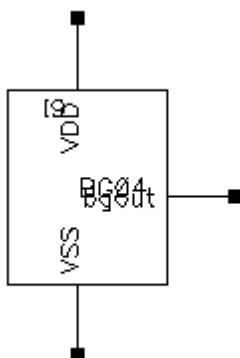


## CMOS Bandgap Voltage Reference

### FEATURES

- Output Voltage 1.27 V
- Small Area 0.092mm<sup>2</sup>
- Size x= 259 $\mu\text{m}$  y= 354 $\mu\text{m}$
- Supply Voltage 4.5 to 5.5 V
- Temperature Range -40 to 125°C
- TK < 100ppm
- Small Supply Current 20 $\mu\text{A}$

Symbol:



### DESCRIPTION

The BG04 cell is a bandgap voltage reference with a constant output voltage of typ. 1.27 volts.

Pin List:

VDDA	pos. supply voltage
VSSA	neg. supply voltage
BGOUT	bandgap voltage

## Parameters :

Parameter	Symbol	Min	Typ	Max	Unit
Power Supply Range	Vdd	4.5	5.0	5.5	V
Temperature Range	Temp	-40	27	125	°C
<b>DC Parameters</b>					
Output voltage	Vref	1.17	1.27	1.37	V
abs. Voltage spread				+/-100	mV
Temperature Coeff. (-30 to 120 °C) (-40 to 125°C)	TK		40	100	ppm
Temp. Coeff. @ 27 °C	TKnom		0		ppm
Power Supply Current	Idd	15	23	35	μA
Power Consumption	Pdd	68	115	193	μW
Output Source Current	Isource	<i>tdb</i>	0.226	<i>tdb</i>	μA
Output Sink Current	Isink	<i>tdb</i>	0.225	<i>tdb</i>	μA
<b>AC Parameters</b>					
Output resistance	Rout	35	48	64	kΩ
PowerSupplyRej.Ratio Vdd@1kHz	PSRRVdd	34	35	36	dB
<b>Transient Parameters</b>					
Startup Time (1mV)	Tstart	0.093	0.115	5	ms
<b>Noise Parameters</b>					
Equ. Output Noise @ 1Hz	En1	4.5	5.5	6.8	μV/√Hz
Equ. Output Noise @ 1kHz	En1k	0.36	0.47	0.64	μV/√Hz

*italic .. simulated*

normal .. measured

Measurements were done with 5V and -30 to 120°C.

Output buffer is recommended !

$$tk = (vmax-vmin)/(tmax-tmin)/vout@27deg*10e6 \quad [ppm]$$