

High-reliability discrete products  
and engineering services since 1977

### FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix. Part numbers listed indicate a tolerance of  $\pm 20\%$  with guaranteed limits on only, VZ, IR and VF.
- Devices with guaranteed limits on all six parameters are indicated by suffix A for  $\pm 10\%$  tolerance, suffix B for a  $\pm 5\%$  tolerance, suffix C for a 2% tolerance and suffix D for a 1% tolerance.

### MAXIMUM RATINGS

Operating and Storage Temperature	-65°C to + 200°C
DC Power Dissipation	500 mW
Power Derating	3.33 mW/C° above 25°C
Forward Voltage @ 200mA	1.1 Volts

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise specified)

Part Number <sup>(1)</sup>	Nominal Zener Voltage V <sub>Z</sub> @ I <sub>ZT</sub> Volts	Test Current I <sub>ZT</sub> mA	Max Zener Impedance A&B Suffix Only <sup>(2)</sup>		Max Reverse Leakage Current			Max Zener Voltage Temp. Coeff. (A&B Suffix Only) $\alpha_{VZ}$ (%/°C) <sup>(3)</sup>	
					A, B, & D Suffix Only		Non Suffix		
			Z <sub>ZT</sub> @ I <sub>ZT</sub> Ohms	Z <sub>ZT</sub> @ I <sub>ZK</sub> =0.25mA Ohms	I <sub>R</sub> μA	V <sub>R</sub> Volts	I <sub>R</sub> @ V <sub>R</sub> Used For Suffix A μA		
					A	B,C & D			
1N5221	2.4	20	30	1200	100	0.95	1.0	200	-0.085
1N5222	2.5	20	30	1250	100	0.95	1.0	200	-0.085
1N5223	2.7	20	30	1300	75	0.95	1.0	150	-0.080
1N5224	2.8	20	30	1400	75	0.95	1.0	150	-0.080
1N5225	3.0	20	29	1600	50	0.95	1.0	100	-0.075
1N5226	3.3	20	28	1600	25	0.95	1.0	100	-0.070
1N5227	3.6	20	24	1700	15	0.95	1.0	100	-0.065
1N5228	3.9	20	23	1900	10	0.95	1.0	75	-0.060
1N5229	4.3	20	22	2000	5.0	0.95	1.0	50	$\pm 0.055$
1N5230	4.7	20	19	1900	5.0	1.9	2.0	50	$\pm 0.030$
1N5231	5.1	20	17	1600	5.0	1.9	2.0	50	$\pm 0.030$
1N5232	5.6	20	11	1600	5.0	2.9	3.0	50	+0.038
1N5233	6.0	20	7.0	1600	5.0	3.3	3.5	50	+0.038
1N5234	6.2	20	7.0	1000	5.0	3.8	4.0	50	+0.045
1N5235	6.8	20	5.0	750	3.0	4.8	5.0	30	+0.050
1N5236	7.5	20	6.0	500	3.0	5.7	6.0	30	+0.058
1N5237	8.2	20	8.0	500	3.0	6.2	6.5	30	+0.062
1N5238	8.7	20	8.0	600	3.0	6.2	6.5	30	+0.065
1N5239	9.1	20	10	600	3.0	6.7	7.0	30	+0.068
1N5240	10	20	17	600	3.0	7.6	8.0	30	+0.075
1N5241	11	20	22	600	2.0	8.0	8.4	30	+0.076
1N5242	12	20	30	600	1.0	8.7	9.1	10	+0.077
1N5243	13	9.5	13	600	0.5	9.4	9.9	10	+0.079
1N5244	14	9.0	15	600	0.1	9.5	10	10	+0.082
1N5245	15	8.5	16	600	0.1	10.5	11	10	+0.082
1N5246	16	7.8	17	600	0.1	11.4	12	10	+0.083
1N5247	17	7.4	19	600	0.1	12.4	13	10	+0.084
1N5248	18	7.0	21	600	0.1	13.3	14	10	+0.085
1N5249	19	6.6	23	600	0.1	13.3	14	10	+0.086
1N5250	20	6.2	25	600	0.1	14.3	15	10	+0.086
1N5251	22	5.6	29	600	0.1	16.2	17	10	+0.087
1N5252	24	5.2	33	600	0.1	17.1	18	10	+0.088
1N5253	25	5.0	35	600	0.1	18.1	19	10	+0.089
1N5254	27	4.6	41	600	0.1	20	21	10	+0.090
1N5255	28	4.5	44	600	0.1	20	21	10	+0.091
1N5256	30	4.2	49	600	0.1	22	23	10	+0.091
1N5257	33	3.8	58	700	0.1	24	25	10	+0.092
1N5258	36	3.4	70	700	0.1	26	27	10	+0.093
1N5259	39	3.2	80	800	0.1	29	30	10	+0.094
1N5260	43	3.0	93	900	0.1	31	33	10	+0.095



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# 1N5221-1N5281

## SILICON ZENER DIODES

Part Number <sup>(1)</sup>	Nominal Zener Voltage $V_z @ I_{ZT}$ Volts	Test Current $I_{ZT}$ mA	Max Zener Impedance A&B Suffix Only <sup>(2)</sup>		Max Reverse Leakage Current			Max Zener Voltage Temp. Coeff. (A&B Suffix Only) $\alpha_{VZ} (\%/^{\circ}C)^{(3)}$	
					A, B, & D Suffix Only		Non Suffix		
			$Z_{ZT} @ I_{ZT}$ Ohms	$Z_{ZT} @ I_{ZK}=0.25mA$ Ohms	$I_R$ $\mu A$	$V_R$ Volts		$I_R @ V_R$ Used For Suffix A $\mu A$	
						A	B,C&D		
1N5261	47	2.7	105	1000	0.1	34	36	10	+0.095
1N5262	51	2.5	125	1100	0.1	37	39	10	+0.096
1N5263	56	2.2	150	1300	0.1	41	43	10	+0.096
1N5264	60	2.1	170	1400	0.1	44	46	10	+0.097
1N5265	62	2.0	185	1400	0.1	45	47	10	+0.097
1N5266	68	1.8	230	1600	0.1	49	52	10	+0.097
1N5267	75	1.7	270	1700	0.1	53	56	10	+0.098
1N5268	82	1.5	330	2000	0.1	59	62	10	+0.098
1N5269	87	1.4	370	2200	0.1	65	68	10	+0.099
1N5270	91	1.4	400	2300	0.1	66	69	10	+0.099
1N5271	100	1.3	500	2600	0.1	72	76	10	+0.110
1N5272	110	1.1	750	3000	0.1	80	84	10	+0.110
1N5273	120	1.0	900	4000	0.1	86	91	10	+0.110
1N5274	130	0.95	1100	4500	0.1	94	99	10	+0.110
1N5275	140	0.90	1300	4500	0.1	101	106	10	+0.110
1N5276	150	0.85	150	5000	0.1	108	114	10	+0.110
1N5277	160	0.80	170	5500	0.1	116	122	10	+0.110
1N5278	170	0.74	190	5500	0.1	123	129	10	+0.110
1N5279	180	0.68	2200	6000	0.1	130	137	10	+0.110
1N5280	190	0.66	2400	6500	0.1	137	144	10	+0.110
1N5281	200	0.65	2500	7000	0.1	144	152	10	+0.110

NOTE 1: The electrical characteristics are measured after allowing the device to stabilize for 20 seconds when mounted with a 3/8" minimum lead length from the case.

NOTE 2: The zener impedance is derived from the 60HZ ac voltage, which results when an ac current having an r.m.s. value equal to 10% of the DC zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed on  $I_{ZT}$  or  $I_{ZK}$ . Zener impedance is measured at two points to insure a sharp knee on the breakdown curve, thereby eliminating unstable units.

NOTE 3: Temperature coefficient ( $\alpha_{VZ}$ ). Test conditions for temperature coefficient are as follows:

a.  $I_{ZT} = 7.5 \text{ mA}$ ,  $T_1 = 25^{\circ}C$ ,  
 $T_2 = 125^{\circ}C$  (1N5221A, thru 1N5242A, B.)

b.  $I_{ZT} = \text{Rated } I_{ZT}$ ,  $T_1 = 25^{\circ}C$ ,  
 $T_2 = 125^{\circ}C$  (1N5243A, B thru 1N5281A, B.)

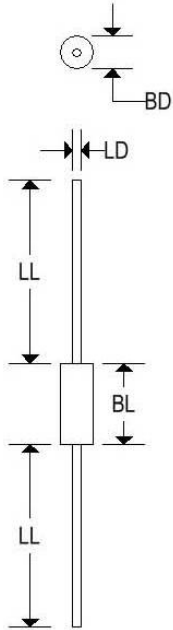
Device to be temperature stabilized with current applied prior to reading breakdown voltage at the specified ambient temperature.

# 1N5221-1N5281

## SILICON ZENER DIODES

### MECHANICAL CHARACTERISTICS

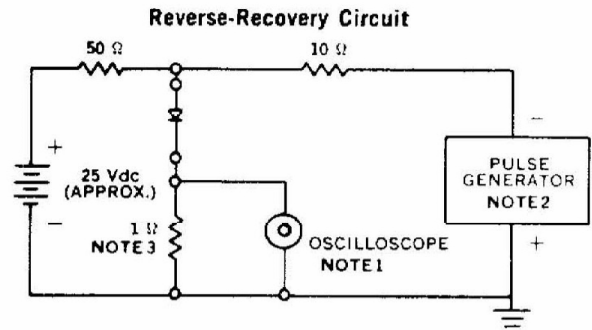
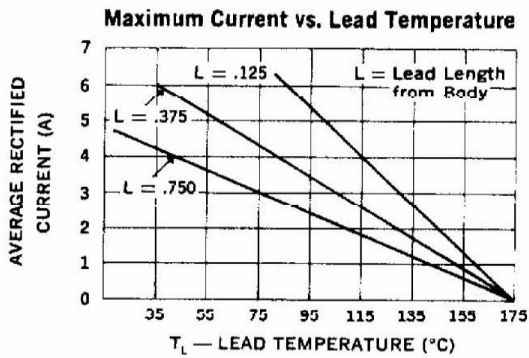
<b>Case:</b>	DO-35
<b>Marking:</b>	Body painted, alpha-numeric
<b>Polarity:</b>	Cathode band



	DO-35			
	Inches		Millimeters	
	Min	Max	Min	Max
BD	0.055	0.090	1.400	2.290
BL	0.120	0.200	3.050	5.080
LD	0.018	0.022	0.460	0.560
LL	1.000	1.500	25.400	38.100

# 1N5221-1N5281

## SILICON ZENER DIODES



- NOTES:**
- Oscilloscope: Rise time  $\leq 3\text{ns}$ ; input impedance =  $50\Omega$ .
  - Pulse Generator: Rise time  $\leq 8\text{ns}$ ; source impedance  $10\Omega$ .
  - Current viewing resistor, non-inductive, coaxial recommended.

