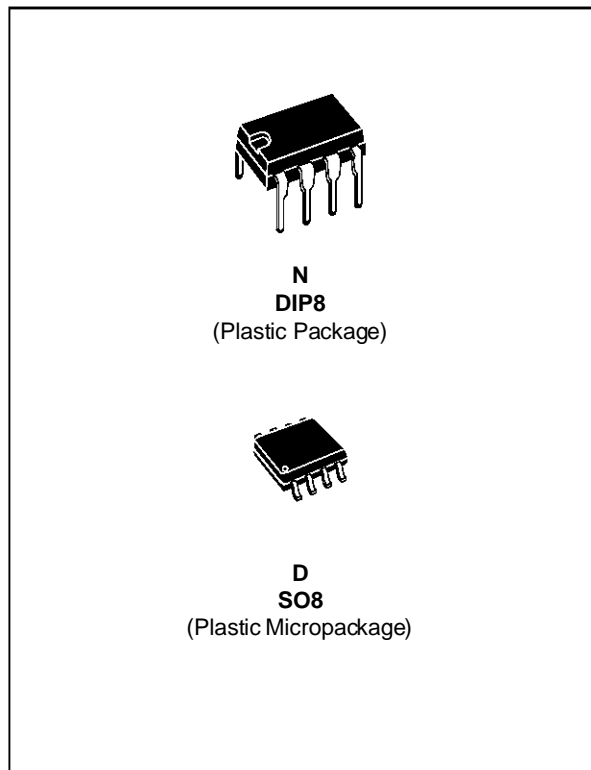


**2.5V PRECISION SERIAL VOLTAGE REFERENCE**

- OUTPUT VOLTAGE : 2.5V ±1%
- INPUT VOLTAGE RANGE : 4.5V to 40V
- QUIESCENT CURRENT : 1.2mA typ.
- OUTPUT CURRENT : 10mA



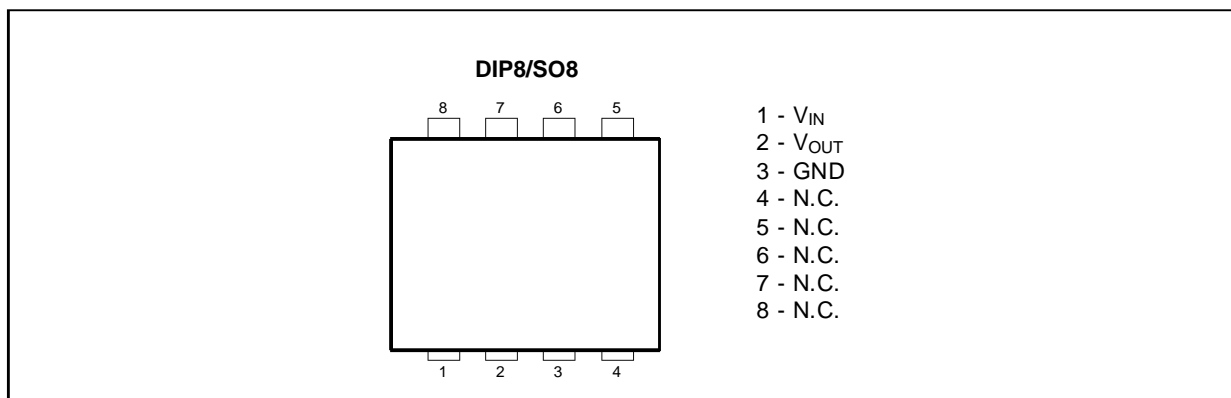
**DESCRIPTION**

The MC1403 is a serial 2.5V bandgap voltage reference. The major advantages are the 1% precision, the wide input voltage range (4.5V to 40V) and the low quiescent current (1.5mA max.)

**ORDER CODES**

| Part number | Temperature Range | Package |   |
|-------------|-------------------|---------|---|
|             |                   | N       | D |
| MC1403      | 0°C, +70°C        | •       | • |

**PIN CONNECTIONS (top views)**



**ABSOLUTE MAXIMUM RATINGS**

| Symbol     | Parameter                            | Value       | Unit |
|------------|--------------------------------------|-------------|------|
| $V_{IN}$   | Input Voltage                        | 40          | V    |
| $T_{oper}$ | Operating Free-air Temperature Range | 0 to +70    | °C   |
| $T_{stg}$  | Storage Temperature Range            | -65 to +150 | °C   |

**OPERATING CONDITIONS**

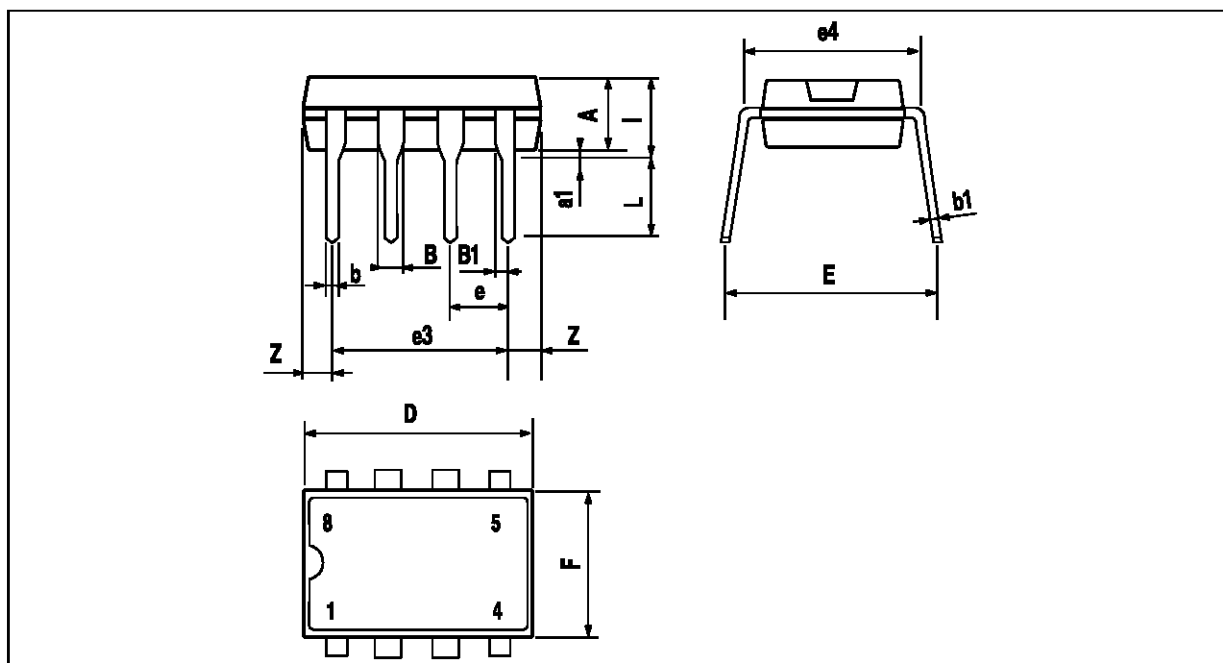
| Symbol   | Parameter                     | Value     | Unit |
|----------|-------------------------------|-----------|------|
| $V_{IN}$ | Input Voltage ( $I_o = 0mA$ ) | 4.5 to 40 | V    |

**ELECTRICAL CHARACTERISTICS**

$T_{amb} = 25^{\circ}C$ ,  $V_{IN} = 15V$  (unless otherwise specified)

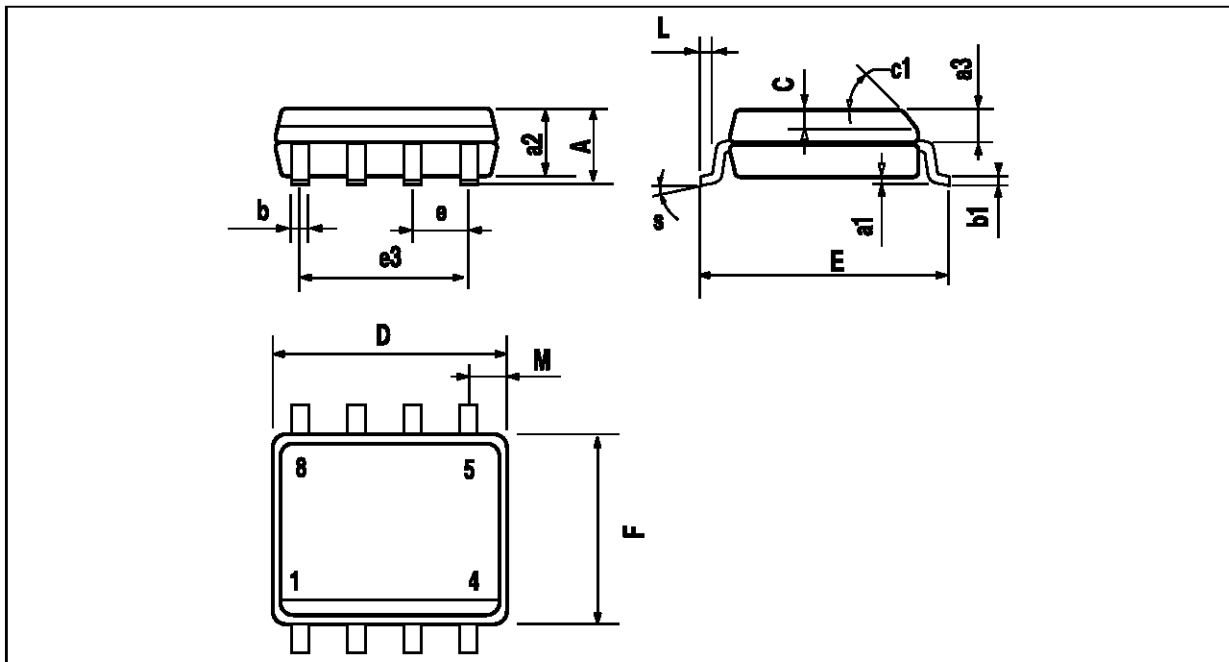
| Symbol                        | Parameter  | Value |      |          | Unit   |
|-------------------------------|--|-------|------|----------|--------|
|                               |  | Min.  | Typ. | Max.     |        |
| $V_{OUT}$                     | Output Voltage<br>$I_{OUT} = 0mA$  | 2.475 | 2.5  | 2.525    | V      |
| $\frac{\Delta V_O}{\Delta T}$ | Temperature Coefficient of Output Voltage<br>$I_{OUT} = 0mA$   |       | 10   | 40       | ppm/°C |
| $\Delta V_O$                  | Output Voltage change Over the Full Temperature Range<br>$I_{OUT} = 0mA$                                   |       | 2    | 7        | mV     |
| $Reg_{line}$                  | Line Regulation<br>$I_{OUT} = 0mA$ , $4.5V \leq V_i \leq 15V$<br>$I_{OUT} = 0mA$ , $15V \leq V_i \leq 40V$ |       |      | 3<br>4.5 | mV     |
| $Reg_{load}$                  | Load Regulation<br>$0 \leq I_{OUT} \leq 10mA$  |       |      | 10       | mV     |
| $I_Q$                         | Quiescent Current<br>$I_{OUT} = 0mA$   |       | 1.2  | 1.5      | mA     |

**PACKAGE MECHANICAL DATA**  
8 PINS - PLASTIC DIP



| Dimensions | Millimeters |      |       | Inches |       |       |
|------------|-------------|------|-------|--------|-------|-------|
|            | Min.        | Typ. | Max.  | Min.   | Typ.  | Max.  |
| A          |             | 3.32 |       |        | 0.131 |       |
| a1         | 0.51        |      |       | 0.020  |       |       |
| B          | 1.15        |      | 1.65  | 0.045  |       | 0.065 |
| b          | 0.356       |      | 0.55  | 0.014  |       | 0.022 |
| b1         | 0.204       |      | 0.304 | 0.008  |       | 0.012 |
| D          |             |      | 10.92 |        |       | 0.430 |
| E          | 7.95        |      | 9.75  | 0.313  |       | 0.384 |
| e          |             | 2.54 |       |        | 0.100 |       |
| e3         |             | 7.62 |       |        | 0.300 |       |
| e4         |             | 7.62 |       |        | 0.300 |       |
| F          |             |      | 6.6   |        |       | 0.260 |
| i          |             |      | 5.08  |        |       | 0.200 |
| L          | 3.18        |      | 3.81  | 0.125  |       | 0.150 |
| Z          |             |      | 1.52  |        |       | 0.060 |

**PACKAGE MECHANICAL DATA**  
**8 PINS - PLASTIC MICROPACKAGE (SO)**



| Dimensions | Millimeters |      |      | Inches |       |       |
|------------|-------------|------|------|--------|-------|-------|
|            | Min.        | Typ. | Max. | Min.   | Typ.  | Max.  |
| A          |             |      | 1.75 |        |       | 0.069 |
| a1         | 0.1         |      | 0.25 | 0.004  |       | 0.010 |
| a2         |             |      | 1.65 |        |       | 0.065 |
| a3         | 0.65        |      | 0.85 | 0.026  |       | 0.033 |
| b          | 0.35        |      | 0.48 | 0.014  |       | 0.019 |
| b1         | 0.19        |      | 0.25 | 0.007  |       | 0.010 |
| C          | 0.25        |      | 0.5  | 0.010  |       | 0.020 |
| c1         | 45° (typ.)  |      |      |        |       |       |
| D          | 4.8         |      | 5.0  | 0.189  |       | 0.197 |
| E          | 5.8         |      | 6.2  | 0.228  |       | 0.244 |
| e          |             | 1.27 |      |        | 0.050 |       |
| e3         |             | 3.81 |      |        | 0.150 |       |
| F          | 3.8         |      | 4.0  | 0.150  |       | 0.157 |
| L          | 0.4         |      | 1.27 | 0.016  |       | 0.050 |
| M          |             |      | 0.6  |        |       | 0.024 |
| S          | 8° (max.)   |      |      |        |       |       |

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