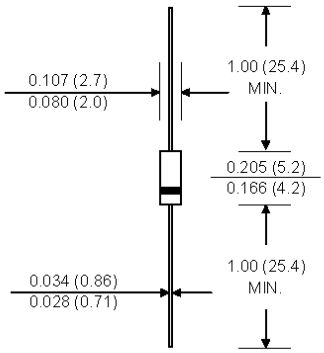
BZT03C…

SILICON Z-DIODES AND TRANSIENT VOLTAGE SUPPRESSORS

Feature

- High maximum operating temperature
- Low Leakage current
- Excellent stability

DO - 41



Dimensions in inches and (millimeters)

Mechanical Data

- Case: DO-41 molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Axial lead solderable per MIL-STD-202, method 208 guaranteed
- Polarity: Color band denotes cathode end
- Mounting position: Any

Absolute Maximum Ratings (T_a = 25 °C unless otherwise specified)

Parameter	Symbol	Value	Unit
Total Power Dissipation T_{tp} = 25 °C, lead length 10 mm T_{amb} = 45 °C, PCB mounted	P_{tot}	3.25 1.3	W
Non-repetitive Peak Reverse Power Dissipation (10 / 1000 µs exponential pulse, T_j = 25 °C prior to surge)	P_{RSM}	300	W
Non-repetitive Peak Reverse Power Dissipation (tp = 100 µs, square pulse, T_j = 25 °C prior to surge)	P_{ZSM}	600	W
Forward Voltage (I_F = 0.5 A, T_j = 25 °C)	V_F	1.2	V
Junction Temperature Range	T_J	- 65 to + 175	°C
Storage Temperature Range	T_{stg}	- 65 to + 175	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction to Tie-point (Lead length = 10 mm)	$R_{thj\text{-}tp}$	46	K/W
Thermal Resistance from Junction to Ambient [1)]	$R_{thj\text{-}a}$	100	K/W

[1)] Device mounted on an epoxy-glass printed circuit board, 1.5 mm thick, thickness of Cu-layer ≥ 40 µm on an must space

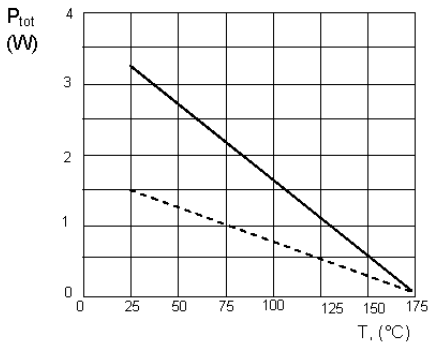
Electrical Characteristics (Per type when used as voltage regulator Diodes, T_j = 25 °C)

Type	Working Voltage		Differental Resistance	Reverse Current		Temperature Coefficient
	V_Z (V)	at I_Z (mA)	Max. R_{diff} (Ω) at I_Z	Max. I_R (μA)	at V_R (V)	S_Z (%/K) at I_Z
BZT03C7V5	7…7.9	100	2	750	5.6	0.00…0.07
BZT03C8V2	7.7…8.7	100	2	600	6.2	0.03…0.08
BZT03C9V1	8.5…9.6	50	4	20	6.8	0.03…0.08
BZT03C10	9.4…10.6	50	4	7	7.5	0.05…0.09
BZT03C11	10.4…11.6	50	7	4	8.2	0.05…0.1
BZT03C12	11.4…12.7	50	7	3	9.1	0.05…0.1
BZT03C13	12.4…14.1	50	10	2	10	0.05…0.1
BZT03C15	13.8…15.6	50	10	1	11	0.05…0.1
BZT03C16	15.3…17.1	25	15	1	12	0.05…0.11
BZT03C18	16.8…19.1	25	15	1	13	0.06…0.11
BZT03C20	18.8…21.2	25	15	1	15	0.06…0.11
BZT03C22	20.8…23.3	25	15	1	16	0.06…0.11
BZT03C24	22.8…25.6	25	15	1	18	0.06…0.11
BZT03C27	25.1…28.9	25	15	1	20	0.06…0.11
BZT03C30	28…32	25	15	1	22	0.06…0.11
BZT03C33	31…35	25	15	1	24	0.06…0.11
BZT03C36	34…38	10	40	1	27	0.06…0.11
BZT03C39	37…41	10	40	1	30	0.06…0.11
BZT03C43	40…46	10	45	1	33	0.07…0.12
BZT03C47	44…50	10	45	1	36	0.07…0.12
BZT03C51	48…54	10	60	1	39	0.07…0.12
BZT03C56	52…60	10	60	1	43	0.07…0.12
BZT03C62	58…66	10	80	1	47	0.08…0.13
BZT03C68	64…72	10	80	1	51	0.08…0.13
BZT03C75	70…79	10	100	1	56	0.08…0.13
BZT03C82	77…87	10	100	1	62	0.08…0.13
BZT03C91	85…96	5	200	1	68	0.09…0.13
BZT03C100	94…106	5	200	1	75	0.09…0.13
BZT03C110	104…116	5	250	1	82	0.09…0.13
BZT03C120	114…127	5	250	1	91	0.09…0.13
BZT03C130	124…141	5	300	1	100	0.09…0.13
BZT03C150	138…156	5	300	1	110	0.09…0.13
BZT03C160	153…171	5	350	1	120	0.09…0.13
BZT03C180	168…191	5	400	1	130	0.09…0.13
BZT03C200	188…212	5	500	1	150	0.09…0.13
BZT03C220	208…233	2	750	1	160	0.09…0.13
BZT03C240	228…256	2	850	1	180	0.09…0.13
BZT03C270	251…289	2	1000	1	200	0.09…0.13

Electrical Characteristics (Per type when used as transient voltage suppressors, T_j = 25 °C)

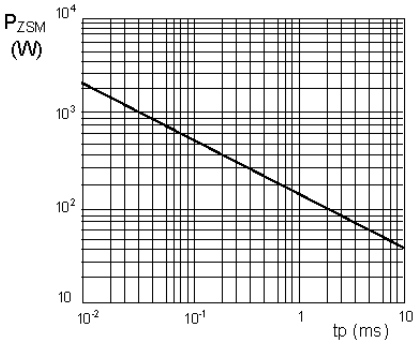
Type	Reverse Breakdown Voltage		Clamping Voltage		Reverse Current		Temperature Coefficient
	Min. $V_{(BR)R}$ (V)	at I_{test} (mA)	Max. $V_{(CL)R}$ (V)	at I_{RSM} (A)	Max. I_R (µA)	at V_R (V)	S_Z (%/K) at I_{test}
BZT03C7V5	7	100	11.3	26.5	1500	6.2	0.00…0.07
BZT03C8V2	7.7	100	12.3	24.4	1200	6.8	0.03…0.08
BZT03C9V1	8.5	50	13.3	22.7	100	7.5	0.03…0.08
BZT03C10	9.4	50	14.8	20.3	20	8.2	0.05…0.09
BZT03C11	10.4	50	15.7	19.1	5	9.1	0.05…0.1
BZT03C12	11.4	50	17	17.7	5	10	0.05…0.1
BZT03C13	12.4	50	18.9	15.9	5	11	0.05…0.1
BZT03C15	13.8	50	20.9	14.4	5	12	0.05…0.1
BZT03C16	15.3	25	22.9	13.1	5	13	0.06…0.11
BZT03C18	16.8	25	25.6	11.7	5	15	0.06…0.11
BZT03C20	18.8	25	28.9	10.6	5	16	0.06…0.11
BZT03C22	20.8	25	31	9.7	5	18	0.06…0.11
BZT03C24	22.8	25	33.8	8.9	5	20	0.06…0.11
BZT03C27	25.1	25	38.1	7.9	5	22	0.06…0.11
BZT03C30	28	25	42.2	7.1	5	24	0.06…0.11
BZT03C33	31	25	46.2	6.5	5	27	0.06…0.11
BZT03C36	34	10	50.1	6	5	30	0.06…0.11
BZT03C39	37	10	54.1	5.5	5	33	0.06…0.11
BZT03C43	40	10	60.7	4.9	5	36	0.07…0.12
BZT03C47	44	10	65.5	4.6	5	39	0.07…0.12
BZT03C51	48	10	70.8	4.2	5	43	0.07…0.12
BZT03C56	52	10	78.6	3.8	5	47	0.07…0.12
BZT03C62	58	10	86.5	3.5	5	51	0.08…0.13
BZT03C68	64	10	94.4	3.2	5	56	0.08…0.13
BZT03C75	70	10	103.5	2.9	5	62	0.08…0.13
BZT03C82	77	10	114	2.6	5	68	0.08…0.13
BZT03C91	85	5	126	2.4	5	75	0.09…0.13
BZT03C100	94	5	139	2.2	5	82	0.09…0.13
BZT03C110	104	5	152	2	5	91	0.09…0.13
BZT03C120	114	5	167	1.8	5	100	0.09…0.13
BZT03C130	124	5	185	1.6	5	110	0.09…0.13
BZT03C150	138	5	204	1.5	5	120	0.09…0.13
BZT03C160	153	5	224	1.3	5	130	0.09…0.13
BZT03C180	168	5	249	1.2	5	150	0.09…0.13
BZT03C200	188	5	276	1.1	5	160	0.09…0.13
BZT03C220	208	2	305	1	5	180	0.09…0.13
BZT03C240	228	2	336	0.9	5	200	0.09…0.13
BZT03C270	251	2	380	0.8	5	220	0.09…0.13
BZT03C300	280	2	419	0.72	5	240	0.09…0.13
BZT03C330	310	2	459	0.65	5	270	0.09…0.13
BZT03C360	340	2	498	0.6	5	300	0.09…0.13
BZT03C390	370	2	537	0.56	5	330	0.09…0.13
BZT03C430	400	2	603	0.5	5	360	0.09…0.13
BZT03C470	440	2	655	0.45	5	390	0.09…0.13
BZT03C510	480	2	707	0.42	5	430	0.09…0.13

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



Solid line: tie-point temperature; lead length = 10 mm
Dotted line: ambient temperature; PCB mounted

FIG.2 - Maximum non-repetitive peak reverse power dissipation as a function of pulse duration (square pulse).



Tj= 25 °C prior to surge.

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

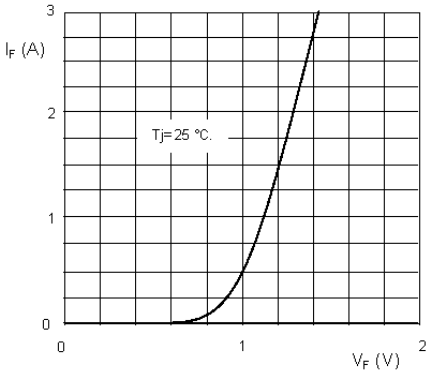
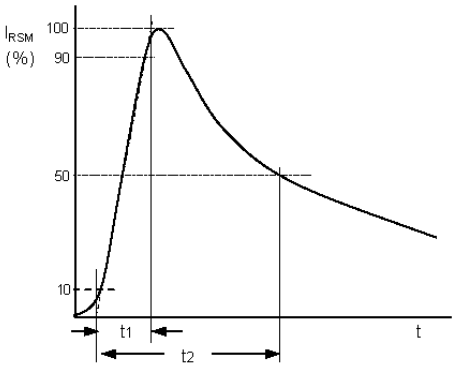


FIG.4 - Non-Repetitive peak reverse current pulse definition



t1 = 10 µs
t2 = 1000 µs