

FEATURES

- Tested and Guaranteed as low as 5 ppm/°C Max Tempco
- Wide Operating Range: 50 μ A - 5 mA
- Low Output Impedance: 0.6 Ω Typical

BENEFITS

- Lower Sensitivity to Capacitive Loading
- No Frequency Compensation Required
- Accurate Stable Reference over Temp

APPLICATIONS

- Building Block for Custom References
- Low Current Voltage Reference for Hand Held Multimeters
- Voltage Reference for Video Flash Converters
- Voltage Reference for D/A and A/D Converters
- Precision Analog Control Circuits

GENERAL DESCRIPTION

The MP5010 is a 2 terminal, band-gap voltage reference which provides a fixed 1.2 V nominal output voltage. The design and process enables us to provide guaranteed tempcos as low as 5 ppm/°C max. We provide this with a wide input current

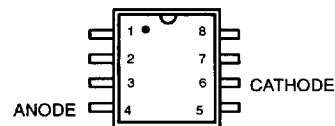
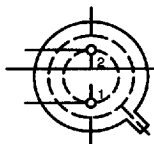
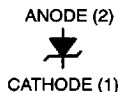
range of 50 μ A to 5mA, lower sensitivity to load capacitances, and a low output impedance of 0.6 Ω (typ).

Specified for operation over the commercial (0 to +70°C), industrial (-40 to +85°C), and military (-55 to +125°C) temperature ranges, the MP5010 is available in Plastic TO-92, Metal Can TO-52, and Surface Mount (SOIC) packages.

ORDERING INFORMATION

Part No.	Max Tempco	Temperature Range	Package Type
MP5010GN	100	-40 to +85°C	Plastic TO-92
MP5010HN	50	-40 to +85°C	Plastic TO-92
MP5010LN	25	-40 to +85°C	Plastic TO-92
MP5010MN	10	0 to 70°C	Plastic TO-92
MP5010JT	100	-55 to +125°C	TO-52
MP5010KT	50	-55 to +125°C	TO-52
MP5010LT	25	-55 to +125°C	TO-52
MP5010MT	10	-40 to +85°C	TO-52
MP5010NT	5	-40 to +85°C	TO-52
MP5010JR	100	-40 to +85°C	SO-8
MP5010MR	10	-40 to +85°C	SO-8

PIN CONFIGURATIONS



TO-92 PLASTIC

TO-52 (Metal Can)

8 Lead SOIC (0.150")

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min	25°C Typ	Max	Tmin to Tmax Min Max	Units	Test Conditions/Comments
Reference Current	I_R	50		5000		μA	
Reference Voltage	V_{REF}	1.200	1.220	1.250		V	$I_R = 500\mu A$
Output Impedance ¹	Z_{OUT}		.6	2		Ω	$I_R = 500\mu A$
RMS Noise Voltage ¹			5			μV	$10Hz \leq f \leq 10 kHz$ $I_R = 500\mu A$
BREAKDOWN VOLTAGE TEMPERATURE COEFFICIENT							
G-S			30	100		ppm/°C	$I_R = 500\mu A$
H-K			25	50			$T_{min} \leq T_A \leq T_{max}$
L			10	25			
M			5	10			
N			3	5			
Reverse Current		50		5000		μA	To rated specs

ABSOLUTE MAXIMUM RATINGS^{1, 2, 3}

Maximum Temperature

Storage (JT, KT, LT, MT, NT)	-65 to +200°C
Storage (GN, HN, LN, JR, GR, RR, LR)	-65 to +125°C
Operating Range (JT, KT, LT)	-55 to +125°C
Operating Range (GN, HN, LN, NT, MT, JR, RR, LR)	-40 to +85°C
Operating Range (MN, GR)	0 to 70°C

Lead Temperature (soldering, 10 sec) +260°C

Maximum Power Dissipation (all packages) (2)

Power Dissipation (25°C) 13mW

Maximum Current

Forward Current 10mA

Reverse Current 10mA

NOTES:

¹ Guaranteed, not tested.

² Limited by max forward/reverse current.

³ Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation at or above this specification is not implied. Exposure to above maximum rating conditions for extended periods may affect device reliability.

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