

1N4678 THRU 1N4717  
**SILICON ZENER DIODE**  
**LOW LEVEL**  
**500mW, 1.8 THRU 43 VOLT**  
**5% TOLERANCE**

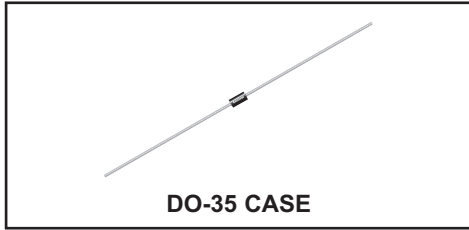


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**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 1N4678 series devices are silicon Zener diodes designed for applications requiring an extremely low operating current (50µA), and low leakage.

**MARKING: FULL PART NUMBER**



**MAXIMUM RATINGS:** (T<sub>L</sub>=75°C)

Power Dissipation  
 Operating and Storage Junction Temperature

**SYMBOL**

P<sub>D</sub>  
 T<sub>J</sub>, T<sub>stg</sub>

**UNITS**

mW  
 °C

**ELECTRICAL CHARACTERISTICS:** (T<sub>A</sub>=25°C) V<sub>F</sub>=1.5V MAX @ I<sub>F</sub>=100mA (for all types)

Type	Zener Voltage V <sub>Z</sub> @ I <sub>ZT</sub>			Test Current I <sub>ZT</sub>	Maximum Reverse Leakage Current		Maximum Voltage Change*	Maximum Regulator Current I <sub>ZM</sub>
	MIN	NOM	MAX		I <sub>R</sub> @	V <sub>R</sub>		
	V	V	V	µA	V	V	mA	
1N4678	1.710	1.8	1.890	50	7.5	1.0	0.70	120.0
1N4679	1.900	2.0	2.100	50	5.0	1.0	0.70	110.0
1N4680	2.090	2.2	2.310	50	4.0	1.0	0.75	100.0
1N4681	2.280	2.4	2.520	50	2.0	1.0	0.80	95.0
1N4682	2.565	2.7	2.835	50	1.0	1.0	0.85	90.0
1N4683	2.850	3.0	3.150	50	0.8	1.0	0.90	85.0
1N4684	3.135	3.3	3.465	50	7.5	1.5	0.95	80.0
1N4685	3.420	3.6	3.780	50	7.5	2.0	0.95	75.0
1N4686	3.705	3.9	4.095	50	5.0	2.0	0.97	70.0
1N4687	4.085	4.3	4.515	50	4.0	2.0	0.99	65.0
1N4688	4.465	4.7	4.935	50	10	3.0	0.99	60.0
1N4689	4.845	5.1	5.355	50	10	3.0	0.97	55.0
1N4690	5.320	5.6	5.880	50	10	4.0	0.96	50.0
1N4691	5.890	6.2	6.510	50	10	5.0	0.95	45.0
1N4692	6.460	6.8	7.140	50	10	5.1	0.90	35.0
1N4693	7.125	7.5	7.875	50	10	5.7	0.75	31.8
1N4694	7.790	8.2	8.610	50	1.0	6.2	0.50	29.0
1N4695	8.265	8.7	9.135	50	1.0	6.6	0.10	27.6
1N4696	8.645	9.1	9.555	50	1.0	6.9	0.08	26.2
1N4697	9.500	10	10.50	50	1.0	7.6	0.10	24.8

\* ΔV<sub>Z</sub>=V<sub>Z</sub> @ 100µA Minus V<sub>Z</sub> @ 10µA

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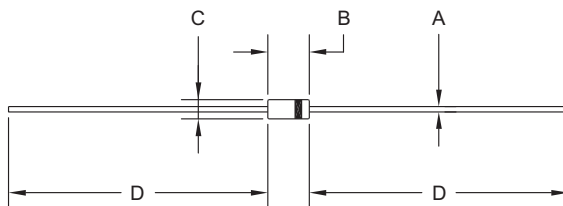


**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^{\circ}\text{C}$ )  $V_F=1.5\text{V MAX @ } I_F=100\text{mA}$  (for all types)

Type	Zener Voltage $V_Z @ I_{ZT}$			Test Current $I_{ZT}$	Maximum Reverse Leakage Current $I_R @ V_R$		Maximum Voltage Change* $\Delta V_Z$	Maximum Regulator Current $I_{ZM}$
	MIN	NOM	MAX		$\mu\text{A}$	$\text{V}$		
	V	V	V	$\mu\text{A}$	$\text{V}$			
1N4698	10.45	11	11.55	50	0.05	8.4	0.11	21.6
1N4699	11.40	12	12.60	50	0.05	9.1	0.12	20.4
1N4700	12.35	13	13.65	50	0.05	9.8	0.13	19.0
1N4701	13.30	14	14.70	50	0.05	10.6	0.14	17.5
1N4702	14.25	15	15.75	50	0.05	11.4	0.15	16.3
1N4703	15.20	16	16.80	50	0.05	12.1	0.16	15.4
1N4704	16.15	17	17.85	50	0.05	12.9	0.17	14.5
1N4705	17.10	18	18.90	50	0.05	13.6	0.18	13.2
1N4706	18.05	19	19.95	50	0.05	14.4	0.19	12.5
1N4707	19.00	20	21.00	50	0.01	15.2	0.20	11.9
1N4708	20.90	22	23.10	50	0.01	16.7	0.22	10.8
1N4709	22.80	24	25.20	50	0.01	18.2	0.24	9.9
1N4710	23.75	25	26.25	50	0.01	19.0	0.25	9.5
1N4711	25.65	27	28.35	50	0.01	20.4	0.27	8.8
1N4712	26.60	28	29.40	50	0.01	21.2	0.28	8.5
1N4713	28.50	30	31.50	50	0.01	22.8	0.30	7.9
1N4714	31.35	33	34.65	50	0.01	25.0	0.33	7.2
1N4715	34.20	36	37.80	50	0.01	27.3	0.36	6.6
1N4716	37.05	39	40.95	50	0.01	29.6	0.39	6.1
1N4717	40.85	43	45.15	50	0.01	32.6	0.43	5.5

\*  $\Delta V_Z = V_Z @ 100\mu\text{A}$  Minus  $V_Z @ 10\mu\text{A}$

**DO-35 CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS		DIMENSIONS	
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.018	0.022	0.46	0.56
B	0.120	0.200	3.05	5.08
C	0.060	0.090	1.52	2.29
D	1.000	-	25.40	-

DO-35 (REV: R1)

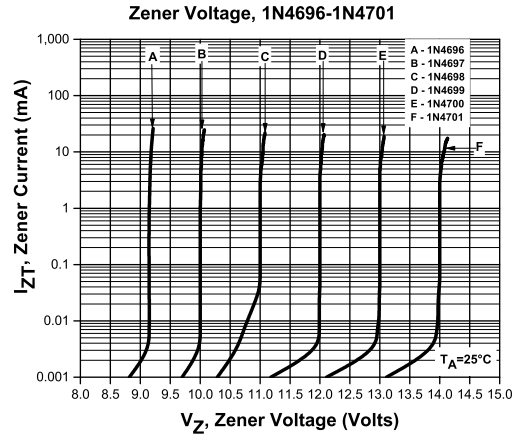
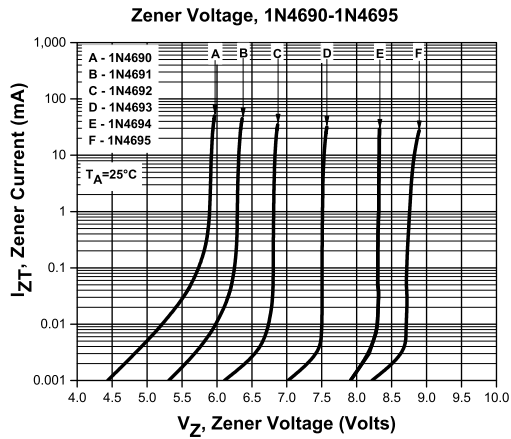
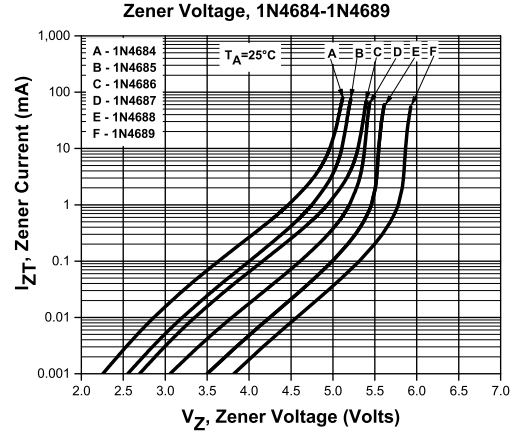
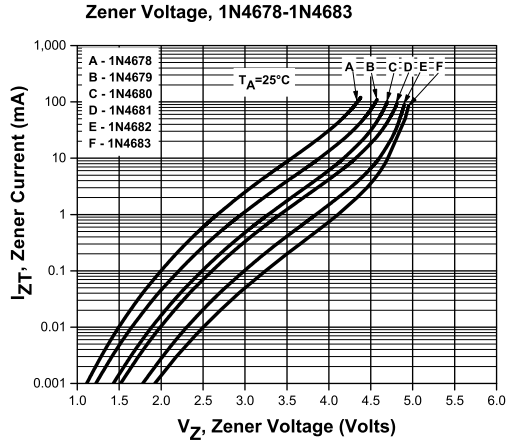
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R5 (8-October 2015)

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TYPICAL ELECTRICAL CHARACTERISTICS

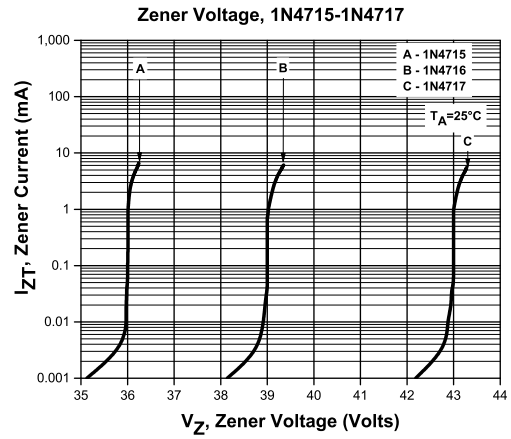
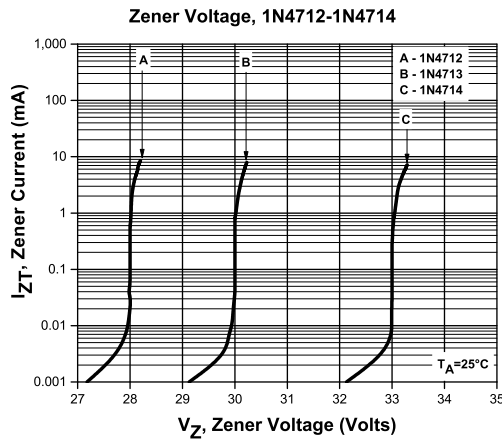
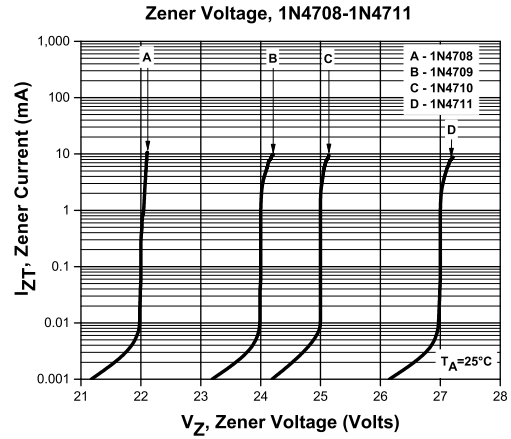
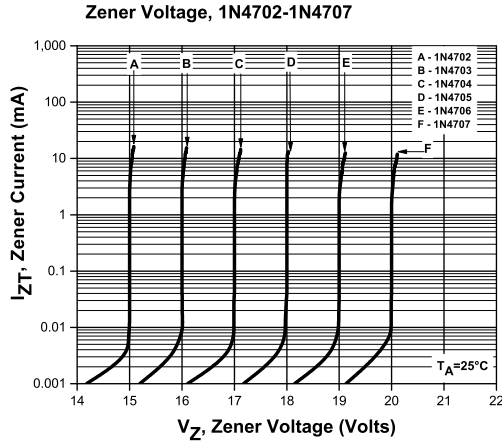


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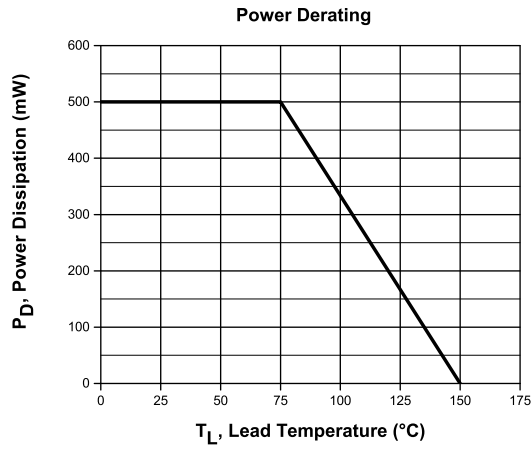


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### TYPICAL ELECTRICAL CHARACTERISTICS



R5 (8-October 2015)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### CONTACT US

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