# 3.3 V OUTPUT, 0.5 A LVR (SC1020-0)

DATA SHEET

Version 1.0, July 2018



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#### PRODUCT DESCRIPTION:

The SC1020-0 3.3 V output, 500 mA full load current LVR provides a fixed output voltage of 3.3 V for a wide range of input operating voltage from 3.7 V to 6 V. The LVR is stable with an external capacitor not lower than 4.7uF of ESR 0.1 ohm to 10 ohm. SC1020-0 is mainly intended for integration with digital, analog and RF chips.

## **APPLICATION:**

- Battery operated systems
- Integrated solutions for analog, RF and digital chips

## **FEATURES:**

- Line voltage: 3.7 V to 6 V
- Fixed output voltage 3.3 V
- 500 mA maximum load current
- Low quiescent current of <1 mA
- Over temperature shut down mechanism
- Short circuit fold-back current limiting feature
- SCL 0.18µ CMOS technology

## **DEVICE SUMMARY:**

Reference	Package	pins	Lead Finish	Description
SC1020-0	СОВ	4	Gold (ENIG)	Engineering Model

Table 1: Device Summary

## **BLOCK DIAGRAM:**

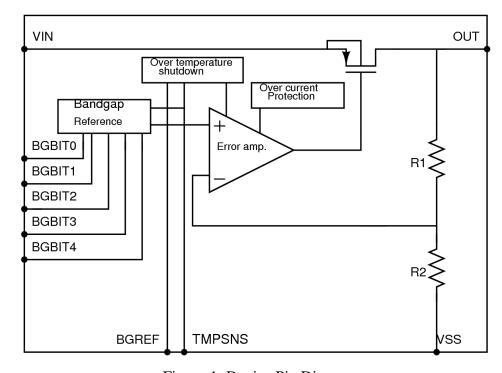


Figure-1: Device Pin Diagram



# **PAD CONFIGURATION:**

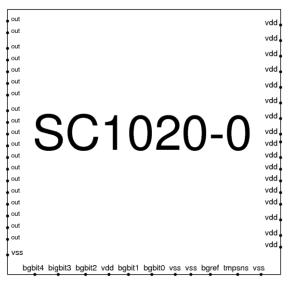


Figure-2: Device Pad Diagram

## PIN DESCRIPTION:

Pin Name	Function	Remarks		
bgbit4	Digital trimming bit, MSB	Digital trimming bits for varying bandgap reference output voltage.  Voltages of vss or vdd to be applied.		
bgbit3	Digital trimming bit			
bgbit2	Digital trimming bit			
bgbit1	Digital trimming bit			
bgbit0	Digital trimming bit, LSB			
VSS	0V LVR ground			
vdd	3.4 V to 6 V LVR input			
out	3.3 V LVR output	Ceramic capacitor of 10uF with ESR 0.1 ohm to 10 ohm to be placed at the output.		
bgref	Bandgap reference output			
tmpsns	Temperature sensor output			

Table 2: Pin Details



# DC ELECTRICAL SPECIFICATIONS

**Test condition:** All Specifications: VIN =3.7V-6V, CIN = 1uF, COUT =  $10\mu F$ , BGBIT = 11111 (MSB to LSB), unless otherwise specified. Full Load (FL) = 0.5A

PARAMETER	TEST CONDITIONS		SC1020-0		UNITS
PARAMETER			MIN	MAX	ONITS
Naminal Valtage	Vin = 3.7V, (I <sub>LOAD</sub> =10% of FL)		3.37	3.38	V
Nominal Voltage	Vin = 6V, (I <sub>LOAD</sub> =10% of FL)		3.381	3.384	
Initial Accuracy	(I <sub>LOAD</sub> =10% of FL)		2.33	2.55	%
Load Regulation	Vin= 3.7V (10% of FL $\leq$ I <sub>LOAD</sub> $\leq$ 100% of FL)		0.29	0.3	%
	$3.7V \le V_{IN} \le 6V,$	I <sub>LOAD</sub> =10% of FL	0.12	0.13	%
Line Regulation		I <sub>LOAD</sub> =50% of FL	0.049	0.055	
		I <sub>LOAD</sub> =100% of FL	0.07	0.09	
	I <sub>LOAD</sub> =10% of FL		0.017		V
Dropout Voltage	I <sub>LOAD</sub> =50% of FL		0.084		
	I <sub>LOAD</sub> =100% of FL		0.172		
Fold-back Current (I <sub>IN</sub> )	Short output to ground (or $I_{LOAD} \ge 2*FL$ )		160		mA
Shutdown Temp. (simulated value)	- I BURBIL - I I I I I I (NIXB TO I XB)		165		°C
	Vin=5V, I <sub>LOAD</sub> =10% of FL		0.5	0.54	mA
Quiescent Current	Vin= 5V, I <sub>LOAD</sub> =50% of FL		0.53	0.58	
	Vin= 5V, I <sub>LOAD</sub> =100% of FL		0.56	0.61	

Table 3: DC Electrical Specification

Note: All parameters are calculated by using  $V_{\text{NOM}}$  at  $V_{\text{IN}} = 3.7 \text{V}$ . Device will go in to Short circuit foldback at twice of FL, i.e., 1A.

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