1	168	180	191	180	400	0.09	0.13	5	1	130
BZD27-C200P	H2	188	200	212	200	500	0.09	0.13	5	1	150

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## When used as transient suppressor diodes (T<sub>J</sub> = 25°C unless otherwise noted)

Type	Rev. Breakdown Voltage	Temperature Coefficient		Test Current	Clamping Voltage		Reverse Current at Stand-Off Voltage	
	V <sub>(BR)R</sub> (V) at I <sub>test</sub> Min.	α <sub>Z</sub> @ I <sub>test</sub> (%/°C) Min.	Max.	I <sub>test</sub> (mA)	V <sub>c</sub> (V) Max.	at I <sub>RSM</sub> (A) <sup>(1)</sup>	I <sub>R</sub> (μA) Max.	at V <sub>WM</sub> (V)
BZD27-C7V5P	7.0	0.00	0.07	100	11.3	13.3	1500	6.2
BZD27-C8V2P	7.7	0.03	0.08	100	12.3	12.2	1200	6.8
BZD27-C9V1P	8.5	0.03	0.08	50	13.3	11.3	100	7.5
BZD27-C10P	9.4	0.05	0.09	50	14.8	10.1	20	8.2
BZD27-C11P	10.4	0.05	0.10	50	15.7	9.6	5	9.1
BZD27-C12P	11.4	0.05	0.10	50	17.0	8.8	5	10
BZD27-C13P	12.4	0.05	0.10	50	18.9	7.9	5	11
BZD27-C15P	13.8	0.05	0.10	50	20.9	7.2	5	12
BZD27-C16P	15.3	0.06	0.11	25	22.9	6.6	5	13
BZD27-C18P	16.8	0.06	0.11	25	25.6	5.9	5	15
BZD27-C20P	18.8	0.06	0.11	25	28.4	5.3	5	16
BZD27-C22P	20.8	0.06	0.11	25	31.0	4.8	5	18
BZD27-C24P	22.8	0.06	0.11	25	33.8	4.4	5	20
BZD27-C27P	25.1	0.06	0.11	25	38.1	3.9	5	22
BZD27-C30P	28	0.06	0.11	25	42.2	3.6	5	24
BZD27-C33P	31	0.06	0.11	25	46.2	3.2	5	27
BZD27-C36P	34	0.06	0.11	10	50.1	3.0	5	30
BZD27-C39P	37	0.06	0.11	10	54.1	2.8	5	33
BZD27-C43P	40	0.07	0.12	10	60.7	2.5	5	36
BZD27-C47P	44	0.07	0.12	10	65.5	2.3	5	39
BZD27-C51P	48	0.07	0.12	10	70.8	2.1	5	43
BZD27-C56P	52	0.07	0.12	10	78.6	1.9	5	47
BZD27-C62P	58	0.08	0.13	10	86.5	1.7	5	51
BZD27-C68P	64	0.08	0.13	10	94.4	1.6	5	56
BZD27-C75P	70	0.08	0.13	10	103.5	1.5	5	62
BZD27-C82P	77	0.08	0.13	10	114	1.3	5	68
BZD27-C91P	85	0.09	0.13	5	126	1.2	5	75
BZD27-C100P	94	0.09	0.13	5	139	1.1	5	82
BZD27-C110P	104	0.09	0.13	5	152	1.0	5	91
BZD27-C120P	114	0.09	0.13	5	167	0.90	5	100
BZD27-C130P	124	0.09	0.13	5	185	0.81	5	110
BZD27-C150P	138	0.09	0.13	5	204	0.73	5	120
BZD27-C160P	153	0.09	0.13	5	224	0.67	5	130
BZD27-C180P	168	0.09	0.13	5	249	0.60	5	150
BZD27-C200P	188	0.09	0.13	5	276	0.54	5	160

Note: (1) Non-repetitive peak reverse current in accordance with "IEC 60-1, Section 8" (10/1000 μs pulse); see Fig. 8.