calogic
CORPORATION

1.2V Band-Gap Reference

CA5010

FEATURES

- **Temperature Coefficient Grades ..... 5 to 100ppm/°C**
- **Operating Current Range ..... 25μA to 5mA**
- **Dynamic Impedance 1Ω**
- **Low Cost TO-92 Plastic Package**
- **Surface Mount SOT-89 Package**

APPLICATIONS

- **ADC and DAC Reference**
- **Current Source Generation**
- **Threshold Detectors**
- **Power Supplies**
- **Multimeters**
- **Portable Meter & Test Instrumentation**
- **Amplifier Biasing**

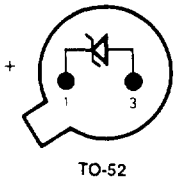
DESCRIPTION

The CA5010 1.2V output bipolar two terminal band-gap voltage references offers precision performance without a premium price. A 50ppm/°C output temperature coefficient and 25μA to 5mA operating current range make the device an attractive multimeter, data acquisition converter, and telecommunication voltage reference.

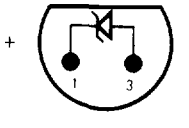
ORDERING INFORMATION

MAX. TEMPCO ppm/°C	PART NUMBER	PACKAGE	TEMP. RANGE
100	CA5010GN	TO-92	0°C to +70°C
50	CA5010HN	TO-92	0°C to +70°C
25	CA5010LN	TO-92	0°C to +70°C
100	CA5010JT	TO-52	-55°C to +125°C
50	CA5010KT	TO-52	-55°C to +125°C
25	CA5010LT	TO-52	-55°C to +125°C

Pin Connections (Bottom View)



TO-52
(T SUFFIX)



TO-92
(N SUFFIX)

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ABSOLUTE MAXIMUM RATINGS

Maximum Temperature
- Storage Temperature, JT-KT-LT ..... −65°C to +200°C
- Storage Temperature, GN-HN-LN ..... −65°C to +150°C
- Operating Range, JT-KT-LT ..... −55°C to +125°C
- Operating Range, GN-HN-LN ..... 0° to 70°C
- Lead Temperature (soldering, 10 sec.) ..... +260°C

Maximum Power Dissipation
- Power Dissipation (free air), JT-KT-LT 750mW
- Power Dissipation (free air), GN-HN-LN 600mW
- Linear Derating Factor, JT-KT-LT ..... 4.3mW/°C
- Linear Derating Factor, GN-HN-LN ..... 5mW/°C

Maximum Current
- Forward Current 10mA
- Reverse Current 10mA

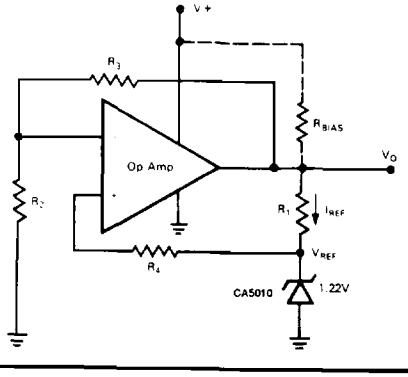
Packaging ..... TO-92 and TO-52

ELECTRICAL CHARACTERISTICS

CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
Reference Current	50	100	5000	μA	
Reference Voltage	1.20	1.237	1.25	V	$I_R = 100\mu A$
Output Impedance		0.6		Ω	$I_R = 100\mu A$
		0.6	2	Ω	$I_R = 500\mu A$
RMS Noise Voltage		5		μV_{p-p}	$10Hz \leq f \leq 10kHz$, $I_R = 500\mu A$
BreakdownVoltage					
Temperature Coefficient					
CA5010 G-J		30	100	ppm/°C	
CA5010 H-K		25	50	ppm/°C	$50\mu A \leq I_R \leq 5mA$
CA5010 L			25	ppm/°C	$T_{min} \leq T_A \leq T_{max}$

NOTE:
Optimum performance is obtained at currents below 500μA.

Typical Application–Adjustable Voltage Reference



$$V_O = V_{REF}\left(\frac{R_2 + R_3}{R_2}\right)$$

$$R_4 = \frac{R_2 \cdot R_3}{R_2 + R_3}$$

$$I_{REF} = \frac{V_O - V_{REF}}{R_1}$$