GENERAL SEMICONDUCTOR®

BZD27 Series

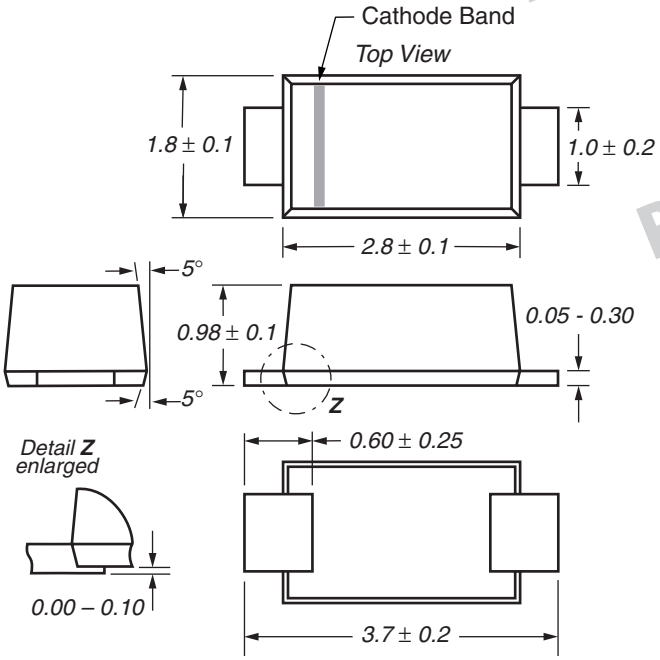
Zener Diodes

V_Z Range 3.6 to 200V
TVS V_{WM} Range 6.2 to 160V
Power Dissipation 2.3W

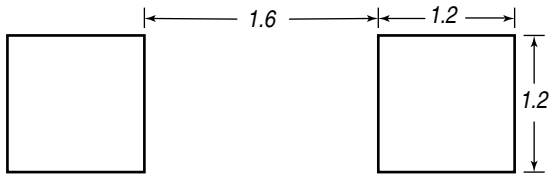
DO-219AB (SMF)

New Product

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_A = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Power Dissipation at T_L = 105°C	P_{tot}	2.3	W
Power Dissipation at T_A = 25°C	P_{tot}	0.8(1)	W
Non-repetitive peak pulse power dissipation with 100µs square pulse(2)	P_{ZSM}	300	W
Non-repetitive peak pulse power dissipation with 10/1000µs waveform (BZ027-C7V5 to -C200)(2)	P_{RSM}	150	W
Thermal Resistance Junction to Ambient Air(1)	$R_{\theta JA}$	188	°C/W
Thermal Resistance Junction to Lead	$R_{\theta JL}$	30	°C/W
Maximum Junction Temperature	T_j	175	°C
Storage Temperature Range	T_S	–65 to +175	°C

Notes: (1) Mounted on epoxy-glass PCB with 3 x 3mm Cu pads (≥ 40µm thick)
(2) T_J = 25°C prior to surge

Electrical Characteristics

Total Series (T_J = 25°C unless otherwise noted)

Parameter	Symbol	Conditions	Minimum	Maximum	Unit
Forward voltage	V_F	I_F = 0.2A	–	1.2	V

When used as voltage regulator diodes (T_J = 25°C unless otherwise noted)

Type	Marking Code	Working Voltage V_Z (V) @ I_Z			Differential Resistance r_{dif} (Ω) @ I_Z		Temperature Coefficient α_Z @ I_Z (%/°C)		Test Current	Reverse Current at Reverse Voltage	
		Min.	Nom.	Max.	Typ.	Max.	Min.	Max.	I_{ZT} (mA)	I_R(µA)Max	V_R (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°C unless otherwise noted)

Type	Marking Code	Working Voltage V_Z (V) @ I_Z			Differential Resistance r_{dif} (Ω) @ I_Z		Temperature Coefficient α_Z @ I_Z (%/°C)		Test Current	Reverse Current at Reverse Voltage	
		Min.	Nom.	Max.	Typ.	Max.	Min.	Max.	I_{ZT} (mA)	I_R(µA)Max	V_R (V)
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

When used as transient suppressor diodes (T_J = 25°C unless otherwise noted)

Type	Rev. Breakdown Voltage $V_{(BR)R}$ (V) at I_{test} Min.	Temperature Coefficient α_Z @ I_{test} (%/°C) Min.	Max.	Test Current I_{test} (mA)	Clamping Voltage V_C (V) Max.	at I_{RSM} (A)(1)	Reverse Current at Stand-Off Voltage I_R (μA) Max.	at V_{WM} (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.