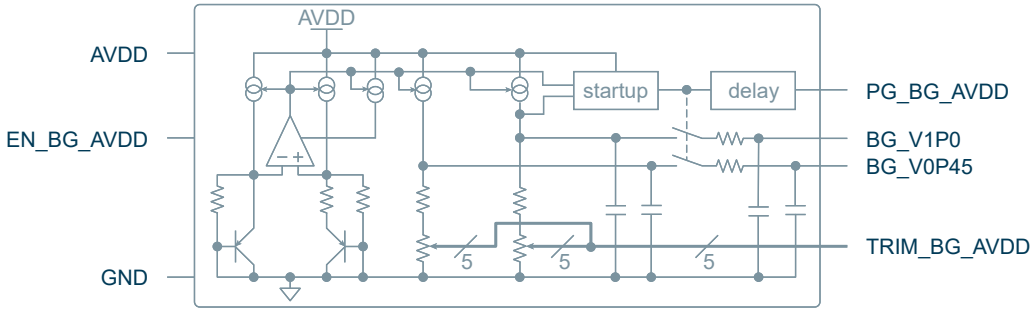
Bandgap reference IP

TSMC 28nm

OVERVIEW

OmniChip bandgap IP is a portable, simple-to-use voltage reference implemented in a 28nm TSMC process. It provides a stable voltage bias within a high range of input voltage, wide temperature range, and high PSRR. Along with OmniChip's Power-On-Reset IP, it is a stand-alone design that is easy to integrate into various applications.

ARCHITECTURE

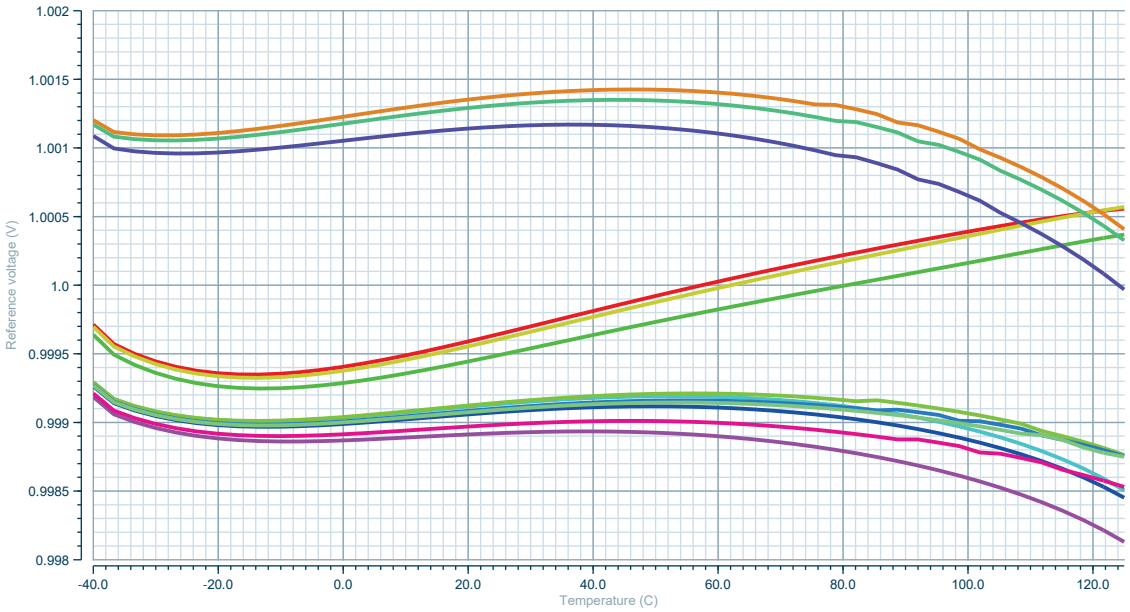


FEATURES

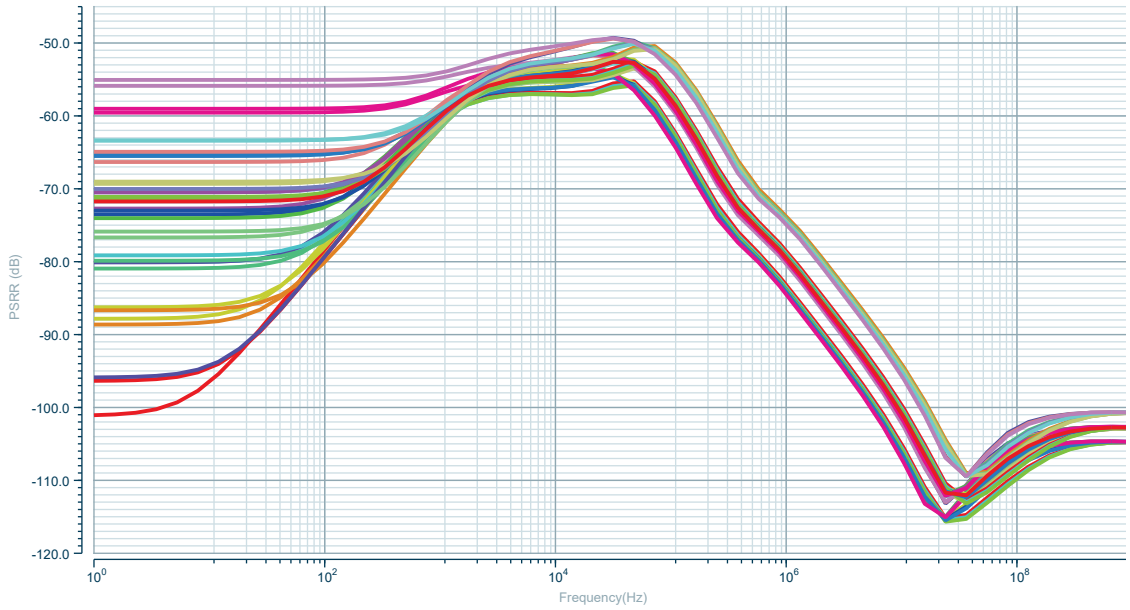
Parameter		MIN	TYP	MAX	Unit
Operating voltage	Output voltage within ±5%	1.19	-	3.63	V
	All parameters within the spec	2.97	3.3	3.63	V
Area		-	0.0764	-	mm²
Output voltage	Before trimming	0.965	0.999	1.027	V
	Before trimming (1 sigma)	0.989	0.999	1.009	V
	After trimming	0.999	1.000	1.001	V
Operating temperature		-40	-	125	ºC
Supply Current	Enable High	-	1.373	1.756	uA
	Enable Low	-	6.77	36.28	nA
Temperature coefficient		-	12.43	23.86	ppm
PSRR	Please refer to the graph on Page 2				
Noise	10 kHz	-	467.30	664.20	nV/rtHz
	1 MHz	-	2.53	7.44	nV/rtHz
	10 MHz	-	0.30	0.77	nV/rtHz
	100 MHz	-	0.06	0.08	nV/rtHz
	1 GHz	-	0.01	0.02	nV/rtHz
	Integrated noise	-	43.79	61.25	µVrms
Output spike		-	0	5.1	%
Power-up time (5% → 95% of Vref)		-	180.00	239.40	us
Enable time (5% → 95% of Vref)		-	132.00	231.30	us
Disable time (95% → 5% of Vref)		-	250.1	473.7	ns

PERFORMANCE

Output voltage accuracy



PSRR vs frequency



DELIVERABLES

- GDSII
- Virtuoso schematics & CDL netlist
- State-of-the-art Verilog model
- Documentation
- LEF abstract
- Liberty models
- Support

ABOUT OMNICHIP

Established in 2013, we are a semiconductor company, specializing in design services and IP design. With a vast portfolio of completed projects, we leverage our extensive expertise to deliver IPs of exceptional performance, energy efficiency, and scalability. The dedication and proficiency of our team guarantee on-time delivery and seamless product integration.