

- ZENER DIODE CHIPS
- ALL JUNCTIONS COMPLETELY PROTECTED WITH SILICON DIOXIDE
- ELECTRICALLY EQUIVALENT TO 1N4678 THRU 1N4717
- 0.5 WATT CAPABILITY WITH PROPER HEAT SINKING
- 50 μ A, LOW OPERATING CURRENT, ZENER DIODES
- COMPATIBLE WITH ALL WIRE BONDING AND DIE ATTACH TECHNIQUES, WITH THE EXCEPTION OF SOLDER REFLOW

CD4678

thru

CD4717

MAXIMUM RATINGS

Operating Temperatures: -65°C to +175°C

Storage Temperatures: -65°C to +175°C

Forward Voltage @ 200 mA: 1.5 Volts maximum

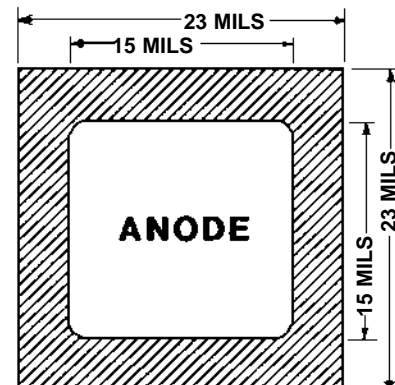
ELECTRICAL CHARACTERISTICS @ 25°C, unless otherwise specified.

| CDI TYPE NUMBER (Note 1) | NOMINAL ZENER VOLTAGE V_Z (Note 3) | ZENER TEST CURRENT I_{ZT} | MAXIMUM VOLTAGE REGULATION ΔV_Z (Note 2) | MAXIMUM REVERSE LEAKAGE CURRENT I_R @ V_R | | MAXIMUM DC ZENER CURRENT I_{ZM} |
|---------------------------------------|--------------------------------------------------|--------------------------------------|--------------------------------------------------------------|--------------------------------------------------------|-------|--------------------------------------------|
| | VOLTS | μ A | VOLTS | μ A | VOLTS | mA |
| CD4678 | 1.8 | 50 | 0.70 | 7.5 | 1.0 | 120.0 |
| CD4679 | 2.0 | 50 | 0.70 | 5.0 | 1.0 | 110.0 |
| CD4680 | 2.2 | 50 | 0.75 | 4.0 | 1.0 | 100.0 |
| CD4681 | 2.4 | 50 | 0.80 | 2.0 | 1.0 | 95.0 |
| CD4682 | 2.7 | 50 | 0.80 | 1.0 | 1.0 | 90.0 |
| CD4683 | 3.0 | 50 | 0.90 | 0.8 | 1.0 | 85.0 |
| CD4684 | 3.3 | 50 | 0.95 | 7.5 | 1.5 | 80.0 |
| CD4685 | 3.6 | 50 | 0.95 | 7.5 | 2.0 | 75.0 |
| CD4686 | 3.9 | 50 | 0.97 | 5.0 | 2.0 | 70.0 |
| CD4687 | 4.3 | 50 | 0.99 | 4.0 | 2.0 | 65.0 |
| CD4688 | 4.7 | 50 | 0.99 | 10.0 | 3.0 | 60.0 |
| CD4689 | 5.1 | 50 | 0.97 | 10.0 | 3.0 | 55.0 |
| CD4690 | 5.6 | 50 | 0.96 | 10.0 | 4.0 | 50.0 |
| CD4691 | 6.2 | 50 | 0.95 | 10.0 | 5.0 | 45.0 |
| CD4692 | 6.8 | 50 | 0.90 | 10.0 | 5.1 | 35.0 |
| CD4693 | 7.5 | 50 | 0.75 | 10.0 | 5.7 | 31.8 |
| CD4694 | 8.2 | 50 | 0.50 | 1.0 | 6.2 | 29.0 |
| CD4695 | 8.7 | 50 | 0.10 | 1.0 | 6.6 | 27.4 |
| CD4696 | 9.1 | 50 | 0.08 | 1.0 | 6.9 | 26.2 |
| CD4697 | 10.0 | 50 | 0.10 | 1.0 | 7.6 | 24.8 |
| CD4698 | 11.0 | 50 | 0.11 | 0.05 | 8.4 | 21.6 |
| CD4699 | 12.0 | 50 | 0.12 | 0.05 | 9.1 | 20.4 |
| CD4700 | 13.0 | 50 | 0.13 | 0.05 | 9.8 | 19.0 |
| CD4701 | 14.0 | 50 | 0.14 | 0.05 | 10.6 | 17.5 |
| CD4702 | 15.0 | 50 | 0.15 | 0.05 | 11.4 | 16.3 |
| CD4703 | 16.0 | 50 | 0.16 | 0.05 | 12.1 | 15.4 |
| CD4704 | 17.0 | 50 | 0.17 | 0.05 | 12.9 | 14.5 |
| CD4705 | 18.0 | 50 | 0.18 | 0.05 | 13.6 | 13.2 |
| CD4706 | 19.0 | 50 | 0.19 | 0.05 | 14.4 | 12.5 |
| CD4707 | 20.0 | 50 | 0.20 | 0.01 | 15.2 | 11.9 |
| CD4708 | 22.0 | 50 | 0.22 | 0.01 | 16.7 | 10.8 |
| CD4709 | 24.0 | 50 | 0.24 | 0.01 | 18.2 | 9.9 |
| CD4710 | 25.0 | 50 | 0.25 | 0.01 | 19.0 | 9.5 |
| CD4711 | 27.0 | 50 | 0.27 | 0.01 | 20.4 | 8.8 |
| CD4712 | 28.0 | 50 | 0.28 | 0.01 | 21.2 | 8.5 |
| CD4713 | 30.0 | 50 | 0.30 | 0.01 | 22.8 | 7.9 |
| CD4714 | 33.0 | 50 | 0.33 | 0.01 | 25.0 | 7.2 |
| CD4715 | 36.0 | 50 | 0.36 | 0.01 | 27.3 | 6.6 |
| CD4716 | 39.0 | 50 | 0.39 | 0.01 | 29.8 | 6.1 |
| CD4717 | 43.0 | 50 | 0.43 | 0.01 | 32.6 | 5.5 |

NOTE 1 The JEDEC type numbers shown above have a standard tolerance of $\pm 5\%$ of the nominal Zener voltage. V_Z is measured with the diode in thermal equilibrium at $25^\circ\text{C} \pm 3^\circ\text{C}$.

NOTE 2 V_Z @ 100 μ A minus V_Z @ 10 μ A.

NOTE 3 Zener voltage is read using a pulse measurement, 10 milliseconds maximum.



BACKSIDE IS CATHODE

FIGURE 1

DESIGN DATA

METALLIZATION:

Top: (Anode).....Al
Back: (Cathode).....Au

AL THICKNESS.....25,000 Å Min

GOLD THICKNESS.....4,000 Å Min

CHIP THICKNESS.....10 Mils

CIRCUIT LAYOUT DATA:

For Zener operation, cathode must be operated positive with respect to anode.

TOLERANCES: ALL

Dimensions ± 2 mils



COMPENSATED DEVICES INCORPORATED

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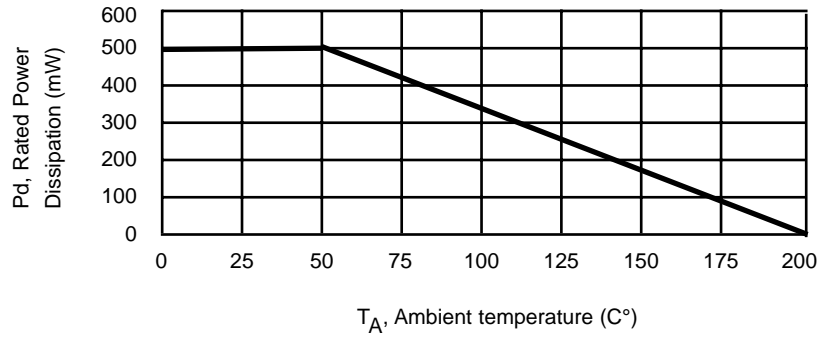
WEBSITE: <http://www.cdi-diodes.com>

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E-mail: mail@cdi-diodes.com

CD4678 thru CD4717

FIGURE 2



POWER DERATING CURVE

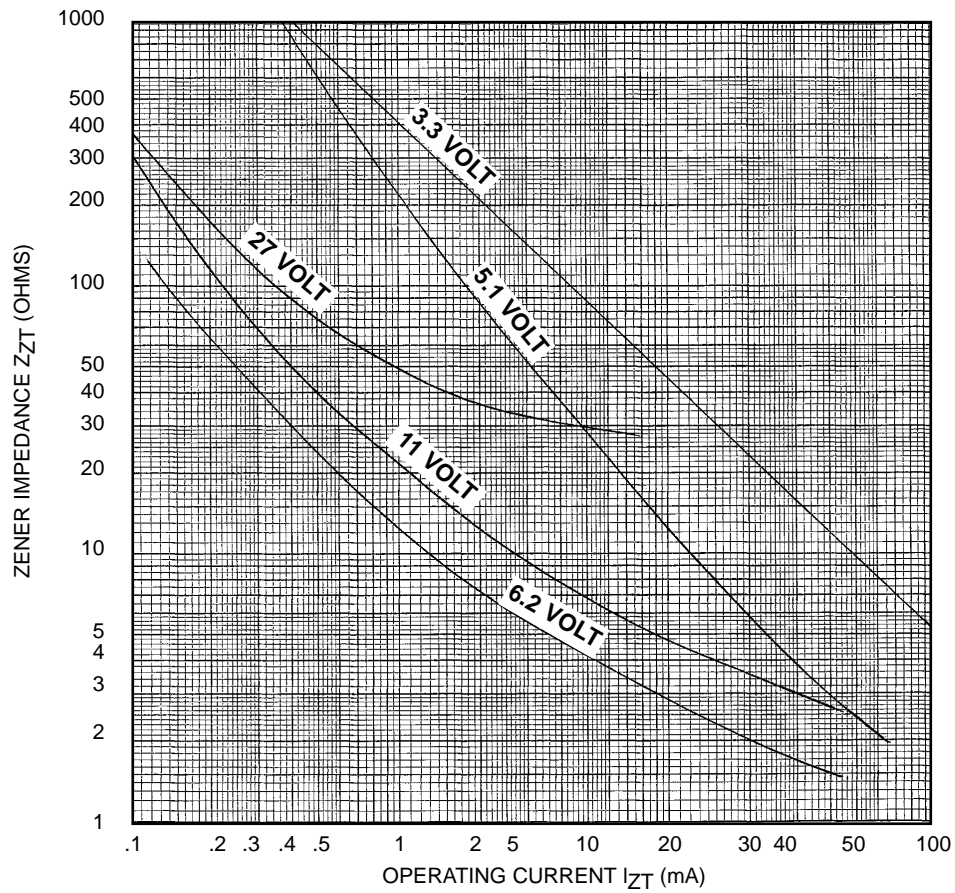


FIGURE 3

ZENER IMPEDANCE VS. OPERATING CURRENT