



# MC1403

## 2.5V PRECISION SERIAL VOLTAGE REFERENCE

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

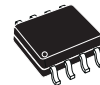
### DESCRIPTION

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 CODE

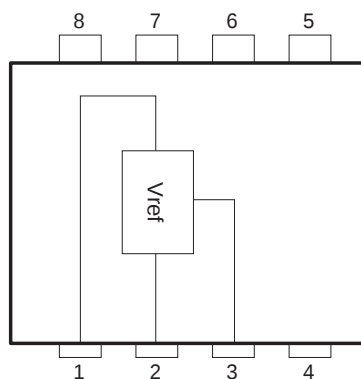
| Part Number | Temperature Range | Package |
|-------------|-------------------|---------|
|             |                   | D       |
| MC1403      | 0°C, +70°C        | •       |

D = Small Outline Package (SO) - also available in Tape & Reel (DT)



D  
SO8  
(Plastic Micropackage)

### PIN CONNECTIONS (top view)



- 1 -  $V_{in}$
- 2 -  $V_{out}$
- 3 - GND
- 4 - N.C.
- 5 - N.C.
- 6 - N.C.
- 7 - N.C.
- 8 - N.C.

**ABSOLUTE MAXIMUM RATINGS**

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

**OPERATING CONDITIONS**

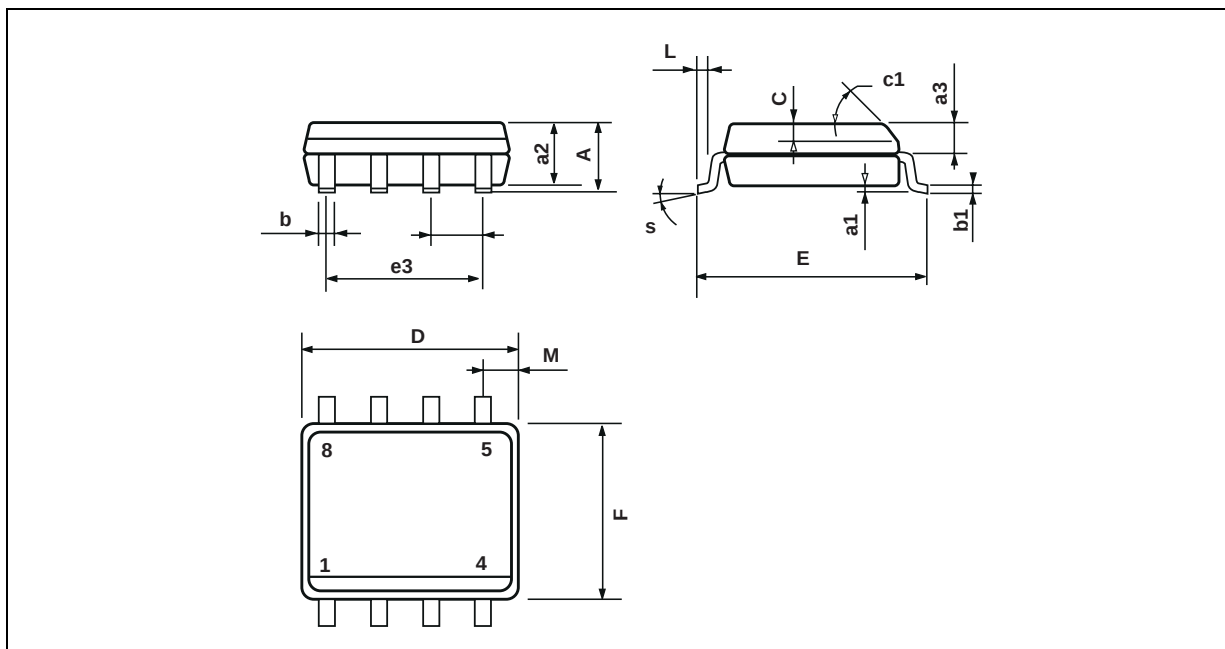
| Symbol     | Parameter                            | Value     | Unit |
|------------|--------------------------------------|-----------|------|
| $V_{IN}$   | Input Voltage ( $I_{OUT} = 0mA$ )    | 4.5 to 40 | V    |
| $T_{oper}$ | Operating Free Air Temperature Range | 0 to +70  | °C   |

**ELECTRICAL CHARACTERISTICS**

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

| Symbol                            | Parameter                                                                                                  | Min.  | Typ. | Max.     | Unit   |
|-----------------------------------|------------------------------------------------------------------------------------------------------------|-------|------|----------|--------|
| $V_{OUT}$                         | Output Voltage<br>$I_{OUT} = 0mA$                                                                          | 2.475 | 2.5  | 2.525    | V      |
| $\frac{\Delta V_{out}}{\Delta T}$ | Temperature Coefficient of Output Voltage<br>$I_{OUT} = 0mA$                                               |       | 10   | 40       | ppm/°C |
| $\Delta V_{OUT}$                  | 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 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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