

### Features

- Six Matched Diodes on a Common Substrate
- Excellent Reverse Recovery Time . . . . . 1ns (Typ)
- $V_F$  Match . . . . . 5mV (Max)
- Low Capacitance . . . . .  $C_D = 0.65\text{pF}$  (Typ) at  $V_R = -2\text{V}$

### Applications

- Ultra-Fast Low Capacitance Matched Diodes for Applications in Communications and Switching Systems
- Balanced Modulators or Demodulators
- Ring Modulators
- High Speed Diode Gates
- Analog Switches

### Description

The CA3039 consists of six ultra-fast, low capacitance diodes on a common monolithic substrate. Integrated circuit construction assures excellent static and dynamic matching of the diodes, making the array extremely useful for a wide variety of applications in communication and switching systems.

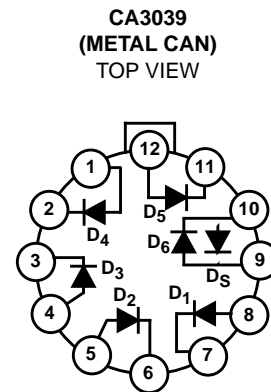
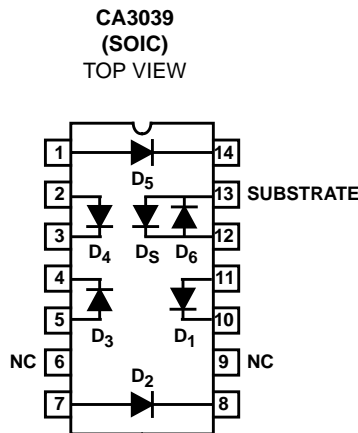
Five of the diodes are independently accessible, the sixth shares a common terminal with the substrate.

For applications such as balanced modulators or ring modulators where capacitive balance is important, the substrate should be returned to a DC potential which is significantly more negative (with respect to the active diodes) than the peak signal applied.

### Ordering Information

PART NUMBER	TEMP. RANGE (°C)	PACKAGE	PKG. NO.
CA3039	-55 to 125	12 Pin Metal Can	T12.B
CA3039M	-55 to 125	14 Ld SOIC	M14.15
CA3039M96	-55 to 125	14 Ld SOIC Tape and Reel	M14.15

### Pinouts





Typical Performance Curves

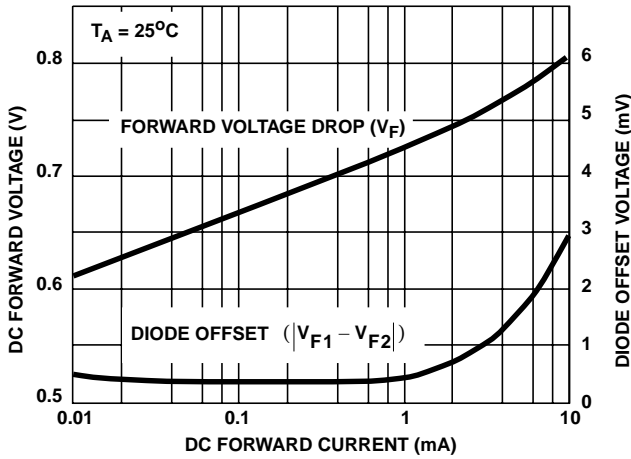


FIGURE 1. DC FORWARD VOLTAGE DROP (ANY DIODE) AND DIODE OFFSET VOLTAGE vs DC FORWARD CURRENT

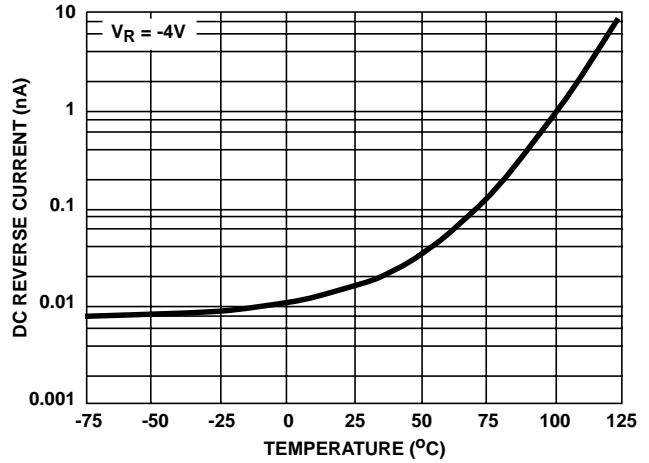


FIGURE 2. DC REVERSE (LEAKAGE) CURRENT (D<sub>1</sub> - D<sub>5</sub>) vs TEMPERATURE

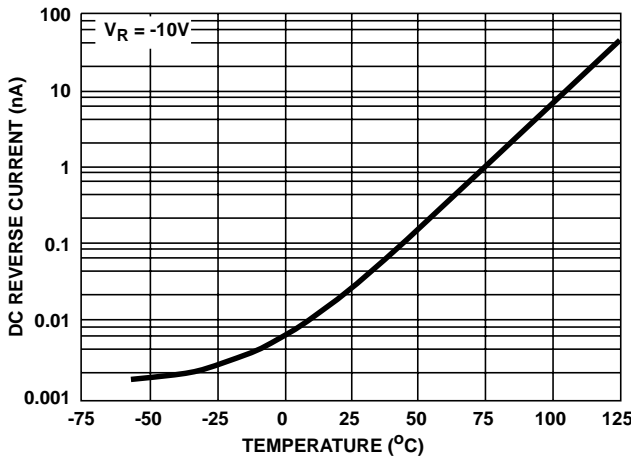


FIGURE 3. DC REVERSE (LEAKAGE) CURRENT BETWEEN D<sub>1</sub>, D<sub>2</sub>, D<sub>3</sub>, D<sub>4</sub>, D<sub>5</sub> AND SUBSTRATE vs TEMPERATURE

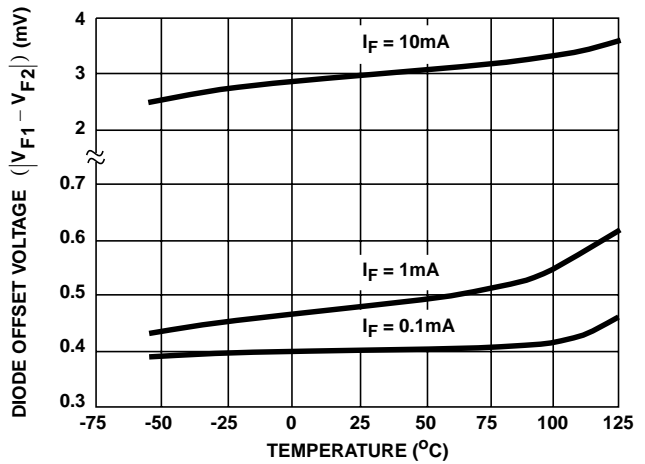


FIGURE 4. DIODE OFFSET VOLTAGE (ANY DIODE) vs TEMPERATURE

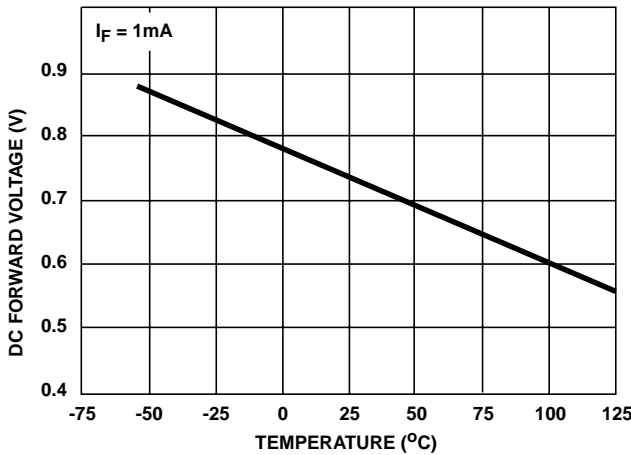


FIGURE 5. DC FORWARD VOLTAGE DROP (ANY DIODE) vs TEMPERATURE

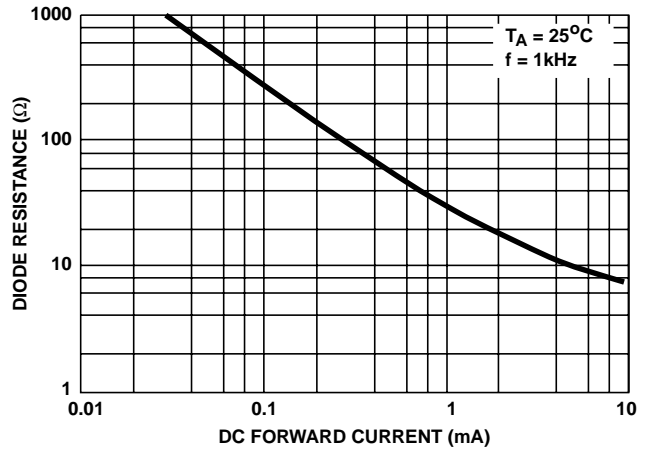
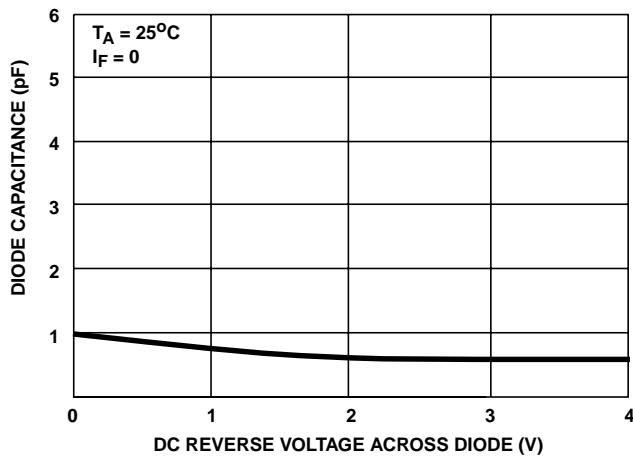
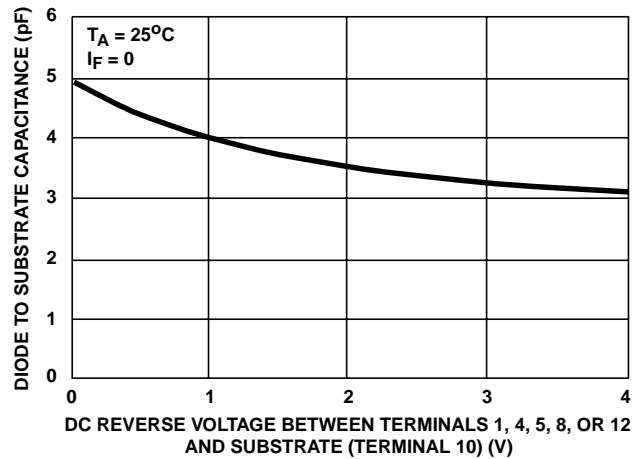


FIGURE 6. DIODE RESISTANCE (ANY DIODE) vs DC FORWARD CURRENT

**Typical Performance Curves** (Continued)



**FIGURE 7. DIODE CAPACITANCE (D<sub>1</sub> - D<sub>5</sub>) vs REVERSE VOLTAGE**



**FIGURE 8. DIODE-TO-SUBSTRATE CAPACITANCE vs REVERSE VOLTAGE**

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