

TYPICAL APPLICATIONS

The ERF-XBPA-0001 is ideal for:

- X-Band Radar
- Data Links
- Test and Measurement Equipment

GENERAL DESCRIPTION

The ERF-XBPA-0001 is a solid-state, Class AB X-Band power amplifier module based on advanced GaN HEMT technology. The ERF-XBPA-0001 is ideal for pulsed or CW applications, offering exceptional performance in a small and lightweight form factor.

PRODUCT FEATURES

- Small Form Factor
- Exceptional Bandwidth, Output Power and Efficiency
- Fast and Effective Mute Function
- Environmentally Sealed Enclosure
- High Reliability and Ruggedness



ELECTRICAL CHARACTERISTICS $T_c = +25\text{ }^\circ\text{C}$, 28 VDC, 50 Ω System (unless otherwise noted)

PARAMETER	MIN	TYP	MAX	UNITS
Operating Frequency Range	7.8		11.0	GHz
Saturated Output Power (P_{SAT})	46.0	47.0	47.5	dBm
Power-Added Efficiency @ P_{SAT}	25	30		%
Input Return Loss	8	12		dB
Output Return Loss	8	12		dB
Gain @ P_{SAT}	50	55		dB
Gain Flatness vs Frequency @ P_{SAT}	-3		3	dB
Input Power @ P_{SAT}		-8	-4	dBm
Noise Figure		8	10	dB
Harmonic Emissions			-20	dBc
Non-Harmonic Spurious Emissions			-65	dBc
DC Supply Voltage		28		V
DC Current Consumption			6.5	A
Mute / Enable Mode Switching Characteristics: T_{ENABLE} , t_{MUTE} (50% CTRL to 10/90% RF)			1000	ns
Isolation in Mute Mode	80			dB
DC Current Consumption in Mute Mode			50	mA
Control Voltage:				
Enable	2.3		5.0	V
Mute	0.0		0.5	V

MECHANICAL CHARACTERISTICS

PARAMETER	VALUE	UNITS
Dimensions (excluding connectors)	62.25 x 53.00 x 12.70	mm
Mass	100	g
RF In / Out Connector	Hermetic SMA Female	-
DC / Control In	Hermetic Feedthrough Pin	-
Cooling Method	External Heatsink to Baseplate (Not Supplied)	-

ENVIRONMENTAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNITS
Case or Baseplate Temperature	-40		+85	°C
Relative Humidity (non-condensing)			95	%
Ingress Protection	IP67			-

ABSOLUTE MAXIMUM RATINGS (Not simultaneous)

RF Input Power	+15 dBm
RF Output Mismatch	VSWR ∞:1 at all phase angles (10 seconds) VSWR 5:1 at all phase angles (continuous)
Case or Baseplate Temperature (Operating)	-40 °C to +85 °C
Case or Baseplate Temperature (Non-Operating)	-40 °C to +100 °C
DC Supply Voltage (DC IN to GND)	24 V to 36 V
Control Interface (ENABLE to GND)	-0.5 V to 5.5 V
DC Voltage at RF IN	10 V
DC Voltage at RF OUT	250 V
Mute/Enable Mode Switching Frequency	100 kHz
ESD Sensitivity	HBM Class 1A

Exceeding maximum ratings may cause permanent damage. Operation between operating range maximum and absolute maximum for extended periods may reduce device reliability. Absolute maximum ratings are stress figures only and functional operation under these conditions is not implied.

ESD PRECAUTIONS

Although this product contains circuitry to protect it from damage due to ESD, observe the same precautions as with any other ESD-sensitive device when handling.

RoHS COMPLIANCE

RoHS compliant parts and processes are used in the manufacture of this product.



QUALITY

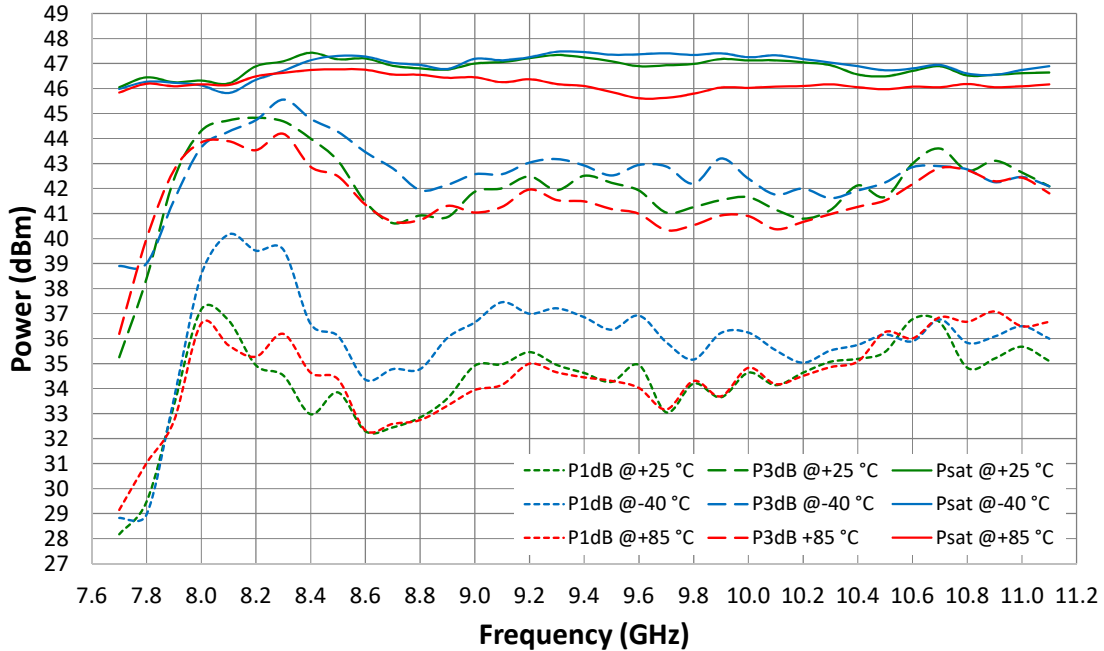
This product is designed and manufactured in the United Kingdom in accordance with the ISO 9001:2008 Quality Management System.



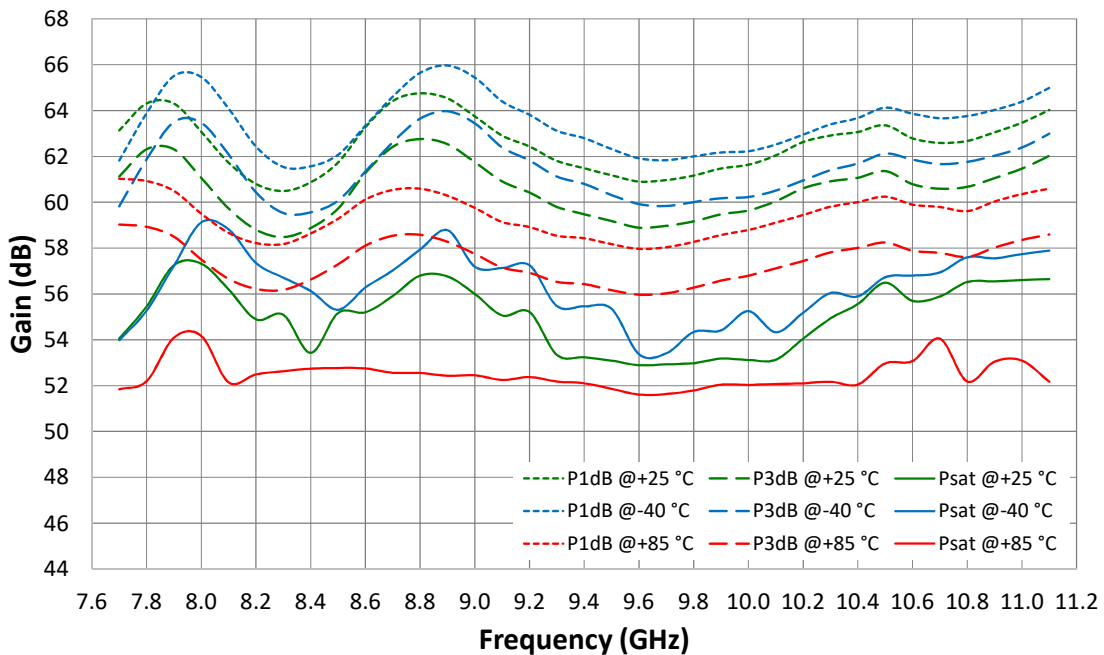


TYPICAL PERFORMANCE (CW)

Output Power vs. Frequency vs. Temperature

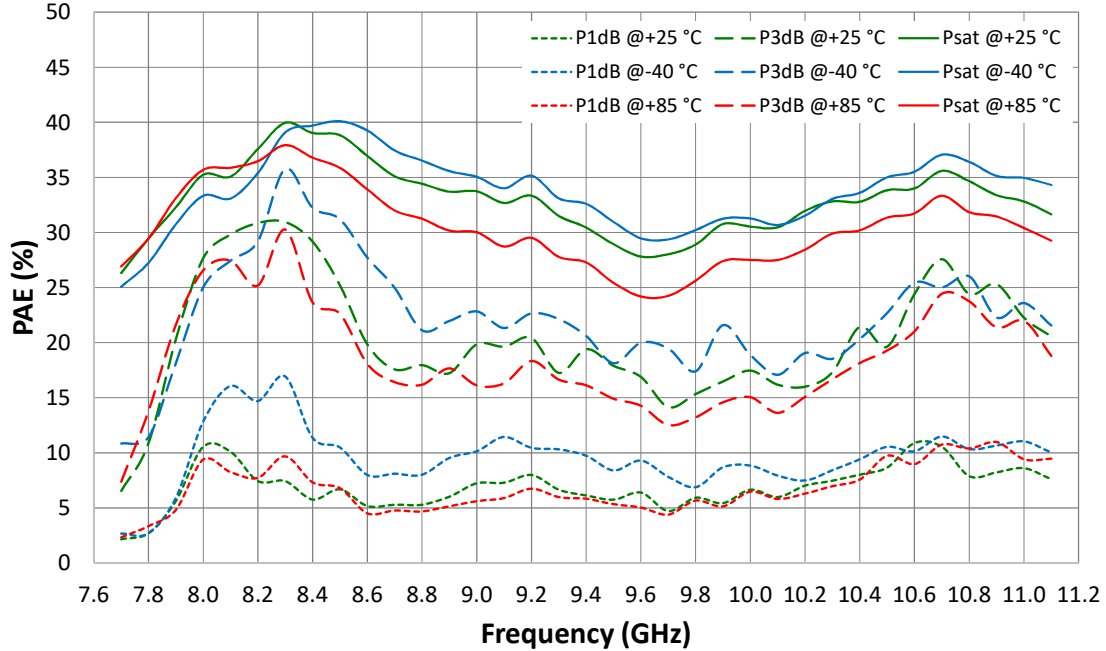


Gain vs. Frequency vs. Temperature

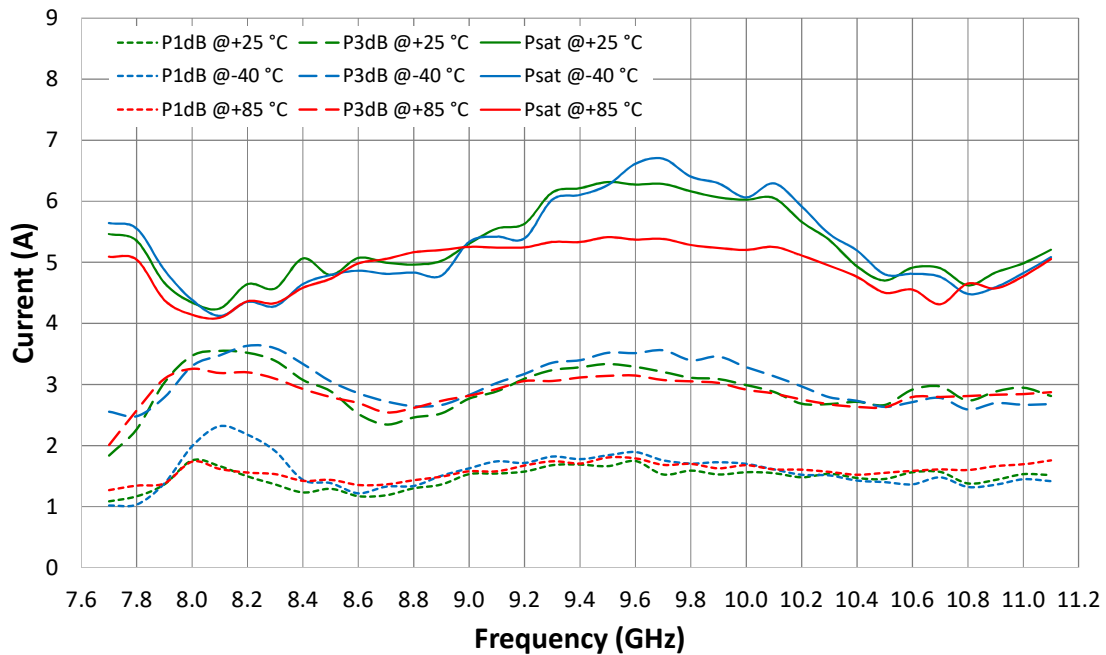




PAE vs. Frequency vs. Temperature

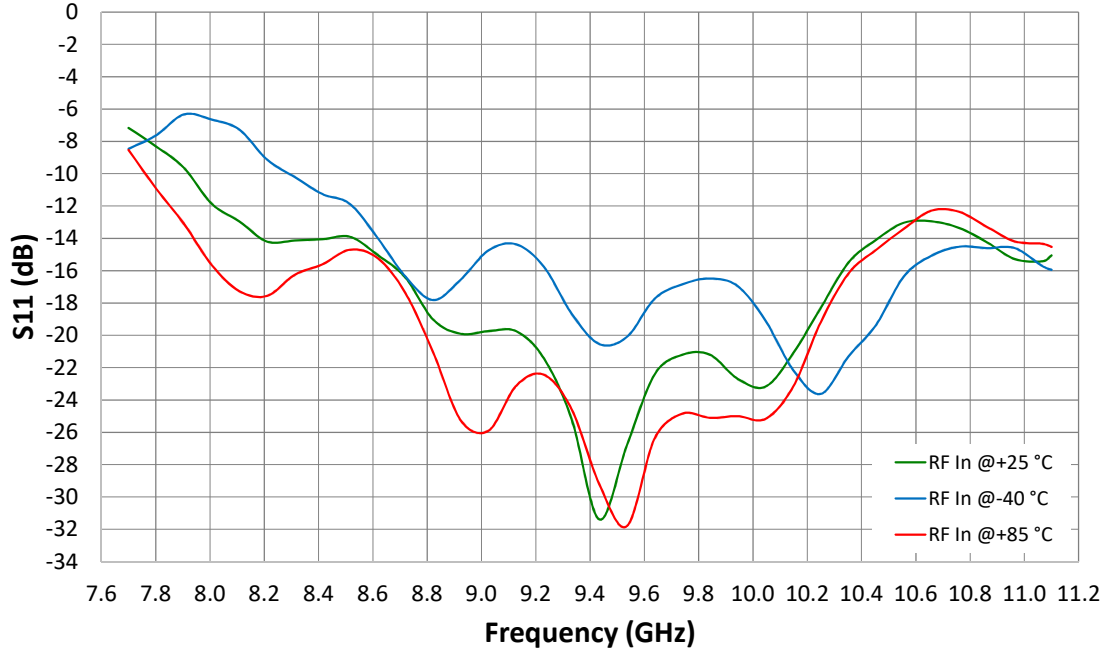


DC Current vs. Frequency vs. Temperature (@28 V)

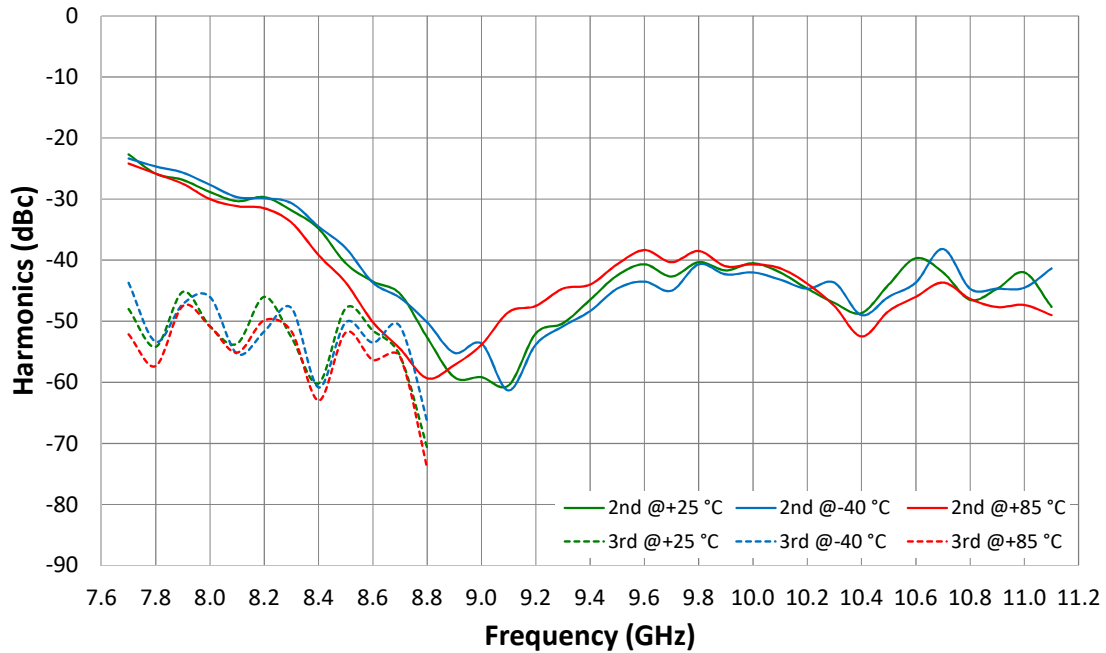




Return Loss vs. Frequency vs. Temperature



Harmonics vs. Frequency vs. Temperature





ORDERING INFORMATION

MODEL NAME	PART NUMBER	FINISH
ERF-XBPA-0001	10-000-0013-01	Iridite™ NCP

REVISION HISTORY

REVISION	DATE	CHANGE DESCRIPTION	ECN
A	09/11/2018	First release	-

Disclaimer: This datasheet is subject to change without notice.