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SR25D

2.5V PRECISION VOLTAGE REFERENCE

The SR25D is a monolithic integrated circuit using the bandgap principle to provide a precise reference voltage of 2.5V.

This reference device is packaged in a standard SOT-23 small outline package, making it ideal for all surface mount applications.

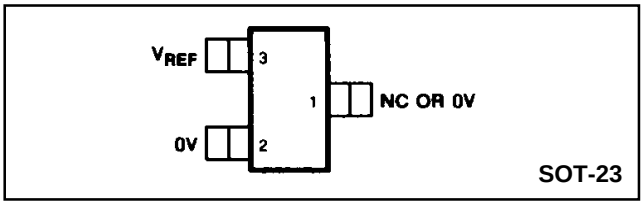

Fig. 1 Pin connections (top view)

FEATURES

- Standard SOT-23 Surface Mount Package
- Low Knee Current - Typically 60 µA
- Low temperature Coefficient

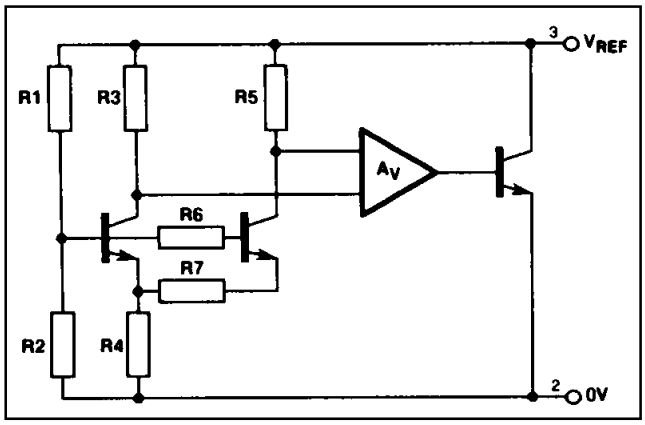

Fig.2 SR25D circuit diagram

ABSOLUTE MAXIMUM RATINGS

Reference current	5mA
Operating temperature range	-40°C to + 85°C
Storage temperature range	-55°C to +125°C

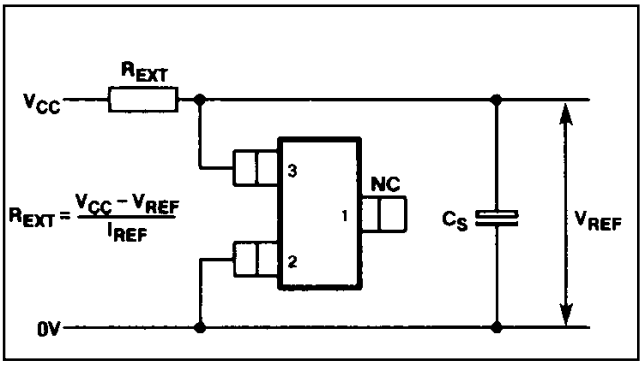

Fig.3 SR25D external connections.

NOTE: In order to achieve optimum operation, an electrolytic stabilising capacitor, C_S, (see Fig. 9) should be connected between V_{REF} and 0V as shown in Fig. 3.

ELECTRICAL CHARACTERISTICS

These characteristics are guaranteed over the following conditions (unless otherwise stated):

T_{amb} = +25°C, I_{REF} = 150µA, C_S = 1µF

Characteristic	Symbol	Value			Units	Conditions	Notes
		Min.	Typ.	Max.			
Output voltage	V_{REF}	2.425	2.50	2.575	V		
Slope resistance	R_{REF}		1.2	2.0	Ω	I_{REF} = 150µA to 5mA	1
Turn-on (knee) current	I_{ON}		60	80	µA		3
Recommended operating current range	I_{REF}	0.08		5	mA		3
Temperature coefficient	TCV_{REF}		40	150	ppm/°C	-40°C to + 85°C	2&3
RMS noise voltage	E_N		18		µV		3
Turn on time	t_{ON}		12.5		ms		3
Turn off time	t_{OFF}		45		ms		3
Turn on time	t_{ON}		0.4		ms	I_{REF} = 5mA	3
Turn off time	t_{OFF}		1.5		ms	I_{REF} = 5mA	3

NOTES

1. Slope Resistance (R_{REF})

The slope resistance is defined as

$$R_{REF} = \frac{\text{Change in } V_{REF} \text{ over specified current range}}{\text{The change in reference current}}$$

2. Reference Voltage Temperature Coefficient (TCV_{REF})

This is the normalised reference voltage change over temperature , divided by the change in temperature. It is expressed in ppm/°C as follows:

$$TCV_{REF} = \frac{\Delta V_{REF} \times 10^6}{V_{REF} \times \Delta T} \text{ ppm/°C}$$

ΔT = temperature change in °C

ΔV_{REF} = change in reference voltage over temperature change ΔT.

3. Guaranteed but not tested

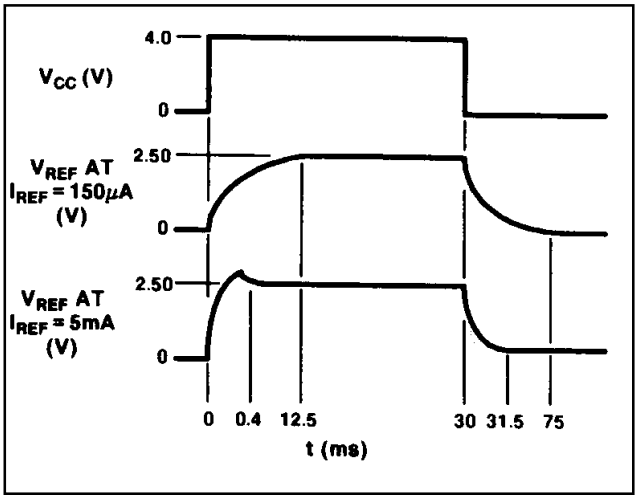

Fig.5 SR25D typical response time (not to scale)

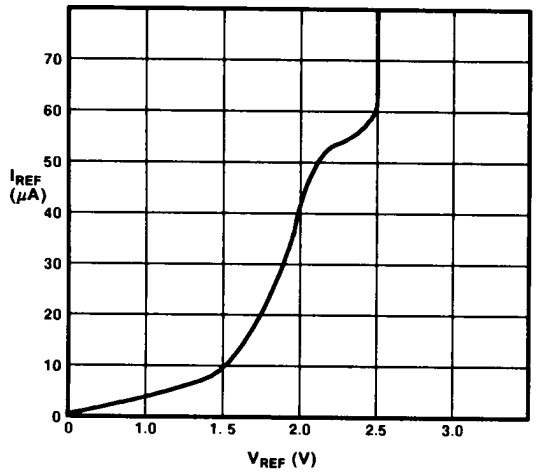

Fig.4 Typical reference characteristic

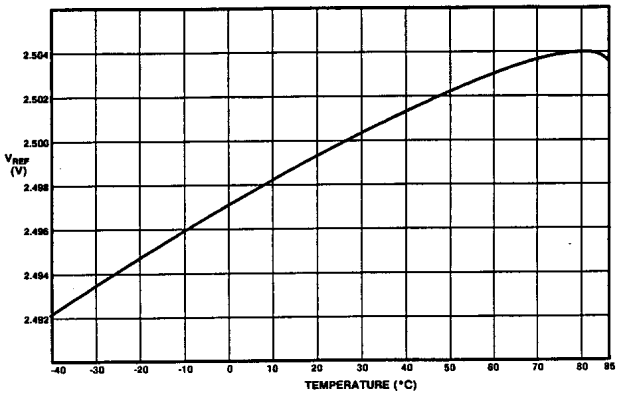

Fig.6 Typical temperature characteristic of SR25D at I_{REF} = 150μA

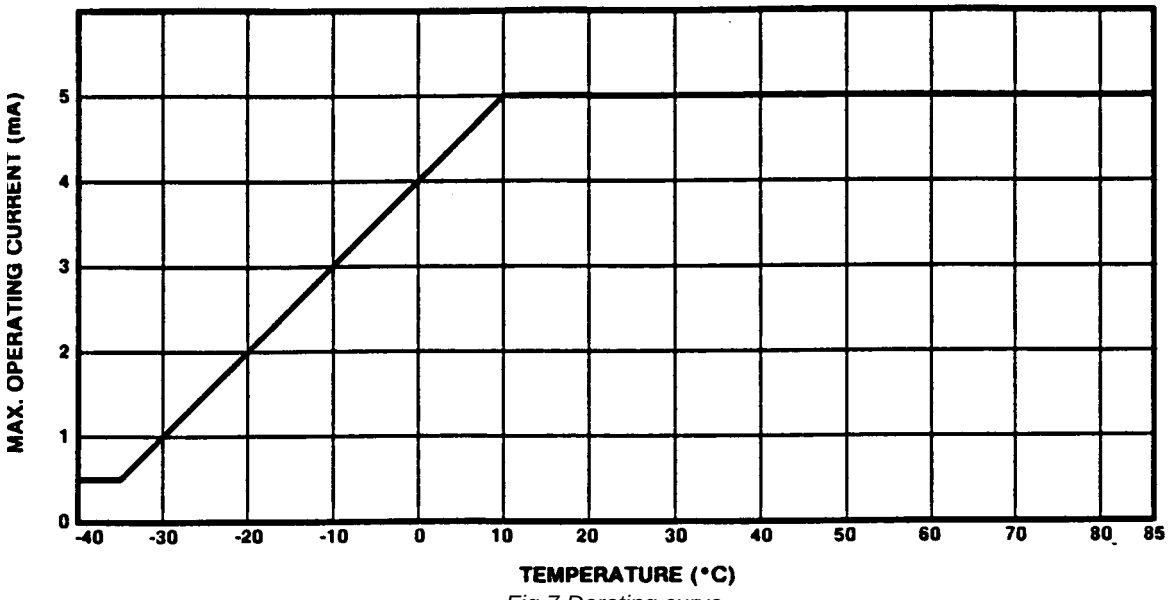

Fig.7 Derating curve

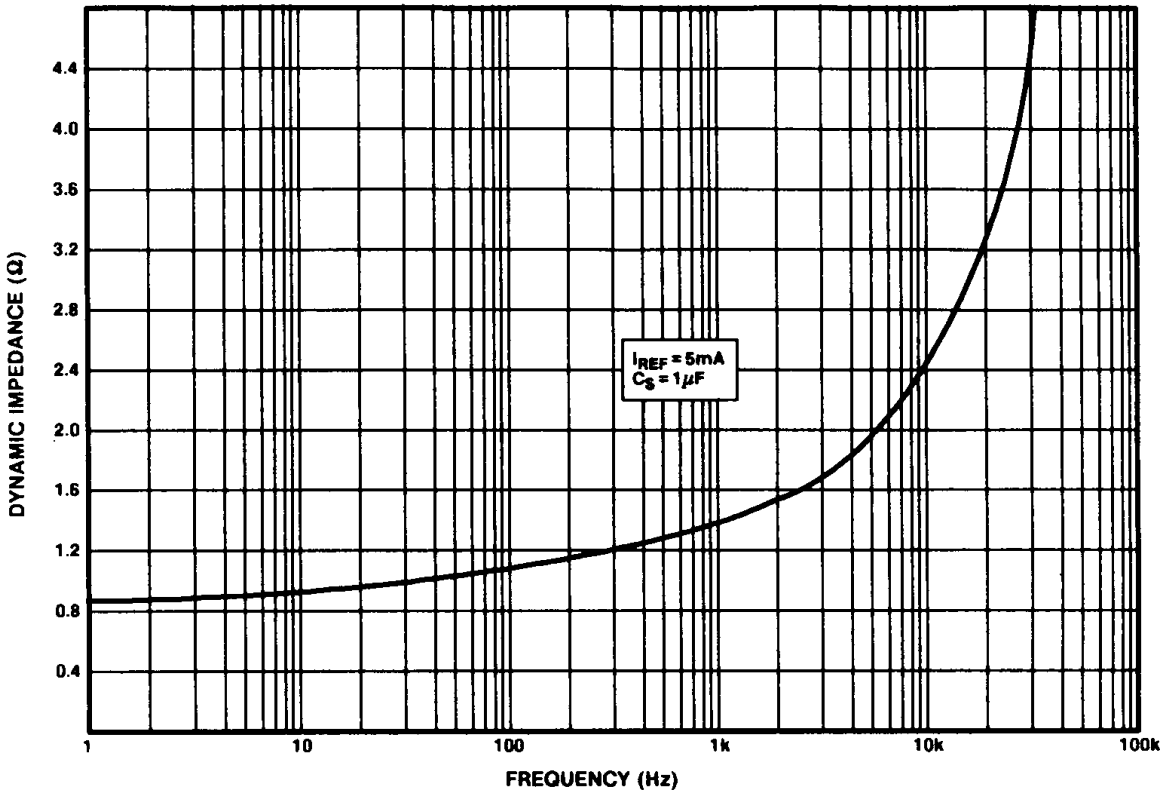

Fig.8 Typical dynamic impedance of SR25D

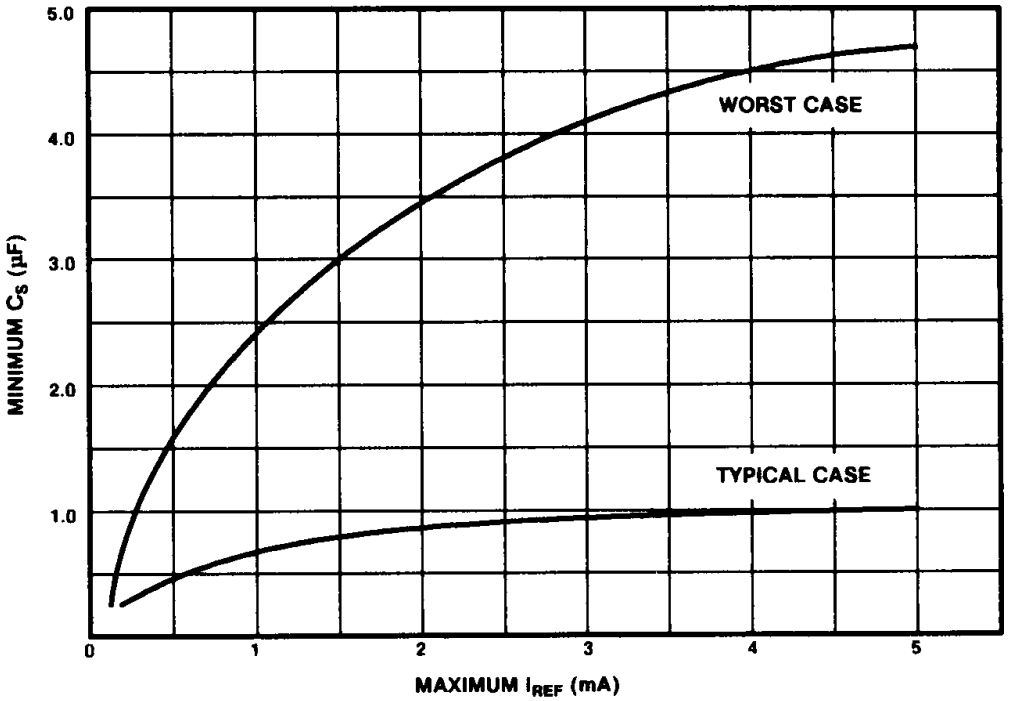

Fig.9 Stabilising capacitor required for optimum operation

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