

# Rad-tolerant bandgap reference

NSBG\_XF180\_1V8\_RTBG

## Product description

The RTBG cell of the nSBG\_XF180\_1V8 library is a radiation tolerant bandgap reference voltage generator IP cell powered at  $1.8V \pm 10\%$ , designed on the XFAB XH018 technology.

## Main characteristics

- XFAB XH018
- $1.8V \pm 10\%$  power supply
- -40 to +125°C
- Radiation tolerant

## Deliverables

- GDS II layouts
- LEF abstracts
- CDL netlists
- Liberty timings
- Verilog description
- A full datasheet
- An integration note

## Status

- Silicon proven
- Radiation proven

## Applications

- AD and DA converters
- Precision regulators
- Battery-powered instrumentation
- Portable medical equipment
- Radiation-sustaining systems

## Main features

- Single  $1.8V \pm 10\%$  power supply
- 20 $\mu$ A typical power consumption
- 0.9V output reference voltage
- -40 to +125°C junction temperature
- Less than 15ppm/K temperature drift
- 68dB power supply rejection
- Standby/power down mode
- Low silicon surface

## Radiation tolerance tests results

- TID : tested up to 155krad →no voltage variation
- SEL : LET up to 67MeV/mg/cm<sup>2</sup> →no latch-up



nSilitation  
Smaller, Smarter, Stronger

Copyright © 2014 nSilitation sprl  
31, bd Dolez, 7000 Mons (Belgium)  
VAT: BE 885821519

## Further information

For further information about this product and other nSilitation IPs, development roadmap, availability and licensing terms, please e-mail to [sales@nsilitation.com](mailto:sales@nsilitation.com).

## Delivery and support

This bandgap cell is available as hard macro-cell for reuse in any design based on the XFAB XH018 CMOS process. No extra IP license from any third party will be needed for the cells or the cell library.

In addition, full support service is available on request. Support can include close integration follow-up by our design team, custom-made cells or features or characterization under a specific radiation pattern.

## Porting to another process

The nSBG\_XF180\_1V8\_RTBG bandgap cell is silicon and radiation proven in the XFAB XH018 CMOS process. It can be easily ported to another foundry and/or another similar CMOS process node upon request. Please contact us for details and availability.

## About nSilitation

nSilitation is a leading analog and mixed-signal semiconductor IP provider.

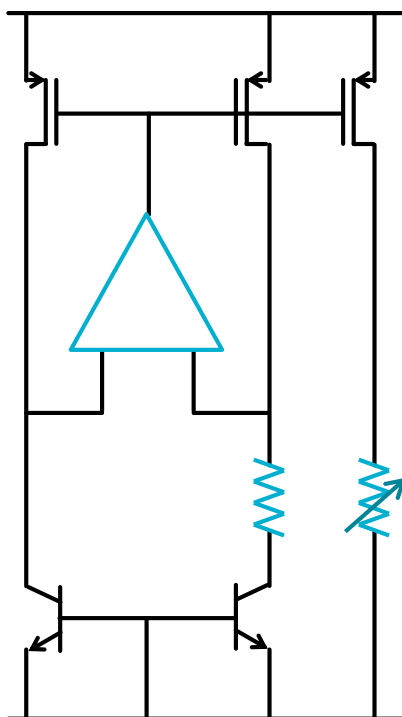
nSilitation specializes in the development of high quality analog and mixed-signal high performance semiconductor IPs. With reference designs available for 10b to 14b A/D and D/A converters, high-speed IO circuits, PFM and PWM high efficiency DC/DC integrated converters and high precision bandgap references; nSilitation enables the highest value analog and mixed-signal functionalities at the lowest risk.

The "IP design" service of nSilitation offers top-class quality, customization and support dedicated to your needs and your specifications.

## Disclaimer

The information provided by nSilitation has been verified and is believed to be accurate. nSilitation and all its right holders reserve the right to make changes to the information contained herein without notice. They reserve also the right to make changes to the product without notification. No liability shall be incurred as a result of the use or application of the information provided in this data sheet and/or the use of the corresponding product in any case.

*Support can include close integration follow-up by our design team or custom-made cells or features or characterization under a specific radiation pattern*



*Bandgap voltage reference block diagram*

