



1N 5333 B → 1N 5388 B

ZENER DIODES

- VOLTAGE RANGE : 3.3V TO 200V
- HERMETICALLY SEALED PLASTIC CASE
- HIGH SURGE CAPABILITY (up to 180W @ 8.3ms)



DESCRIPTION

5W silicon Zener diodes.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter	Value	Unit
P_{tot}	Power Dissipation* $T_{amb} = 75^{\circ}C$	5	W
I_{zM}	Continuous Reverse Current* $T_{amb} = 75^{\circ}C$	See page 2	A
I_{zSM}	Peak Reverse Current $T_{amb} = 25^{\circ}C$	See page 2	A
T_{stg} T_J	Storage and Junction Temperature Range	- 65 to 175 - 65 to 200	$^{\circ}C$
T_L	Maximum Temperature for Soldering during 10s at 4mm from case	230	$^{\circ}C$

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction-ambient*	25	$^{\circ}C/W$

* On infinite heatsink with 10mm lead length.



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ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C unless otherwise specified)

Types	V _{ZT} /I _{ZT} [*] nom.	I _{ZT} [*]	r _{ZT} /I _{ZT} [*] max.	r _{ZK} /I _{ZK} max.	I _R / V _R max.		≈V _Z typ.	I _{ZM} max.	ΔV _Z max.	I _{ZSM} max.
	(V) (1)	(mA) (1)	(Ω) (1)	1.0mA (Ω)	(μA)	(V)	(10 ⁻⁴ /°C)	T _{amb} = 75°C (mA) (2)	(V) (3)	(A) (4)
1N 5333 B	3,3	380	3,0	400	300	1,0	- 6	1440	0,85	22,2
1N 5334 B	3,6	350	2,5	500	150	1,0	- 5,5	1320	0,80	20,4
1N 5335 B	3,9	320	2,0	500	50	1,0	- 5	1220	0,54	18,8
1N 5336 B	4,3	290	2,0	500	10	1,0	- 4	1100	0,49	17,0
1N 5337 B	4,7	260	2,0	450	5,0	1,0	- 2	1010	0,44	15,6
P 1N 5338 B	5,1	240	1,5	400	1,0	1,0	1	930	0,39	14,4
P 1N 5339 B	5,6	220	1,0	400	1,0	2,0	2,5	865	0,25	13,1
1N 5340 B	6,0	200	1,0	300	1,0	3,0	2,8	790	0,19	12,2
P 1N 5341 B	6,2	200	1,0	200	1,0	3,0	3,2	765	0,10	11,8
P 1N 5342 B	6,8	175	1,0	200	10	5,2	4	700	0,15	10,8
1N 5343 B	7,5	175	1,5	200	10	5,7	4,5	630	0,15	9,8
1N 5344 B	8,2	150	1,5	200	10	6,2	4,8	580	0,20	8,9
1N 5345 B	8,7	150	2,0	200	10	6,6	4,9	545	0,20	8,4
1N 5346 B	9,1	150	2,0	150	7,5	6,9	5,1	520	0,22	8,1
1N 5347 B	10	125	2,0	125	5,0	7,6	5,5	475	0,22	7,3
1N 5348 B	11	125	2,5	125	5,0	8,4	6	430	0,25	11,0
P 1N 5349 B	12	100	2,5	125	2,0	9,1	6,5	395	0,25	10,1
1N 5350 B	13	100	2,5	100	1,0	9,9	6,5	365	0,25	9,3
1N 5351 B	14	100	2,5	75	1,0	10,6	7	340	0,25	8,6
P 1N 5352 B	15	75	2,5	75	1,0	11,5	7	315	0,25	8,1
P 1N 5353 B	16	75	2,5	75	1,0	12,2	7	295	0,30	7,6
1N 5354 B	17	70	2,5	75	0,5	12,9	7	280	0,35	7,1
P 1N 5355 B	18	65	2,5	75	0,5	13,7	7,5	264	0,40	6,7
1N 5356 B	19	65	3,0	75	0,5	14,4	7,5	250	0,40	6,4
1N 5357 B	20	65	3,0	75	0,5	15,2	7,5	237	0,40	6,0
P 1N 5358 B	22	50	3,5	75	0,5	16,7	8	216	0,45	5,5
P 1N 5359 B	24	50	3,5	100	0,5	18,2	8	198	0,55	5,0
1N 5360 B	25	50	4,0	110	0,5	19,0	8	190	0,55	4,8
P 1N 5361 B	27	50	5,0	120	0,5	20,6	8,5	176	0,60	4,5
1N 5362 B	28	50	6,0	130	0,5	21,2	8,5	170	0,60	4,3
P 1N 5363 B	30	40	8,0	140	0,5	22,8	8,5	158	0,60	4,0
1N 5364 B	33	40	10	150	0,5	25,1	8,5	144	0,60	3,7
P 1N 5365 B	36	30	11	160	0,5	27,4	9	132	0,65	3,4
1N 5366 B	39	30	14	170	0,5	29,7	9	122	0,65	3,1
1N 5367 B	43	30	20	190	0,5	32,7	9	110	0,70	2,8
1N 5368 B	47	25	25	210	0,5	35,8	9	100	0,80	2,6
1N 5369 B	51	25	27	230	0,5	38,8	9	93	0,90	2,4
1N 5370 B	56	20	35	280	0,5	42,6	9	86	1,00	2,2
1N 5371 B	60	20	40	350	0,5	45,5	9	79	1,20	2,0
P 1N 5372 B	62	20	42	400	0,5	47,1	9	76	1,35	1,9
1N 5373 B	68	20	44	500	0,5	51,7	9	70	1,50	1,8
1N 5374 B	75	20	45	620	0,5	56,0	9	63	1,60	1,6
1N 5375 B	82	15	65	720	0,5	62,2	9	58	1,80	1,5
1N 5376 B	87	15	75	760	0,5	66,0	9	54,5	2,00	1,4
1N 5377 B	91	15	75	760	0,5	69,2	9	52,5	2,20	1,3
P 1N 5378 B	100	12	90	800	0,5	76,0	9,5	47,5	2,50	1,2
1N 5379 B	110	12	125	1000	0,5	83,6	9,5	43	2,50	1,1
1N 5380 B	120	10	170	1150	0,5	91,2	9,5	39,5	2,50	1,0
1N 5381 B	130	10	190	1250	0,5	98,8	9,5	36,5	2,50	0,93
1N 5382 B	140	8,0	230	1500	0,5	106	9,5	34	2,50	0,86

- (1) Pulse test : t_p ≤ 50ms δ < 2% Tolerance on nominal V_{ZT} : ± 5%.
 (2) On infinite heatsink : d = 10mm P : Preferred voltages.
 (3) Measured between 10% and 50% of I_{ZM}. Forward voltage drop : V_F ≤ 1.2V (T_{amb} = 25°C, I_F = 1A)
 (4) Rectangular waveform (t_p = 10ms).

ELECTRICAL CHARACTERISTICS (continued)

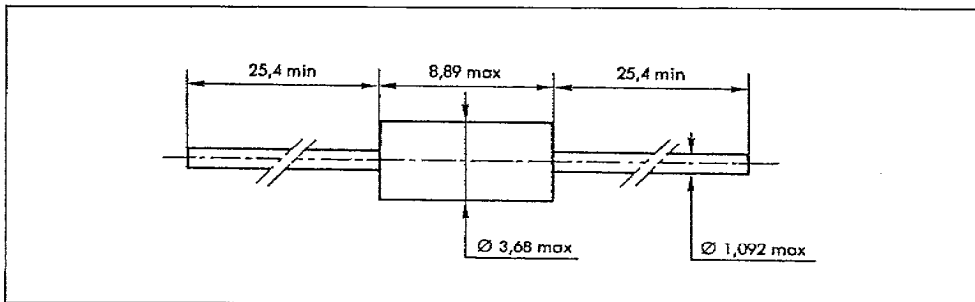
Types	V_{ZT}/I_{ZT}^*	I_{ZT}^*	r_{ZT}/I_{ZT}^*	r_{ZK}/I_{ZK}	I_R / V_R		$\approx V_Z$	I_{ZM}	ΔV_Z	I_{ZSM}
	nom. (V) (1)	(mA) (1)	max. (Ω) (1)	max. (Ω) 1.0mA (2)	max. (μA)	(V)	typ. ($10^{-4}/^{\circ}C$)	max. (mA) (2) $T_{amb}=75^{\circ}C$	max. (V) (3)	max. (A) (4)
P 1N 5383 B	150	8.0	330	1500	0.5	114	9.5	31.6	3.00	0.81
1N 5384 B	160	8.0	350	1650	0.5	122	9.5	29.4	3.00	0.76
1N 5385 B	170	8.0	380	1750	0.5	129	9.5	28	3.00	0.71
P 1N 5386 B	180	5.0	430	1750	0.5	137	9.5	26.4	4.00	0.67
1N 5387 B	190	5.0	450	1850	0.5	144	9.5	25	5.00	0.64
P 1N 5388 B	200	5.0	480	1850	0.5	152	10	23.6	5.00	0.60

- (1) Pulse test : $t_p < 50ms$ $\delta < 2\%$
- (2) On infinite heatsink : $d = 10mm$
- (3) Measured between 10% and 50% of I_{ZM} .
- (4) Rectangular waveform ($t_p = 10ms$).

Tolerance on nominal V_{ZT} : $\pm 5\%$.
 P : Preferred voltages.
 Forward voltage drop : $V_F \leq 1.2V$ ($T_{amb} = 25^{\circ}C$, $I_F = 1A$)

PACKAGE MECHANICAL DATA

CB-417 Plastic



Cooling method : by convection (method A)
 Marking : clear, ring at cathode end.
 Weight : 0.6g

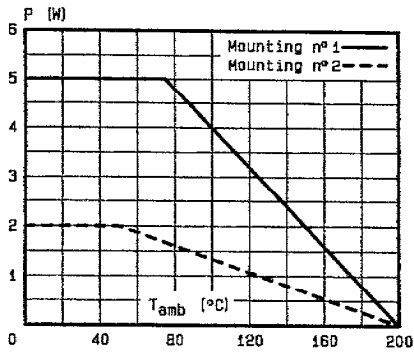


Fig.1 - Power dissipation versus ambient temperature.

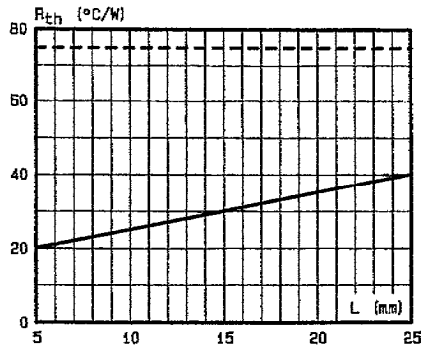


Fig.2 - Thermal resistance versus lead length.

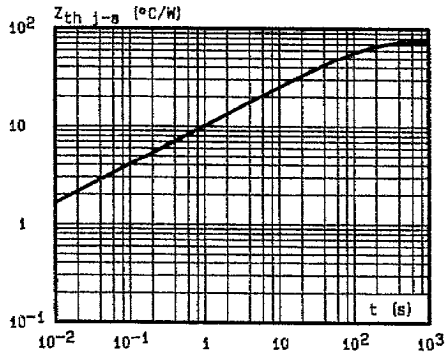


Fig.3 - Transient thermal impedance junction-ambient for mounting n°2 versus pulse duration (L = 10 mm).

Mounting n°1 INFINITE HEATSINK
Mounting n°2 PRINTED CIRCUIT

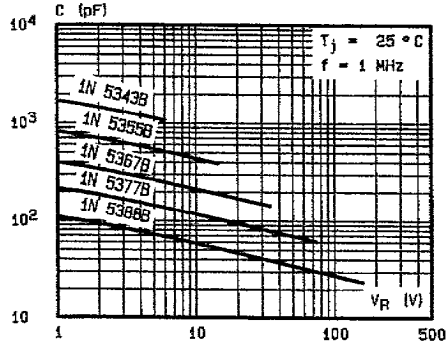
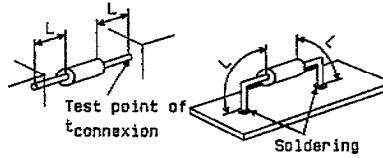


Fig.4 - Capacitance versus reverse applied voltage.

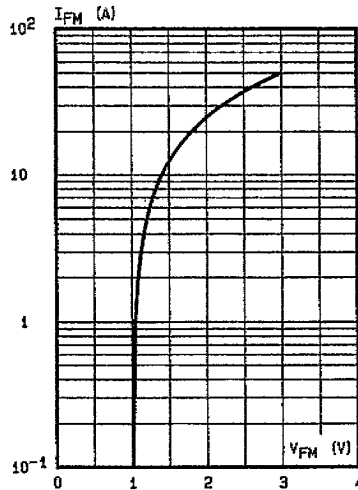


Fig.5 - Peak forward current versus peak forward voltage drop (typical values).

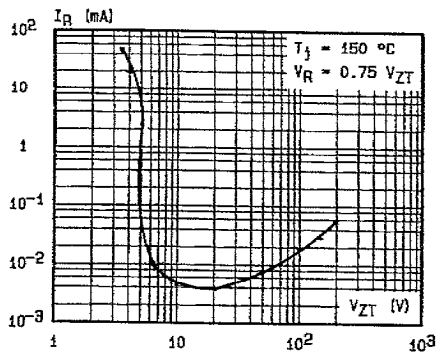


Fig.8 - Reverse current versus regulation voltage (typical values).

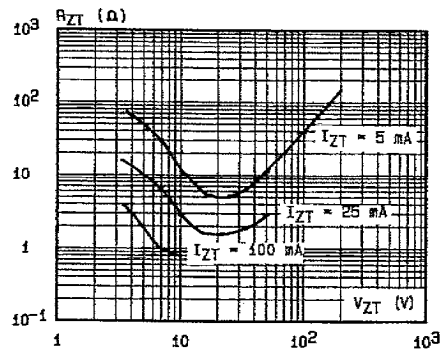


Fig.7 - Differential resistance versus regulation voltage (typical values).

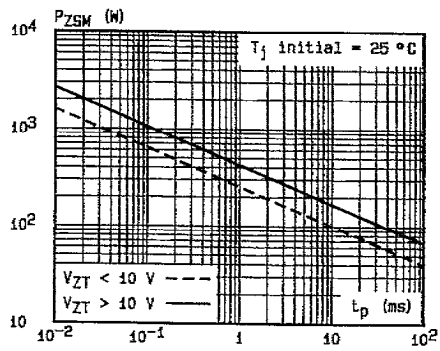


Fig.8 - Peak pulse power versus pulse duration (rectangular wave form) (maximum values).