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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.

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

FEATURES

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



Fig.2 SR25D circuit diagram



Fig. 1 Pin connections (top view)

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):

 $T_{amb} = +25^{\circ}C$, $I_{REF} = 150\mu A$, $C_{S} = 1\mu F$

Characteristic	Symbol	Value			Unite	Conditions	Notos
		Min.	Тур.	Max.	Units	Conditions	Notes
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 I _{on}		60	80	μA		3
Recommended operating current range	I _{REF}	0.08		5	mA		3
Temperature coefficient	TCV		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		45		ms		3
Turn on time	t _{on}		0.4		ms		3
Turn off time	t _{OFF}		1.5		ms		3

NOTES

1. Slope Resistance (R_{REF})

The slope resistance is defined as

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

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:

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

 ΔT = temperature change in °C

 ΔV_{REF} = change in reference voltage over temperature change $\Delta T.$

3. Guaranteed but not tested



Fig.4 Typical reference characteristic



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









Fig.8 Typical dynamic impedance of SR25D



Fig.9 Stabilising capacitor required for optimum operation

SR25D



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