

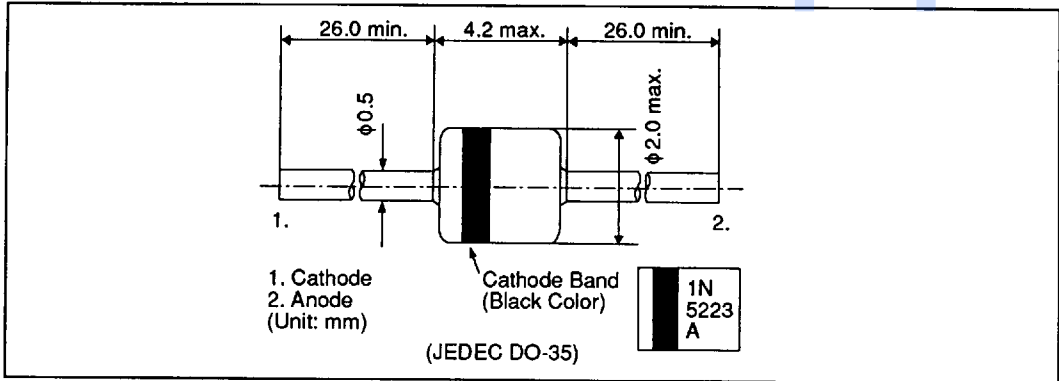
HITACHI/(OPTOELECTRONICS)

Appendix D 500-mW Zener Regulator Diodes  
 1N5223 through 1N5258  
 1N5223A through 1N5258A  
 1N5223B through 1N5258B

Table D-1 Absolute Maximum Ratings

Item	Symbol	Rating	Unit	Notes
Forward Voltage	$V_F$	1.1	V	1
Junction Temperature	$T_j$	-65 to +200	°C	
Storage Temperature	$T_{stg}$	-65 to +200	°C	
Lead Temperature	$T_1$	230	°C	2
DC Power Dissipation	$P_d$	500	mW	3
Surge Power	$P_d$ (surge)	10	W	4

- Notes: 1.  $I_F = 200$  mA.  
 2. Less than 1/16" from the case for 10 seconds.  
 3.  $T_1 = 75$  °C, Lead length = 3/8" (Derate 4 mW/°C above 75°C).  
 4. Non-recurrent square wave,  
 pw = 8.3 ms,  $T_j = 55$ °C,  
 $T_j$  is prior to surge.



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Table D-2 Electrical Characteristics ( $T_a = 25^\circ\text{C}$  unless otherwise noted)

Type	Nominal Zener Voltage $V_Z$ (V)	Test Current $I_{ZT}$ (mA)	Max Zener Impedance A&B Suffix Only			Max Reverse Leakage Current		
			@ $I_{ZT}$	@ $I_{ZK} = 0.25$ mA		@ $V_R$ (V)		@ $V_R$ Used for Suffix A
			$Z_{ZT}$ ( $\Omega$ )	$Z_{ZK}$ ( $\Omega$ )	$I_R$ ( $\mu\text{A}$ )	A	B	$I_R$ ( $\mu\text{A}$ )
1N5223	2.7	20	30	1300	75	0.95	1.0	150
1N5224	2.8	20	30	1400	75	0.95	1.0	150
1N5225	3.0	20	29	1600	50	0.95	1.0	100
1N5226	3.3	20	28	1600	25	0.95	1.0	100
1N5227	3.6	20	24	1700	15	0.95	1.0	100
1N5228	3.9	20	23	1900	10	0.95	1.0	75
1N5229	4.3	20	22	2000	5	0.95	1.0	50
1N5230	4.7	20	19	1900	5	1.9	2.0	50
1N5231	5.1	20	17	1600	5	1.9	2.0	50
1N5232	5.6	20	11	1600	5	2.9	3.0	50
1N5233	6.0	20	7	1600	5	3.3	3.5	50
1N5234	6.2	20	7	1000	5	3.8	4.0	50
1N5235	6.8	20	5	750	3	4.8	5.0	30
1N5236	7.5	20	6	500	3	5.7	6.0	30
1N5237	8.2	20	8	500	3	6.2	6.5	30
1N5238	8.7	20	8	600	3	6.2	6.5	30
1N5239	9.1	20	10	600	3	6.7	7.5	30
1N5240	10	20	17	600	3	7.6	8.0	30
1N5241	11	20	22	600	2	8.0	8.4	30
1N5242	12	20	30	600	1	8.7	9.1	10
1N5243	13	9.5	13	600	0.5	9.4	9.9	10
1N5244	14	9.0	15	600	0.1	9.5	10	10
1N5245	15	8.5	16	600	0.1	10.5	11	10
1N5246	16	7.8	17	600	0.1	11.4	12	10
1N5247	17	7.4	19	600	0.1	12.4	13	10
1N5248	18	7.0	21	600	0.1	13.3	14	10
1N5249	19	6.6	23	600	0.1	13.3	14	10
1N5250	20	6.2	25	600	0.1	14.3	15	10

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Table D-2 Electrical Characteristics ( $T_a = 25^\circ\text{C}$  unless otherwise noted) (cont)

Type	Nominal Zener Voltage $V_Z$ (V)	Test Current $I_{ZT}$ (mA)	Max Zener Impedance A&B Suffix Only			Max Reverse Leakage Current		
			@ $I_{ZT}$	@ $I_{ZK} = 0.25$ mA	$I_R$ ( $\mu\text{A}$ )	@ $V_R$ (V)		@ $V_R$ Used for Suffix A
			$Z_{ZT}$ ( $\Omega$ )	$Z_{ZK}$ ( $\Omega$ )		A	B	$I_R$ ( $\mu\text{A}$ )
1N5251	22	5.6	29	600	0.1	16.2	17	10
1N5252	24	5.2	33	600	0.1	17.1	18	10
1N5253	25	5.0	35	600	0.1	18.1	19	10
1N5254	27	4.6	41	600	0.1	20	21	10
1N5255	28	4.5	44	600	0.1	20	21	10
1N5256	30	4.2	49	600	0.1	22	23	10
1N5257	33	3.8	58	700	0.1	24	25	10
1N5258	36	3.4	70	700	0.1	26	27	10

Notes: 1. Tolerance designation:

Units with guaranteed limits are indicated by no suffix for  $\pm 20\%$  tolerance, suffix A for  $\pm 10\%$  and suffix B for  $\pm 5\%$ .

2. Temperature coefficient:

Test conditions for temperature coefficient are as follows:

$I_{ZT} = 7.5$  mA,  $T_1 = 25^\circ\text{C}$ ,  $T_2 = 125^\circ\text{C}$