



Very Low Tempco 1.2 Voltage Reference

MP5010

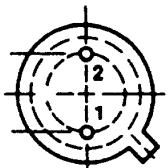
FEATURES

- Lowest Tempco in the Industry: 5 ppm/°C Max.
- Superior Replacement for Other 1.2V References
- Wide Operating Range: 50 μ A – 10 mA
- Low Output Impedance: 0.6 Ω Typical
- Lower Sensitivity to Capacitive Loading
- Replaces LM113, ICL8069, AD589
- MIL-STD-883, Level B Processing Available
- No Frequency Compensation Required
- Low Cost

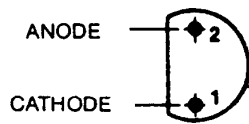
GENERAL DESCRIPTION

The MP5010 is a two terminal, band-gap voltage reference which provides a fixed 1.22V output voltage. The improvements made to the popular MP5010 make it the lowest tempco 1.2V band-gap reference in the industry with tempco's available down to 5 ppm/°C max. Other improvements include a wider input current range of 50 μ A to 10 mA, lower sensitivity to shunt capacitances, and a lowered output impedance of 0.6 Ω .

PIN CONNECTIONS (bottom view)



TO-52
(T-SUFFIX)



TO-92
(N-SUFFIX)
PLASTIC

ABSOLUTE MAXIMUM RATINGS

Maximum Temperature:

Storage Temperature, JT-KT-LT-MT-NT	-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-MT-NT	0°C to +70°C
Lead Temperature (soldering, 10 sec.)	+260°C

Maximum Power Dissipation:

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

Maximum Current:

Forward Current	10 mA
Reverse Current	10 mA

Packaging TO-92 and TO-52

ORDERING INFORMATION

MAX. TEMP CO ppm / °C	TEMP. RANGE	ORDER PART
100	COM	MP5010 GN
50	COM	MP5010 HN
25	COM	MP5010 LN
10	COM	MP5010 MT
5	COM	MP5010 NT
100	MIL	MP5010 JT
50	MIL	MP5010 KT
25	MIL	MP5010 LT

MP5010

ELECTRICAL CHARACTERISTICS

CHARACTERISTICS	MIN	TYP	MAX	UNITS	CONDITIONS
Reference Current	50	100	5000	μA	
Reference Voltage	1.20	1.220	1.25	V	$I_R = 100\mu\text{A}$
Output Impedance		.6		Ω	$I_R = 100\mu\text{A}$
		.6	2	Ω	$I_R = 500\mu\text{A}$
RMS Noise Voltage		5		μV	$10\text{Hz} \leq f \leq 10\text{ k Hz}$ $I_R = 500\mu\text{A}$
Breakdown voltage					
Temperature coefficient					
MP5010 G - J		30	100	ppm/ $^{\circ}\text{C}$	
MP5010 H - K		25	50	ppm/ $^{\circ}\text{C}$	$50\mu\text{A} \leq I_R \leq 5\text{ mA}$
MP5010 L		10	25	ppm/ $^{\circ}\text{C}$	$T_{\text{min}} \leq T_A \leq T_{\text{max}}$
MP5010 M		5	10	ppm/ $^{\circ}\text{C}$	
MP5010 N		3	5	ppm/ $^{\circ}\text{C}$	
Reverse Current	50		1000	μA	To Rated Specs

NOTES:

Optimum performance is obtained at currents below $500\mu\text{A}$.

Stray shunt capacitances should be minimized.

If strays cannot be avoided, a shunt capacitor of at least 1000pF is recommended.