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SR12D

1.2V PRECISION VOLTAGE REFERENCE

The SR12D is a monolithic integrated circuit using the bandgap principle to provide a precise reference voltage of 1.23V.

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 80 μA
- Low temperature Coefficient

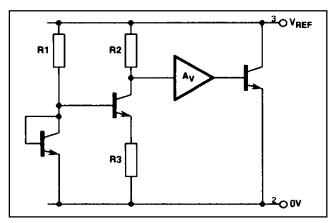


Fig.2 SR12D circuit diagram

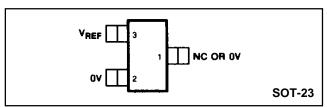


Fig. 1 Pin connections (top view)

ABSOLUTE MAXIMUM RATINGS

Reference current 2.5mA Operating temperature range -40°C to $+85^{\circ}\text{C}$ Storage temperature range -55°C to $+125^{\circ}\text{C}$

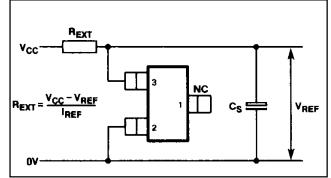


Fig.3 SR12D external connections.

NOTE: In order to achieve optimum operation, an electrolytic stabilising capacitor ($C_{\text{S}} \ge 1 \mu \text{F}$) should be connected between V_{RFF} 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			Units	Conditions
		Min.	Тур.	Max.	Office	Conditions
Output voltage	V _{REF}	1.193	1.230	1.267	V	
Slope resistance (see note 1)	R _{REF}		1.5	2.5	Ω	$I_{REF} = 150\mu A$ to 2.5mA
Turn-on (knee) current	I _{ON}		80	90	μΑ	
Recommended operating current range	I _{REF}	0.09		2.5	mA	
Temperature coefficient (see note 2)	TCV _{REF}		40	125	ppm/°C	0°C to +70°C
			40	120	ppm/°C	-40°C to + 85°C
RMS noise voltage	E _N		10		μV	1Hz to 25kHz
Turn on time	t _{on}		7		ms	
Turn off time	t _{OFF}		24		ms	
Turn on time	t _{on}		0.4		ms	$I_{REF} = 5 \text{mA}$
Turn off time	t _{OFF}		1.8		ms	FREF - SITIA

NOTES

1. Slope Resistance (R_{REF})

The slope resistance is defined as

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

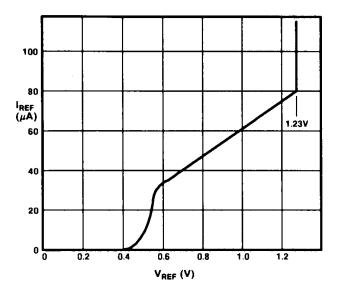
2. Reference Voltage Temperature Coefficient (TCV $_{\rm REF}$)

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 ΔT .



2.0 -V_{CC} (V) V_{REF} AT I_{REF} = 150μA (V) V_{REF} AT I_{REF} = 2.5mA (V) 0.4 30 31.8 54 0 t (ms)

Fig.5 SR12D typical response time (not to scale)

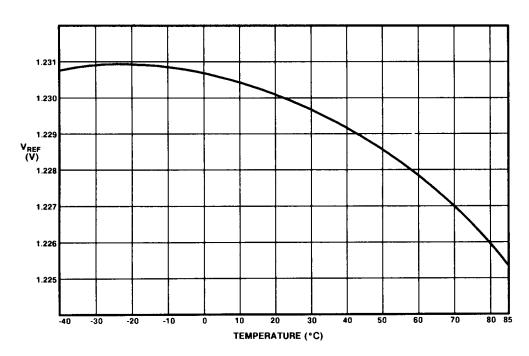


Fig.6 Typical temperature characteristic of SR12D at $I_{REF} = 150 \mu A$

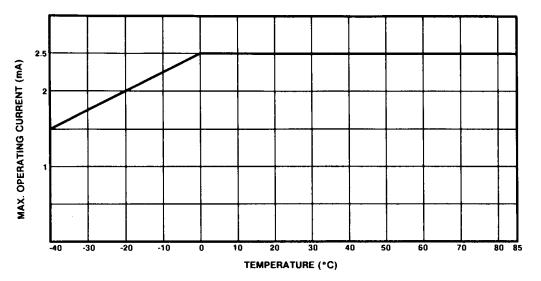


Fig.7 Derating curve



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