

April 14, 1998

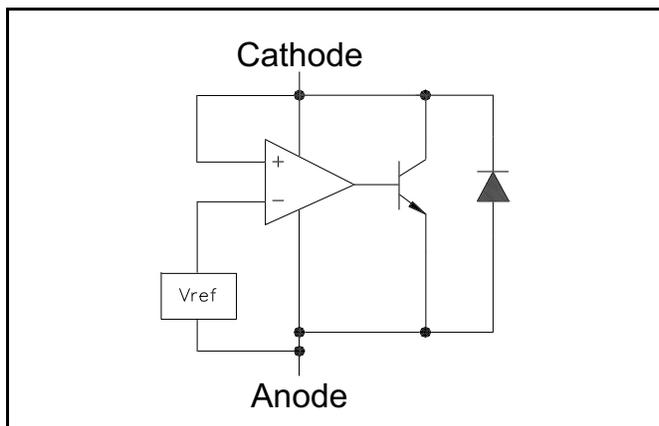
 TEL: 805-498-2111 FAX: 805-498-3804 WEB: <http://www.semtech.com>

DESCRIPTION

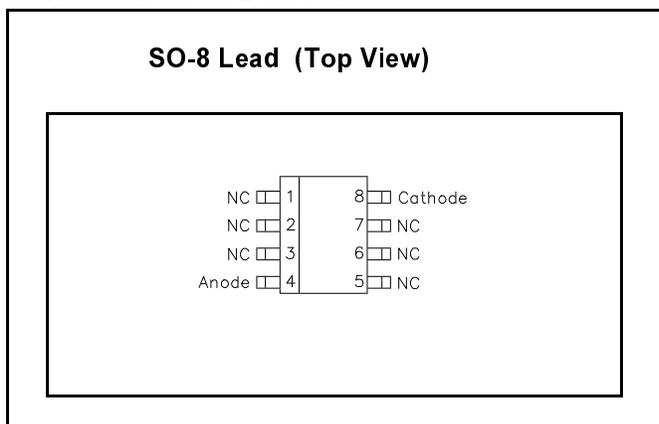
The SC1004 is a two terminal precision voltage reference with thermal stability guaranteed over temperature. The SC1004 has a typical dynamic output impedance of 0.2Ω . Active output circuitry provides a very sharp turn on characteristic - the minimum operating current is $20\mu\text{A}$, with a maximum of 20mA .

Coming with an initial tolerance of $\pm 1\%$, and with two available voltage options (1.235V and 2.5V) in a small SO-8 package, the SC1004 is ideally suited for very low power circuitry such as temperature sensors and portable meters.

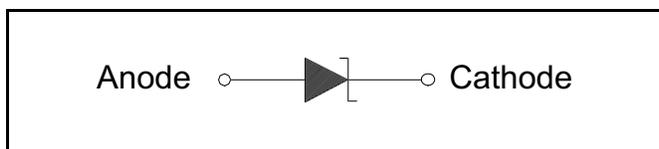
BLOCK DIAGRAM



PIN CONFIGURATION



SYMBOL DIAGRAM



FEATURES

- Trimmed bandgap design (1%)
- Wide operating current range $20\mu\text{A}$ to 20mA
- Low dynamic impedance (0.2Ω)
- SO-8 package

APPLICATIONS

- Micropower circuitry
- Portable meters
- Battery powered systems
- Temperature sensors

ORDERING INFORMATION

VOLTAGE ⁽¹⁾		T/R QUANTITY
1.235 V	2.5 V	
SC1004CS8-1.2	SC1004CS8-2.5	2.5K

Notes:

(1) Add suffix 'TR' for tape and reel.

ABSOLUTE MAXIMUM RATINGS

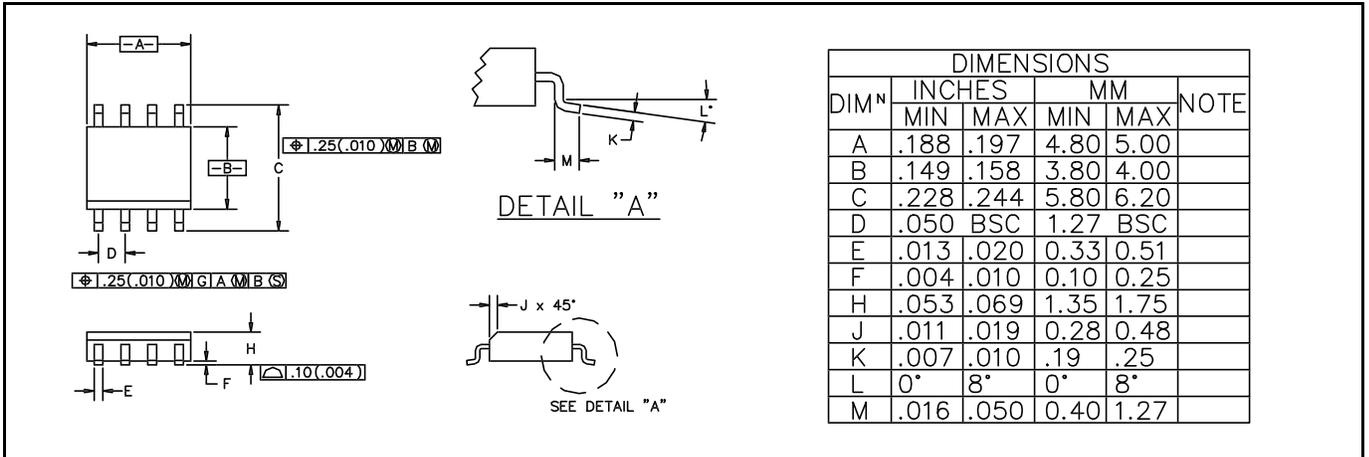
Parameter	Symbol	Maximum	Units
Reverse Current		20	mA
Operating Temperature Range	T_A	-40 to +85	$^{\circ}\text{C}$
Operating Junction Temperature Range	T_J	-40 to +150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-65 to +150	$^{\circ}\text{C}$
Lead Temperature (Soldering) 10 seconds	T_{LEAD}	260	$^{\circ}\text{C}$

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ELECTRICAL CHARACTERISTICS

T _A = 25°C unless otherwise specified.				SC1004XX-1.2			SC1004XX-2.5			
Parameter	Symbol	Condition		MIN	TYP	MAX	MIN	TYP	MAX	UNITS
Reverse Breakdown Voltage	V _Z	I _Z = 100μA	T _A = 25°C	1.231	1.235	1.239	2.480	2.500	2.520	V
			T _A = 0 to +70°C	1.225	1.235	1.245	2.470	2.500	2.530	
			T _A = -40 to +85°C	1.220	1.235	1.245	2.460	2.500	2.535	
Average Temperature Coefficient	$\frac{\Delta V_Z}{\Delta T}$	I _{Z(min)} ≤ I _Z ≤ 20mA			20			20		ppm/°C
Minimum Operating Current	I _{Z(min)}		T _A = -40 to +85°C		8	10		12	20	μA
Ratio of Change in V _Z to Change in I _Z	$\frac{\Delta V_Z}{\Delta I_Z}$	I _{Z(min)} ≤ I _Z ≤ 1mA	T _A = 25°C			1.0			1.0	mV
			T _A = -40 to +85°C			1.5			1.5	
		1mA ≤ I _Z ≤ 20mA	T _A = 25°C			10			10	
			T _A = -40 to +85°C			20			20	
Reverse Dynamic Impedance	Z _R	I _Z = 100μA	T _A = 25°C		0.2	0.6		0.2	0.6	Ω
			T _A = -40 to +85°C			1.5			1.5	
Wideband Noise (RMS)	e _N	I _Z = 100μA 10Hz ≤ f ≤ 10kHz			60			120		μV
Long Term Stability of Reverse Breakdown Voltage	ΔV _Z	t = 1000 hours T = 25°C ± 0.1°C I _Z = 100μA			20			20		ppm

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OUTLINE DRAWING - SO-8

LAND PATTERN - SO-8
