BZD27 Series

VOLTAGE REGULATOR DIODES

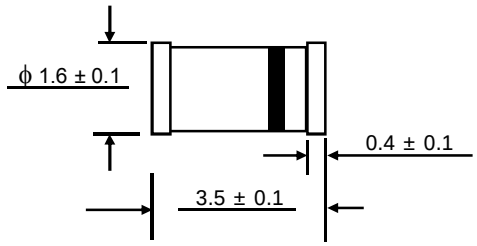
FEATURES :

* High maximum operating temperature
* Low leakage current
* Excellent stability
* Zener working voltage range: 3.6 to 270 V for 46 types
* Transient suppressor stand-off voltage range: 6.2 to 430 V for 45 types
* Pb / RoHS Free

MECHANICAL DATA :

* Plastic Case Mini MELF/ SOD-80
* Terminals: plated terminals solderable per MIL-STD-750
* Polarity : Color band denotes cathode end except Bipolar.
* Mounting position : Any
* Weight : 0.04 gram

MiniMELF (SOD-80)



Dimensions in millimeters

MAXIMUM RATINGS

Parameter	Symbol	Condition	Min.	Max.	Unit
Total Power dissipation BZD27-C3V6 to BZD27-C6V8 BZD27-C7V5 to BZD27-C510	P_{tot}	Ttp = 105 °C; see Fog. 1 and 2	 - -	 1.7 2.3	W
Total Power dissipation BZD27-C3V6 to BZD27-C6V8 BZD27-C7V5 to BZD27-C510	P_{tot}	PCB mounted Tamb = 60 °C, see Fig. 1 Tamb = 55 °C, see Fig. 2	 - -	 0.8 0.8	W
Non-repetitive peak reverse power dissipation	P_{ZSM}	tp = 100 µs; square pulse; Tj = 25°C prior to surge; see Fig. 5	-	300	W
Non-repetitive peak reverse power dissipation (BZD27-C7V5 to -C510)	P_{RSM}	10/1000 µs exponential pulse (see Fig. 5) Tj = 25°C prior to surge	-	150	W
Forward voltage	V_F	I_F = 0.2 A; Tj = 25 °C; see Fig. 3	-	1.2	V
Junction and Storage Temperature Range BZD27-C3V6 to BZD27-C6V8 BZD27-C7V5 to BZD27-C510	T_J, T_{STG}		 -65 -65	 +200 +175	°C

THERMAL CHARACTERISTICS

Parameter	Symbol	Condition	Value	Unit
Thermal resistance from junction to tie-point BZD27-C3V6 to BZD27-C6V8 BZD27-C7V5 to BZD27-C510	$R_{th\ j\text{-}tp}$		 55 30	K/W
Thermal resistance from junction to ambient BZD27-C3V6 to BZD27-C6V8 BZD27-C7V5 to BZD27-C510	$R_{th\ j\text{-}a}$	Note 1	 175 150	K/W

Note : (1) Device mounted on an epoxy-glass printed-circuit board, 1.5 mm thick; thickness of Cu-layer ≥40 µm on an must space.

ELECTRICAL CHARACTERISTICS

Per type when used as voltage regulator diodes

Rating at Tj = 25 °C unless otherwise specified

Type No.	Working Voltage			Differential Resistance		Temperature Coefficient		Test Current	Maximum Reverse Leakage Current	
	V_Z @ I_Z			r_{diff} (Ω) at I_Z		S_Z (%/K) at I_Z		I_Z	I_R @ V_R	
	Min.	Nom.	Max.	Typ.	Max.	Min.	Max.	(mA)	(μA)	(V)
BZD27-C3V6	3.4	3.6	3.8	4	8	-0.14	-0.04	100	100	1.0
BZD27-C3V9	3.7	3.9	4.1	4	8	-0.14	-0.04	100	50	1.0
BZD27-C4V3	4.0	4.3	4.6	4	7	-0.12	-0.02	100	25	1.0
BZD27-C4V7	4.4	4.7	5.0	3	7	-0.10	0.00	100	10	1.0
BZD27-C5V1	4.8	5.1	5.4	3	6	-0.08	-0.02	100	5	1.0
BZD27-C5V6	5.2	5.6	6.0	2	4	-0.04	0.04	100	10	2.0
BZD27-C6V2	5.8	6.2	6.6	2	3	-0.01	0.06	100	5	2.0
BZD27-C6V8	6.4	6.8	7.2	1	3	0.00	0.07	100	10	3.0
BZD27-C7V5	7.0	7.5	7.9	1	2	0.00	0.07	100	50	3.0
BZD27-C8V2	7.7	8.2	8.7	1	2	0.03	0.08	100	10	3.0
BZD27-C9V1	8.5	9.1	9.6	2	4	0.03	0.08	50	10	5.0
BZD27-C10	9.4	10	10.6	2	4	0.05	0.09	50	7	7.5
BZD27-C11	10.4	11	11.6	4	7	0.05	0.10	50	4	8.2
BZD27-C12	11.4	12	12.7	4	7	0.05	0.10	50	3	9.1
BZD27-C13	12.4	13	14.1	5	10	0.05	0.10	50	2	10
BZD27-C15	13.8	15	15.6	5	10	0.05	0.10	50	1	11
BZD27-C16	15.3	16	17.1	6	15	0.05	0.11	25	1	12
BZD27-C18	16.8	18	19.1	6	15	0.06	0.11	25	1	13
BZD27-C20	18.8	20	21.2	6	15	0.06	0.11	25	1	15
BZD27-C22	20.8	22	23.3	6	15	0.06	0.11	25	1	16
BZD27-C24	22.8	24	25.6	7	15	0.06	0.11	25	1	18
BZD27-C27	25.1	27	28.9	7	15	0.06	0.11	25	1	20
BZD27-C30	28	30	32	8	15	0.06	0.11	25	1	22
BZD27-C33	31	33	35	8	15	0.06	0.11	25	1	24
BZD27-C36	34	36	38	21	40	0.06	0.11	10	1	27
BZD27-C39	37	39	41	21	40	0.06	0.11	10	1	30
BZD27-C43	40	43	46	24	45	0.07	0.12	10	1	33
BZD27-C47	44	47	50	24	45	0.07	0.12	10	1	36
BZD27-C51	48	51	54	25	60	0.07	0.12	10	1	39
BZD27-C56	52	56	60	25	60	0.07	0.12	10	1	43
BZD27-C62	58	62	66	25	80	0.08	0.13	10	1	47
BZD27-C68	64	68	72	25	80	0.08	0.13	10	1	51
BZD27-C75	70	75	79	30	100	0.08	0.13	10	1	56
BZD27-C82	77	82	87	30	100	0.08	0.13	10	1	62
BZD27-C91	85	91	96	60	200	0.09	0.13	5	1	68
BZD27-C100	94	100	106	60	200	0.09	0.13	5	1	75
BZD27-C110	104	110	116	80	250	0.09	0.13	5	1	82
BZD27-C120	114	120	127	80	250	0.09	0.13	5	1	91
BZD27-C130	124	130	141	110	300	0.09	0.13	5	1	100
BZD27-C150	138	150	156	130	300	0.09	0.13	5	1	110
BZD27-C160	153	160	171	150	350	0.09	0.13	5	1	120
BZD27-C180	168	180	191	180	400	0.09	0.13	5	1	130
BZD27-C200	188	200	212	200	500	0.09	0.13	5	1	150
BZD27-C220	208	220	233	350	750	0.09	0.13	2	1	160
BZD27-C240	228	240	256	400	850	0.09	0.13	2	1	180
BZD27-C270	251	270	289	450	1000	0.09	0.13	2	1	200

ELECTRICAL CHARACTERISTICS

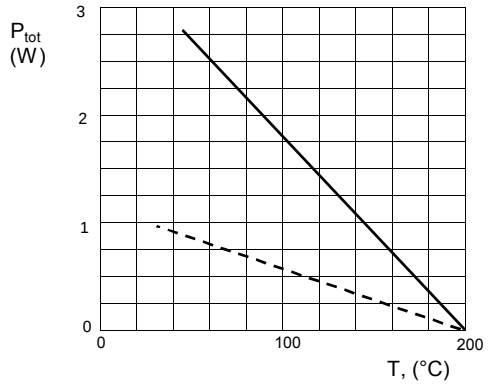
Per type when used as Transient suppressor diodes

Rating at Tj = 25 °C unless otherwise specified

Type No.	Reverse Breakdown Voltage	Temperature Coefficient		Test Current	Clamping Voltage		Maximum Reverse Leakage Current	
	$V_{(BR)R}$ @ I_{test} (V)	S_Z (%/K) at I_{test}		I_{test}	$V_{(CL)R}$ (V)	at I_{RSM}	I_R @ V_R	
	Min.	Min.	Max.	(mA)	Max.	(A)	(µA)	(V)
BZD27-C7V5	7.0	0.00	0.07	100	11.3	13.3	1500	6.2
BZD27-C8V2	7.7	0.03	0.08	100	12.3	12.2	1200	6.8
BZD27-C9V1	8.5	0.03	0.08	50	13.3	11.3	100	7.5
BZD27-C10	9.4	0.05	0.09	50	14.8	10.1	20	8.2
BZD27-C11	10.4	0.05	0.10	50	15.7	9.6	5	9.1
BZD27-C12	11.4	0.05	0.10	50	17.0	8.8	5	10
BZD27-C13	12.4	0.05	0.10	50	18.9	7.9	5	11
BZD27-C15	13.8	0.05	0.10	50	20.9	7.2	5	12
BZD27-C16	15.3	0.06	0.11	25	22.9	6.6	5	13
BZD27-C18	16.8	0.06	0.11	25	25.6	5.9	5	15
BZD27-C20	18.8	0.06	0.11	25	28.9	5.3	5	16
BZD27-C22	20.8	0.06	0.11	25	31.0	4.8	5	18
BZD27-C24	22.8	0.06	0.11	25	33.8	4.4	5	20
BZD27-C27	25.1	0.06	0.11	25	38.1	3.9	5	22
BZD27-C30	28	0.06	0.11	25	42.2	3.6	5	24
BZD27-C33	31	0.06	0.11	25	46.2	3.2	5	27
BZD27-C36	34	0.06	0.11	10	50.1	3.0	5	30
BZD27-C39	37	0.06	0.11	10	54.1	2.8	5	33
BZD27-C43	40	0.07	0.12	10	60.7	2.5	5	36
BZD27-C47	44	0.07	0.12	10	65.5	2.6	5	39
BZD27-C51	48	0.07	0.12	10	70.8	2.1	5	43
BZD27-C56	52	0.07	0.12	10	78.6	1.9	5	47
BZD27-C62	58	0.08	0.13	10	86.5	1.7	5	51
BZD27-C68	64	0.08	0.13	10	94.4	1.6	5	56
BZD27-C75	70	0.08	0.13	10	103.5	1.5	5	62
BZD27-C82	77	0.08	0.13	10	114.0	1.3	5	68
BZD27-C91	85	0.09	0.13	5	126	1.2	5	75
BZD27-C100	94	0.09	0.13	5	139	1.1	5	82
BZD27-C110	104	0.09	0.13	5	152	1.0	5	91
BZD27-C120	114	0.09	0.13	5	167	0.90	5	100
BZD27-C130	124	0.09	0.13	5	185	0.81	5	110
BZD27-C150	138	0.09	0.13	5	204	0.73	5	120
BZD27-C160	153	0.09	0.13	5	224	0.67	5	130
BZD27-C180	168	0.09	0.13	5	249	0.60	5	150
BZD27-C200	188	0.09	0.13	5	276	0.54	5	160
BZD27-C220	208	0.09	0.13	2	305	0.50	5	180
BZD27-C240	228	0.09	0.13	2	336	0.45	5	200
BZD27-C270	251	0.09	0.13	2	380	0.40	5	220
BZD27-C300	280	0.09	0.13	2	419	0.36	5	240
BZD27-C330	310	0.09	0.13	2	459	0.33	5	270
BZD27-C360	340	0.09	0.13	2	498	0.30	5	300
BZD27-C390	370	0.09	0.13	2	537	0.28	5	330
BZD27-C430	400	0.09	0.13	2	603	0.25	5	360
BZD27-C470	440	0.09	0.13	2	655	0.23	5	390
BZD27-C510	480	0.09	0.13	2	707	0.21	5	430

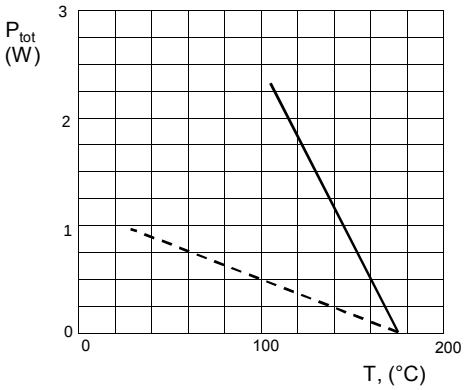
RATING AND CHARACTERISTIC CURVES (BZD27 Series)

Fig.1 - Maximum total power dissipation as a function of temperature.



Types : BZD27-C3V6 to BZD27-C6V8
Solid line: tie-point temperature
Dotted line: ambient temperature

Fig.2 - Maximum total power dissipation as a function of temperature.



Types : BZD27-C7V5 to BZD27-C510
Solid line: tie-point temperature
Dotted line: ambient temperature

Fig. 3 - Forward current as a function of forward voltage; typical values.

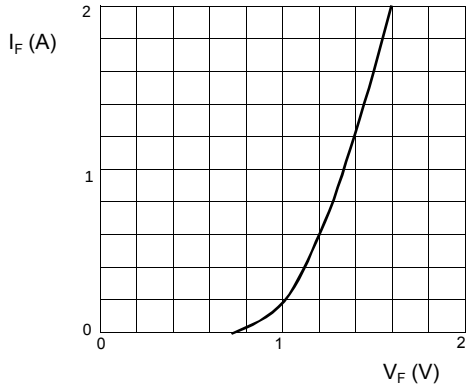
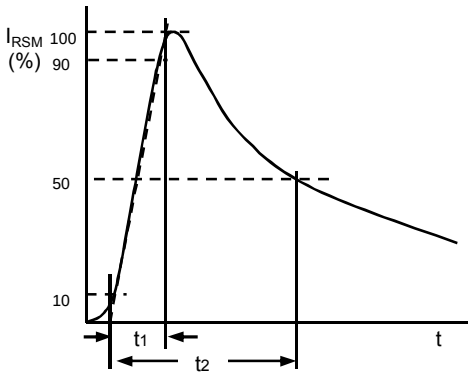


Fig.4 - Non-Repetitive peak reverse current pulse definition



t1 = 10 µs
t2 = 1000 µs

Fig.5 - Maximum non-repetitive peak reverse power dissipation as a function of pulse duration (square pulse).