

CLM285-2.5 / CLM385-2.5

FEATURES

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

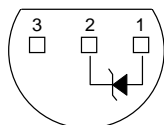
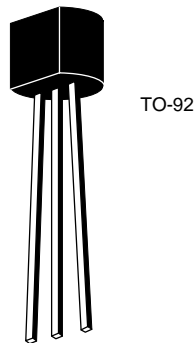
PRODUCT DESCRIPTION

The CLM285 / 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.

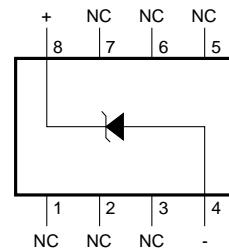
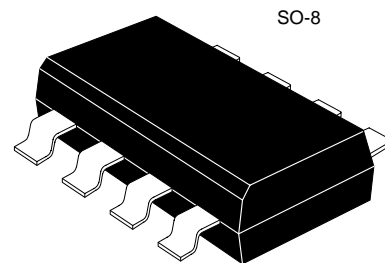
ORDERING INFORMATION

| Part | Package | Max Tempco (ppm) | Temp Range |
|----------|---------|------------------|--------------------------------------|
| 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



TO-92 (N-SUFFIX)
BOTTOM VIEW



SO PACKAGE
(Y-SUFFIX)
BOTTOM VIEW

ABSOLUTE MAXIMUM RATINGS (Note 1)

| | |
|--------------------------------------|-----------------|
| Reverse Current | 30mA |
| Forward Current | 10mA |
| Operating Temperature Range (Note 3) | |
| CLM185-2.5 | -55°C to +125°C |
| CLM285-2.5 | -40°C to +85°C |
| CLM385-2.5 | 0°C to +70°C |

| | |
|---|-----------------|
| Storage Temperature | -55°C to +150°C |
| Soldering Information | |
| TO-92 Package (10 sec.) | 260°C |
| TO-46 Package (10 sec.) | 300°C |
| SO Package: Vapor Phase (60 sec.) | 215°C |
| Infrared (15 sec.) | 220°C |

ELECTRICAL CHARACTERISTICS (Continued) (Note 3)

| PARAMETER | TYP | 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 | 2.460 2.535 | | 2.470 2.530 | | V(min) V(max) | T _A = 25°C, 20µA ≤ I _R ≤ 20mA |
| Minimum Operating Current | 13 | 18 | 20 | 20 | 20 | µA(Max) | |
| Reverse Breakdown Voltage Change with Current | | 1 | 1.5 | 2.0 | 1.5 | 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:

| | |
|--------|-------|
| CLM285 | 125°C |
| CLM385 | 100°C |

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

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

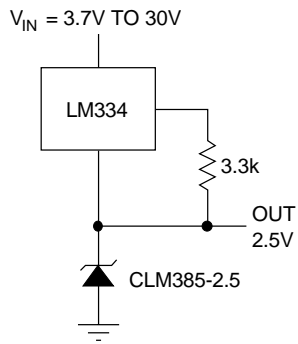
Note 4: Guaranteed and 100% production tested.

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**

