

Micropower Voltage Reference Diode



CLM185-2.5 / CLM285-2.5 / CLM385-2.5

FEATURES

- Operating Current 20 μ A - 20mA
- Dynamic Impedance 1 Ω
- Low Voltage Reference 2.5V

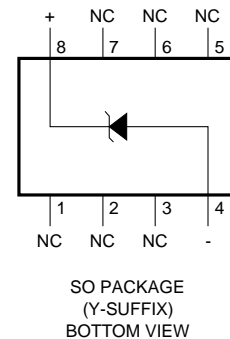
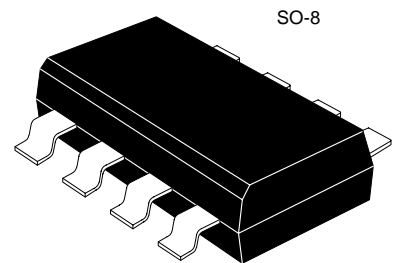
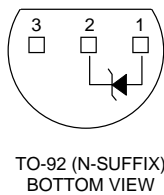
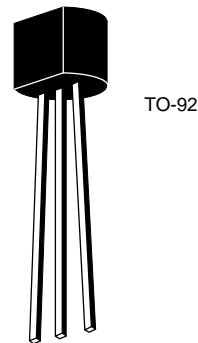
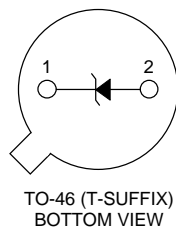
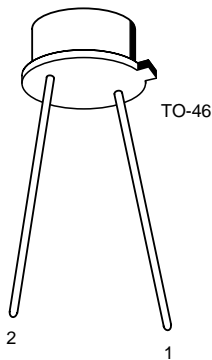
PRODUCT DESCRIPTION

The CLM185 / 285 / 385 - 2.5 are 2 terminal band-gap voltage regulator diodes. Operating over a 20 μ A to 20mA current range. The devices provide good temperature stability and exceptionally low dynamic impedance. Designed for applications in portable meters, regulators or general purpose circuitry.

ORDERING INFORMATION

Part	Package	Max Tempco (ppm)	Temp Range
CLM185T2	TO-46	100	-55 $^{\circ}$ C to +125 $^{\circ}$ C
CLM285T2	TO-46	100	-40 $^{\circ}$ C to +85 $^{\circ}$ C
CLM285Y2	SOIC	100	-40 $^{\circ}$ C to +85 $^{\circ}$ C
CLM385T2	TO-46	100	0 $^{\circ}$ C to +70 $^{\circ}$ C
CLM385N2	TO-92	100	0 $^{\circ}$ C to +70 $^{\circ}$ C
CLM385Y2	SOIC	100	0 $^{\circ}$ C to +70 $^{\circ}$ C

PIN CONFIGURATIONS





CLM185-2.5 / CLM285-2.5 / CLM385-2.5

ABSOLUTE MAXIMUM RATINGS (Note 1)

Reverse Current	30mA	Storage Temperature	-55°C to +150°C
Forward Current	10mA	Soldering Information	
Operating Temperature Range (Note 3)		TO-92 Package (10 sec.)	260°C
CLM185-2.5	-55°C to +125°C	TO-46 Package (10 sec.)	300°C
CLM285-2.5	-40°C to +85°C	SO Package: Vapor Phase (60 sec.)	215°C
CLM385-2.5	0°C to +70°C	Infrared (15 sec.)	220°C

ELECTRICAL CHARACTERISTICS (Continued) (Note 3)

PARAMETER	TYP	CLM185-2.5 CLM285-2.5		CLM385-2.5		UNITS (LIMITS)	CONDITIONS
		TESTED LIMIT (NOTE 4)	DESIGN LIMIT (NOTE 5)	TESTED LIMIT (NOTE 4)	DESIGN LIMIT (NOTE 5)		
Reverse Breakdown Voltage	2.5	2.462 2.538		2.425 2.575		V(min) V(max)	T _A = 25°C, 20μA ≤ I _R ≤ 20mA
Minimum Operating Current	13	20	30	20	30	μA(Max)	
Reverse Breakdown Voltage Change with Current		1	1.5	2.0	2.5	mV(Max)	20μA ≤ I _R ≤ 1mA
		10	20	20	25	mV(Max)	1mA ≤ I _R ≤ 20mA
Reverse Dynamic Impedance	1					Ω	I _R = 100μA, f = 20Hz
Wideband Noise (rms)	120					μV	I _R = 100μA 10Hz ≤ f ≤ 10kHz
Long Term Stability	20					ppm	I _R = 100μA, T = 1000Hr, T _A = 25°C ± 0.1°C
Average Temperature Coefficient (Note 6)		50	100		100	ppm/°C(Max)	I _R = 100μA

Note 1: Absolute Maximum Ratings indicate limits beyond which damage to the device may occur. Operating Ratings indicate conditions for which the device is intended to be functional, but do not guarantee specific performance limits. For guaranteed specifications and test conditions, see the Electrical Characteristics. The guaranteed specifications apply only for the test conditions listed.

Note 2: For elevated temperature operation, T_j max is:

- CLM185 150°C
- CLM285 125°C
- CLM385 100°C

Thermal Resistance	TO-92	TO-46	SO-8
θ _{ja} (Junction to Ambient)	180°C/W (0.4" Leads) 170°C/W (0.125" Leads)	440°C/W	165°C/W
θ _{jc} (Junction to Case)	N/A	80°C/W	N/A

Note 3: Parameters identified with **boldface type** apply at temperature extremes. All other numbers apply at T_A = T_J = 25°C.

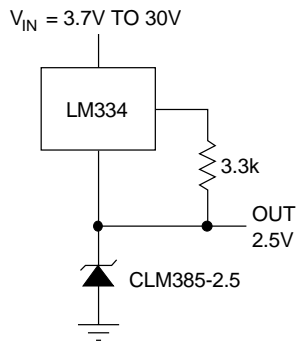
Note 4: Guaranteed and 100% production tested.

Note 5: Guaranteed, but not 100% production tested. These limits are not used to calculate average outgoing quality levels.

Note 6: The average temperature coefficient is defined as the maximum deviation of reference voltage at all measured temperatures between the operating T_{MAX} and T_{MIN}, divided by T_{MAX}-T_{MIN}. The measured temperatures are -55°C, -40°C, 0°C, 25°C, 70°C, 85°C, 125°C.

APPLICATIONS

**WIDE INPUT RANGE
REFERENCE**



**MICROPOWER REFERENCE
FROM 9V BATTERY**

