COAXIAL

High Power Amplifier

ZHL-0G72G7100+
ZHL-0G72G7100X+

50Ω 700 to 2700 MHz 100 W SMA Female

THE BIG DEAL

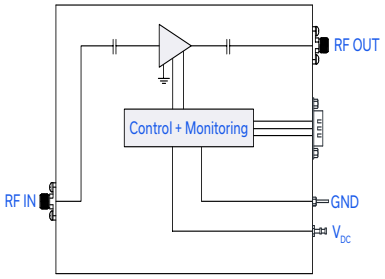
- Broadband Operation, 700 to 2700 MHz
- High Gain, 51 dB Typ.
- High P1dB, +50 dBm Typ.
- High OIP3, +55 dBm Typ.
- Thermally Self-Protected

Generic photo used for illustration purposes only

APPLICATIONS

- Communication Systems
- R&D, Production, and OTA Test Systems
- Test & Measurement Equipment
- General Laboratory Applications

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

The ZHL-0G72G7100(X)+ is a high-power broadband amplifier operating over the 700 to 2700 MHz frequency band providing more than 100 W of output power with a typical small signal gain of 51 dB.

The amplifier uses state-of-the-art semiconductor technology and can be used in a wide range of applications. A single supply voltage ensures ease of operation. The amplifier is made with a rugged aluminum housing, has a compact size (230.00 × 152.40 × 30.00 mm), and can be supplied with or without a heatsink.

KEY FEATURES

Features	Advantages
Broadband, Useable from 700 to 2700 MHz	Suitable for a broad range of high-power broadband applications, including test setups, communications and production applications.
High Gain, 51 dB Typ.	Enables signal amplification to 100 W (Typ) output without the need for multiple gain stages.
Thermally Self-Protected	A built-in sensing feature signals the unit to power off when the amplifier reaches its maximum rated operating temperature, preventing damage to the equipment and providing added reliability.
Small and Lightweight	Sports a small footprint (230.00 mm × 152.40 mm × 30.00 mm) and lightweight (1820 grams) modular design.
Low Voltage	Powered by a low voltage of +30 V supply.

ELECTRICAL SPECIFICATIONS, +25°C, V_{DC}= +30 V

Parameter	Symbol	Condition (MHz)		Min.	Typ.	Max.	Units
Frequency Range	f	–		700	–	2700	MHz
Gain	G_{SS}	P_{IN}= -15 dBm	700 - 2700	45	51	53	dB
Gain Flatness	$G_{SS-FLAT}$	P_{IN}= -15 dBm	700 - 2700	–	±1.5	±2.0	dB
Output Power at 1 dB Compression	P_{1dB}	700 - 2700		+48.5	+50	–	dBm
Output Power at Saturation	P_{SAT}	700 - 2700		+49.5	+51	–	dBm
Noise Figure	NF	P_{IN}= -15 dBm	700 - 2700	–	7	10	dB
Output 2nd Order Intercept Point	OIP2	P_{OUT}=+37 dBm/tone	700 - 2700	+55	+60	–	dBm
Output 3rd Order Intercept Point	OIP3	P_{OUT}=+37 dBm/tone	700 - 2700	+50	+55	–	dBm
2nd Harmonics	F2	P_{OUT}= +50 dBm	700 - 2700	–	-29	-10	dBc
3rd Harmonics	F3	P_{OUT}= +50 dBm	700 - 2700	–	-46	-10	dBc
Input Return Loss	I-RL	P_{IN}= -15 dBm	700 - 2700	9.5	21	–	dB
Output Return Loss	O-RL	P_{IN}= -15 dBm	700 - 2700	9.5	21	–	dB
DC Supply Voltage	V_{SUPPLY}	700 - 2700		+28	+30	+31	V
DC Supply Current	I_{SUPPLY}	P_{IN}= -15 dBm	Without Fan	–	13	15	A
			With Fan	–	13.4	15	

ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings	
Operating Temperature	ZHL-0G72G7100+	$T_{AMBIENT}$: -20°C to +60°C
	ZHL-0G72G7100X+	$T_{MOUNTINGBASE}$: Max +80°C
Storage Temperature	-55°C to +100°C	
Max Power Dissipation	380 W	
No damage with an open or short at P_{OUT}=+50 dBm (100 W) for 2 minutes max		
RF Input Power (no damage)	+7 dBm	
DC Operating Voltage	±32 V	

Permanent damage may occur if any of these limits are exceeded.

PROTECTIONS

Parameter	Rating
Shut Down Temperature	85±5°C
Over Voltage (Shut Down)	32±0.5 V
Output Load Mismatch	No damage with an open or short at P_{OUT}=+50 dBm (100 W) for 2 minutes max

DETERMINING MAXIMUM THERMAL RESISTANCE OF USERS' EXTERNAL HEAT SINK

$$\textit{MAXIMUM THERMAL RESISTANCE} = \frac{\textit{MAXIMUM OPERATING CASE TEMP} - \textit{MAXIMUM USER AMBIENT TEMP}}{\textit{POWER DISSIPATION}}$$

Example:	MAXIMUM MOUNTING BASE TEMP = +85 °C (CHECK MAXIMUM RATINGS TABLE FOR THIS VALUE) MAXIMUM USER AMBIENT TEMP = +60 °C (USER DEFINED) POWER DISSIPATION = 46.5 WATTS (EXAMPLE) THEN MAXIMUM ALLOWABLE THERMAL RESISTANCE = 0.54 °C/W

D-SUB9 PINOUT

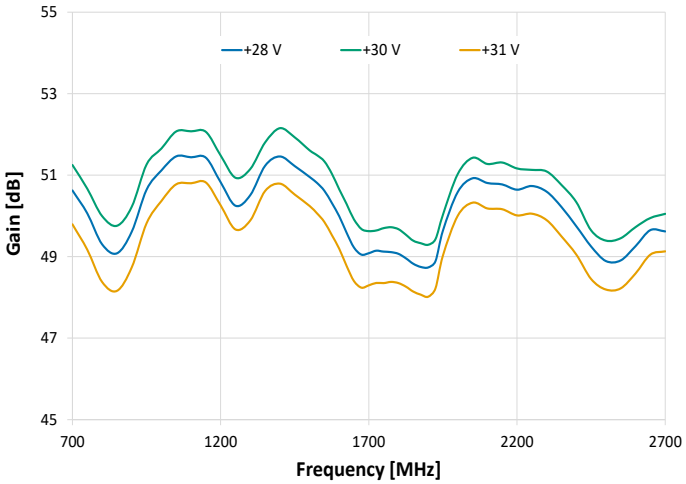
Pin #	Description
3	Temperature Alarm (4.5 V, TTL high)
4	Ground
8, 9	V_{DC} (+5 V, max 100 mA)
1, 2, 5, 6, 7	No Connection

COAXIAL CONNECTIONS

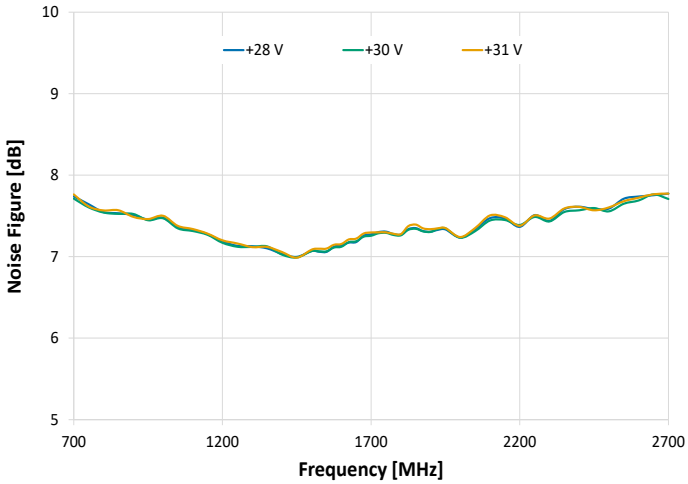
IN (RF IN)	SMA Female
OUT (RF OUT)	N-type Female

TYPICAL PERFORMANCE GRAPHS

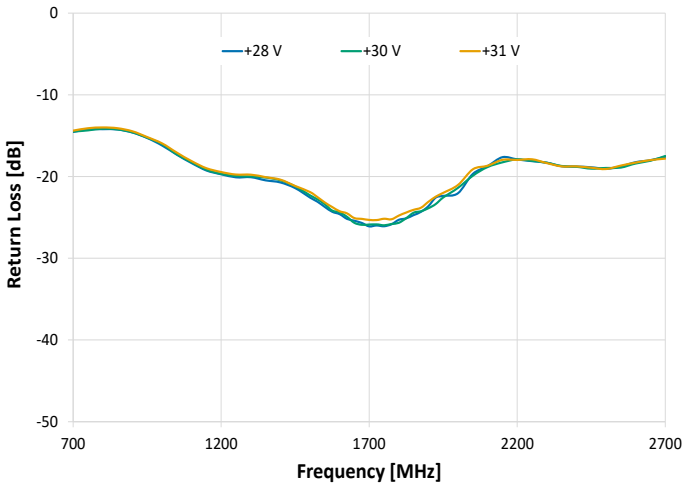
Small Signal Gain vs. Output Frequency



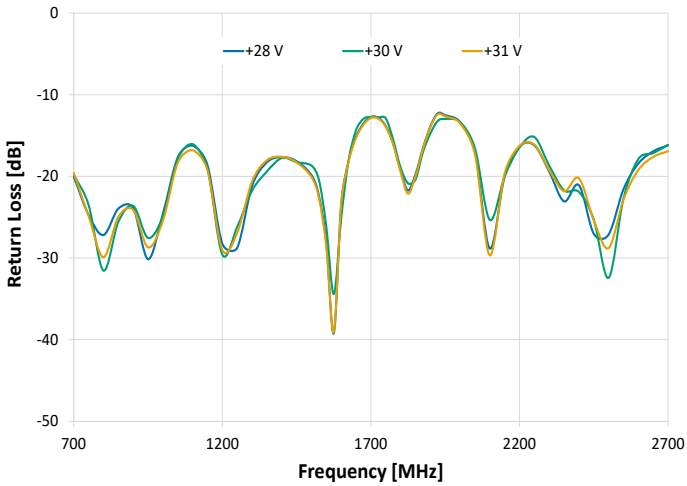
Noise Figure vs. Output Frequency



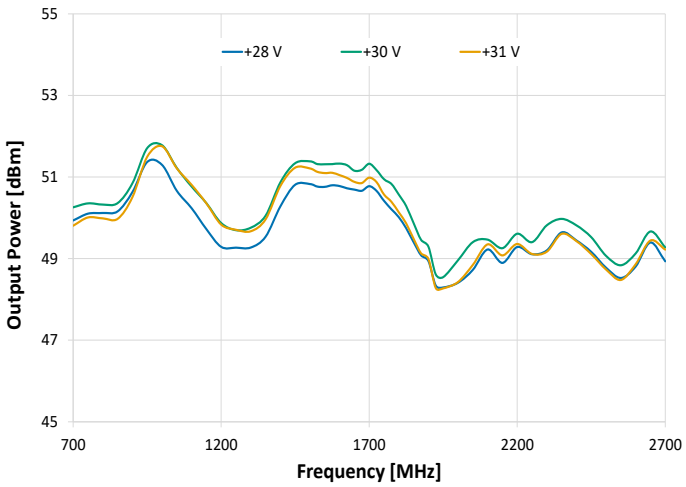
Return Loss In vs. Output Frequency



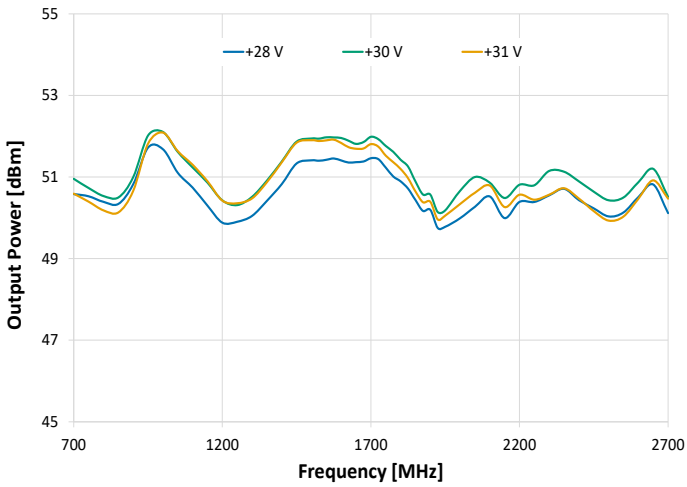
Return Loss Out vs. Output Frequency



Output Power at 1dB Compression vs. Output Frequency

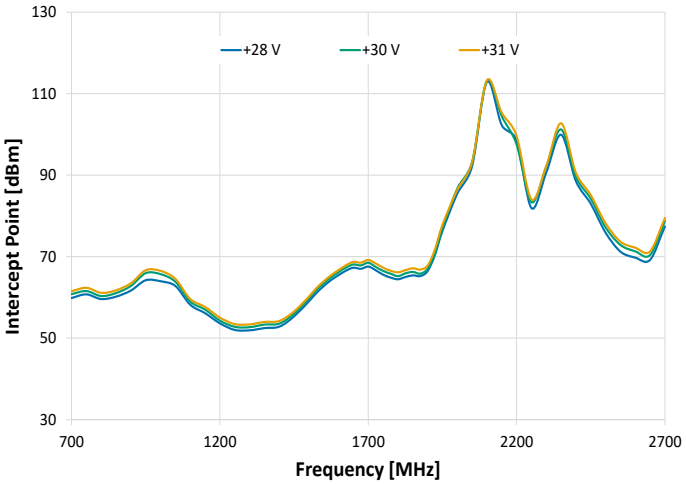


Output Power Saturation vs. Output Frequency

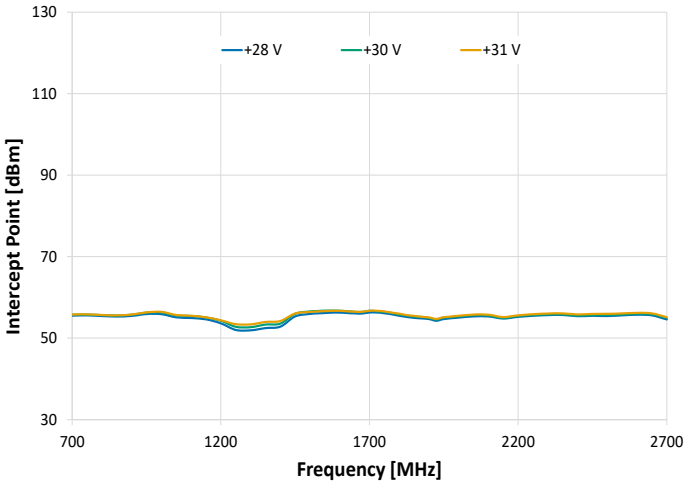


TYPICAL PERFORMANCE GRAPHS (CONTINUED)

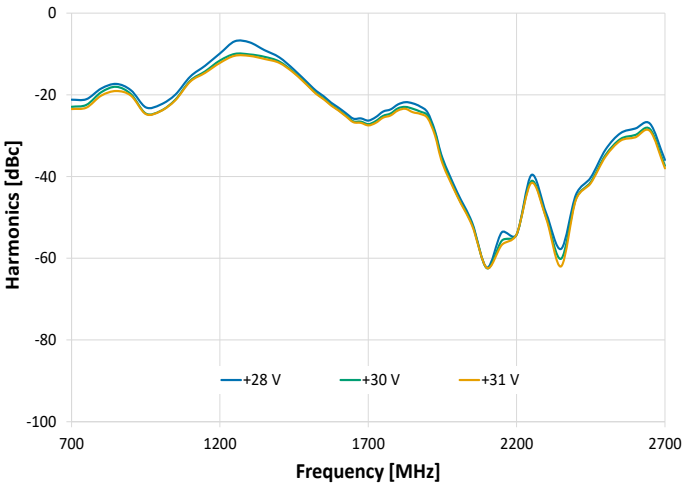
2nd Order Intercept Point vs. Output Frequency



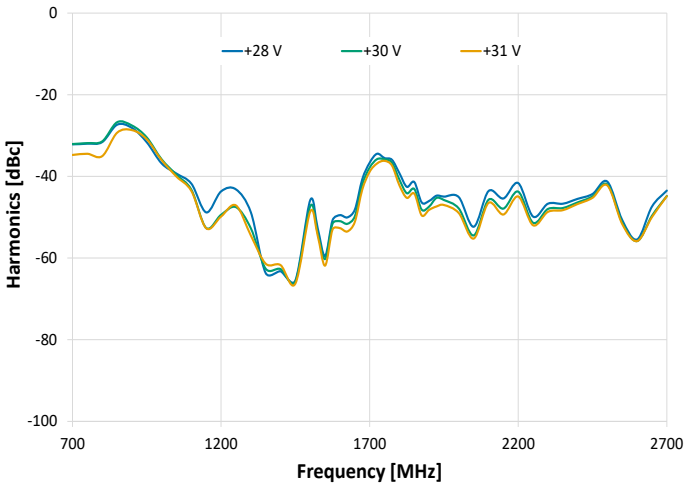
3rd Order Intercept Point vs. Output Frequency



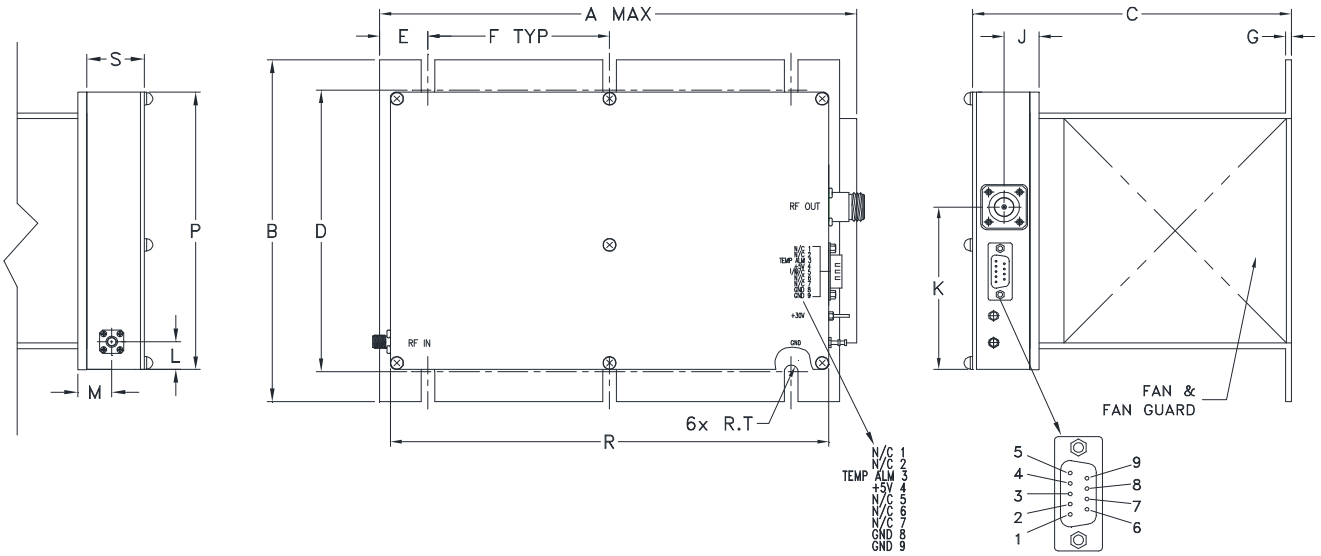
Harmonics (F2) vs. Output Frequency



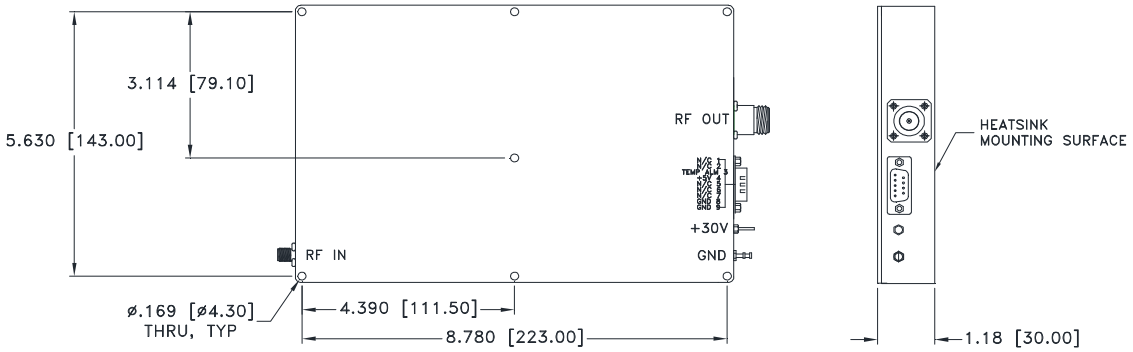
Harmonics (F3) vs. Output Frequency



CASE STYLE DRAWING (BT2247, WITH HEATSINK / WITHOUT HEATSINK)



MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
Inch	9.85	7.3	6.6	6.00	.98	3.75	.13	-	.72	3.46	.59	.70	-	5.91	-	9.06	1.18	.135
mm	250.19	185.42	167.64	152.40	24.89	95.25	3.30	-	18.24	88.00	15.00	17.75	-	150.00	-	230.00	30.00	3.43

Notes:
1. Case material: Aluminum alloy.
2. Case finish: Clear chemical conversion coating, non-chrome or trivalent chrome based.
   Heatsink finish: Black anodize.
3. Weight: 1820 grams / 5350 grams with heatsink.
4. Dimensions: Inches [mm].
   Tolerances: 2 PI. ±.03 inch; 3 PI. ±.015 inch.
5. Recommended screw for mounting model without heatsink on 3/32" thick sheet: #6-32, 1.50" Length.

High Power Amplifier

50Ω 700 to 2700 MHz 100 W SMA Female

DETAILED MODEL INFORMATION IS AVAILABLE ON OUR WEBSITE CLICK HERE

Performance Data	Table Graphs S-Parameter (S2P Files) Data Set (.zip file)
RoHS Status	Compliant
Environmental Ratings	ENV23T19

ORDERING INFORMATION

Model No. Links	ZHL-0G72G7100+	ZHL-0G72G7100X+
Option	With heatsink	Without heatsink
Case Style	BT2247	
Connector	IN (SMA Female) / OUT (N-type Female)	

NOTES:

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/terms/viewterm.html

Coaxial

Amplifier

ZHL-0G72G7100(X)+

Typical Performance Data

Test Conditions: Temperature = +25°C.

Freq. (MHz)	Small Signal Gain (dB)			Return Loss In (dB)			Return Loss Out (dB)		
	+28 V	+30 V	+31 V	+28 V	+30 V	+31 V	+28 V	+30 V	+31 V
700	50.63	51.25	49.79	-14.54	-14.49	-14.37	-20.02	-19.76	-19.58
750	50.06	50.67	49.17	-14.22	-14.34	-14.08	-24.73	-23.51	-24.87
800	49.31	50.00	48.38	-14.19	-14.14	-13.99	-27.17	-31.53	-29.89
850	49.08	49.76	48.16	-14.23	-14.22	-14.08	-23.93	-25.57	-24.93
900	49.61	50.22	48.73	-14.60	-14.58	-14.45	-23.86	-23.59	-24.10
950	50.64	51.26	49.82	-15.27	-15.24	-15.16	-30.13	-27.53	-28.68
1000	51.12	51.65	50.37	-16.18	-16.03	-15.93	-24.53	-24.85	-25.41
1050	51.46	52.07	50.78	-17.31	-17.28	-17.06	-17.65	-17.84	-18.33
1100	51.44	52.08	50.80	-18.34	-18.25	-18.11	-16.22	-16.05	-16.79
1150	51.43	52.07	50.82	-19.24	-19.16	-18.97	-18.60	-19.08	-19.20
1200	50.82	51.48	50.26	-19.71	-19.67	-19.44	-28.25	-29.58	-29.02
1250	50.25	50.94	49.67	-20.09	-19.92	-19.75	-28.75	-26.19	-26.93
1300	50.51	51.15	49.89	-20.07	-19.99	-19.77	-21.16	-21.73	-20.60
1350	51.23	51.80	50.61	-20.45	-20.11	-20.07	-18.27	-19.40	-18.03
1400	51.46	52.15	50.79	-20.71	-20.45	-20.38	-17.63	-17.74	-17.59
1450	51.22	51.93	50.52	-21.40	-21.19	-21.14	-18.14	-18.24	-18.28
1500	50.96	51.61	50.25	-22.56	-22.30	-21.89	-19.85	-18.67	-20.08
1525	50.81	51.49	50.06	-23.07	-22.77	-22.50	-22.34	-20.41	-22.63
1550	50.62	51.34	49.85	-23.71	-23.38	-23.16	-28.14	-26.08	-28.59
1575	50.32	51.04	49.53	-24.30	-24.16	-23.73	-39.21	-34.40	-39.07
1600	49.99	50.66	49.20	-24.60	-24.37	-24.23	-23.30	-25.10	-23.31
1625	49.59	50.29	48.77	-25.17	-24.91	-24.50	-18.07	-18.05	-18.17
1650	49.22	49.92	48.40	-25.41	-25.65	-25.08	-15.15	-14.35	-15.28
1675	49.05	49.68	48.24	-25.67	-25.90	-25.18	-13.51	-12.94	-13.65
1700	49.09	49.63	48.30	-26.09	-25.87	-25.30	-12.72	-12.72	-12.84
1725	49.15	49.64	48.35	-25.98	-25.84	-25.32	-12.81	-12.76	-12.92
1750	49.12	49.70	48.35	-26.08	-25.96	-25.16	-13.84	-12.89	-13.91
1775	49.11	49.72	48.38	-25.83	-25.80	-25.22	-16.01	-15.54	-16.09
1800	49.07	49.67	48.35	-25.29	-25.65	-24.77	-19.30	-18.92	-19.46
1825	48.96	49.54	48.27	-25.11	-25.10	-24.39	-21.72	-20.84	-22.10
1850	48.83	49.39	48.14	-24.71	-24.42	-24.07	-19.73	-20.38	-19.99
1875	48.75	49.33	48.07	-24.31	-24.23	-23.80	-16.53	-17.03	-16.65
1900	48.74	49.29	48.02	-23.62	-23.87	-23.08	-13.88	-14.76	-13.97
1925	48.89	49.43	48.22	-22.57	-23.36	-22.46	-12.27	-13.21	-12.39
1950	49.64	50.03	49.03	-22.36	-22.55	-21.98	-12.50	-12.95	-12.63
2000	50.59	51.03	50.01	-22.03	-21.38	-21.02	-13.34	-13.34	-13.50
2050	50.92	51.43	50.33	-19.67	-19.89	-19.11	-17.02	-16.53	-17.27
2100	50.81	51.28	50.18	-18.73	-18.82	-18.67	-28.82	-25.31	-29.65
2150	50.77	51.31	50.16	-17.63	-18.26	-17.95	-19.97	-20.00	-19.62
2200	50.64	51.17	50.01	-17.90	-17.89	-17.96	-16.36	-16.47	-16.27
2250	50.74	51.13	50.05	-18.11	-18.07	-17.88	-16.19	-15.18	-16.12
2300	50.60	51.09	49.90	-18.30	-18.30	-18.35	-19.40	-18.66	-19.20
2350	50.22	50.76	49.50	-18.74	-18.70	-18.75	-23.05	-21.70	-21.80
2400	49.75	50.34	49.05	-18.77	-18.80	-18.75	-21.07	-21.90	-20.22
2450	49.25	49.65	48.45	-18.86	-19.03	-18.92	-27.02	-25.30	-25.38
2500	48.89	49.39	48.19	-19.04	-18.95	-19.07	-27.12	-32.41	-28.78
2550	48.91	49.45	48.22	-18.76	-18.89	-18.66	-21.57	-22.72	-22.83
2600	49.26	49.73	48.59	-18.24	-18.39	-18.29	-18.42	-17.86	-19.20
2650	49.65	49.95	49.05	-18.00	-18.06	-17.98	-16.92	-17.13	-17.60
2700	49.62	50.05	49.13	-17.58	-17.48	-17.81	-16.18	-16.12	-16.92

Typical Performance Data

Test Conditions: Temperature = +25°C.

Freq. (MHz)	Noise Figure (dB)			Power 1 dB Compression (dBm)			Power Saturation (dBm)		
	+28 V	+30 V	+31 V	+28 V	+30 V	+31 V	+28 V	+30 V	+31 V
700	7.74	7.71	7.76	49.94	50.26	49.81	50.58	50.96	50.59
750	7.64	7.61	7.62	50.10	50.36	50.01	50.53	50.73	50.40
800	7.55	7.54	7.57	50.12	50.33	49.99	50.39	50.54	50.18
850	7.53	7.53	7.57	50.16	50.36	49.98	50.34	50.50	50.13
900	7.51	7.53	7.49	50.63	50.84	50.50	50.82	51.00	50.66
950	7.46	7.45	7.46	51.37	51.71	51.50	51.72	52.02	51.82
1000	7.48	7.47	7.50	51.30	51.78	51.75	51.68	52.10	52.09
1050	7.36	7.35	7.38	50.66	51.23	51.21	51.10	51.62	51.64
1100	7.33	7.32	7.34	50.24	50.77	50.81	50.74	51.23	51.30
1150	7.28	7.27	7.28	49.72	50.36	50.36	50.30	50.86	50.90
1200	7.19	7.17	7.20	49.29	49.87	49.83	49.88	50.43	50.42
1250	7.13	7.12	7.16	49.27	49.70	49.71	49.90	50.31	50.36
1300	7.13	7.12	7.12	49.27	49.76	49.67	50.05	50.52	50.48
1350	7.10	7.13	7.12	49.54	50.05	49.96	50.42	50.91	50.87
1400	7.04	7.03	7.06	50.28	50.87	50.78	50.83	51.38	51.36
1450	7.00	6.99	6.99	50.81	51.34	51.23	51.33	51.87	51.84
1500	7.07	7.07	7.09	50.83	51.38	51.21	51.41	51.95	51.90
1525	7.06	7.07	7.10	50.77	51.32	51.13	51.40	51.94	51.89
1550	7.06	7.07	7.10	50.76	51.32	51.10	51.42	51.98	51.90
1575	7.12	7.11	7.15	50.80	51.32	51.11	51.46	51.97	51.92
1600	7.14	7.12	7.16	50.78	51.33	51.05	51.41	51.96	51.84
1625	7.17	7.18	7.21	50.73	51.29	50.98	51.36	51.89	51.73
1650	7.18	7.19	7.22	50.69	51.16	50.88	51.37	51.81	51.70
1675	7.26	7.25	7.28	50.67	51.18	50.86	51.38	51.86	51.70
1700	7.27	7.26	7.30	50.78	51.33	50.99	51.46	51.99	51.81
1725	7.30	7.29	7.30	50.66	51.17	50.87	51.44	51.93	51.75
1750	7.31	7.29	7.30	50.42	50.95	50.57	51.23	51.76	51.52
1775	7.28	7.27	7.28	50.21	50.83	50.39	51.02	51.62	51.37
1800	7.27	7.26	7.28	50.02	50.57	50.14	50.90	51.42	51.20
1825	7.34	7.33	7.37	49.74	50.29	49.86	50.72	51.26	50.97
1850	7.35	7.34	7.39	49.40	49.87	49.48	50.43	50.89	50.65
1875	7.31	7.31	7.35	49.08	49.46	49.13	50.17	50.57	50.38
1900	7.31	7.30	7.34	48.94	49.29	48.99	50.20	50.57	50.39
1925	7.33	7.34	7.35	48.34	48.61	48.28	49.75	50.14	49.96
1950	7.33	7.35	7.35	48.29	48.55	48.27	49.78	50.18	50.06
2000	7.24	7.23	7.24	48.41	48.96	48.43	49.99	50.66	50.34
2050	7.34	7.31	7.35	48.73	49.41	48.85	50.27	51.00	50.62
2100	7.47	7.44	7.51	49.22	49.47	49.35	50.53	50.86	50.79
2150	7.47	7.45	7.48	48.90	49.26	49.08	49.99	50.49	50.26
2200	7.37	7.39	7.38	49.28	49.61	49.36	50.39	50.81	50.57
2250	7.51	7.49	7.51	49.11	49.40	49.12	50.39	50.80	50.44
2300	7.44	7.43	7.47	49.20	49.82	49.17	50.55	51.15	50.57
2350	7.58	7.55	7.59	49.64	49.98	49.61	50.71	51.13	50.73
2400	7.61	7.57	7.61	49.45	49.82	49.43	50.44	50.90	50.47
2450	7.58	7.60	7.57	49.17	49.53	49.11	50.23	50.64	50.17
2500	7.59	7.56	7.60	48.78	49.07	48.73	50.04	50.43	49.93
2550	7.71	7.65	7.68	48.53	48.84	48.48	50.13	50.50	50.03
2600	7.74	7.69	7.72	48.81	49.13	48.86	50.51	50.87	50.47
2650	7.75	7.76	7.77	49.40	49.67	49.44	50.82	51.20	50.92
2700	7.77	7.71	7.77	48.93	49.27	49.22	50.12	50.52	50.47

Typical Performance Data

Test Conditions: Temperature = +25°C.

Freq. (MHz)	Harmonics (F2) (dBc)			Harmonics (F3) (dBc)		
	+28 V	+30 V	+31 V	+28 V	+30 V	+31 V
700	-21.18	-22.90	-23.47	-32.14	-32.05	-34.72
750	-21.05	-22.44	-23.11	-31.96	-31.83	-34.45
800	-18.43	-19.34	-20.18	-31.59	-31.41	-35.02
850	-17.30	-18.02	-19.04	-27.33	-26.71	-29.28
900	-18.85	-19.81	-20.18	-28.10	-27.52	-28.63
950	-23.03	-24.54	-24.70	-31.65	-30.44	-30.91
1000	-22.38	-23.92	-23.97	-36.83	-35.83	-36.03
1050	-19.92	-21.14	-21.30	-39.31	-39.62	-40.04
1100	-15.50	-16.51	-16.74	-41.78	-43.26	-43.58
1150	-12.86	-14.25	-14.61	-48.80	-52.62	-52.69
1200	-9.86	-11.58	-12.16	-43.66	-49.39	-49.79
1250	-6.88	-9.98	-10.41	-43.16	-47.53	-47.09
1300	-7.15	-10.09	-10.45	-48.77	-52.70	-54.45
1350	-9.03	-10.69	-11.20	-63.63	-62.57	-61.35
1400	-10.81	-11.84	-12.16	-63.22	-62.67	-61.72
1450	-13.84	-14.50	-14.67	-65.49	-65.73	-66.25
1500	-17.35	-17.91	-18.06	-45.78	-47.29	-48.58
1525	-19.04	-19.62	-19.81	-52.61	-53.78	-54.48
1550	-20.34	-20.91	-21.08	-59.48	-60.24	-61.86
1575	-21.90	-22.46	-22.61	-50.71	-51.58	-52.99
1600	-23.14	-23.71	-23.85	-49.48	-50.95	-52.67
1625	-24.49	-25.10	-25.28	-50.03	-51.60	-53.48
1650	-25.82	-26.48	-26.68	-48.17	-49.79	-51.17
1675	-25.76	-26.55	-26.84	-40.67	-41.98	-43.25
1700	-26.28	-27.16	-27.47	-36.62	-37.82	-38.84
1725	-25.47	-26.43	-26.86	-34.45	-35.78	-36.82
1750	-24.08	-25.12	-25.57	-35.51	-35.79	-36.18
1775	-23.55	-24.57	-25.04	-35.92	-36.62	-37.33
1800	-22.35	-23.29	-23.81	-39.18	-40.76	-42.16
1825	-21.78	-22.94	-23.40	-42.53	-44.10	-45.24
1850	-22.07	-23.41	-24.24	-41.37	-43.08	-44.20
1875	-22.84	-24.09	-24.65	-46.36	-48.13	-49.54
1900	-24.29	-25.07	-25.69	-46.02	-47.38	-48.18
1925	-28.80	-29.24	-29.95	-44.72	-45.27	-47.35
1950	-35.44	-36.05	-36.80	-44.93	-45.76	-46.99
2000	-43.83	-44.62	-44.80	-45.06	-47.82	-48.97
2050	-51.25	-51.67	-52.04	-52.33	-54.45	-55.21
2100	-62.26	-62.44	-62.35	-43.59	-45.70	-46.49
2150	-53.65	-55.68	-56.73	-45.38	-47.88	-49.33
2200	-54.25	-54.18	-54.15	-41.62	-43.71	-44.92
2250	-39.60	-41.08	-41.57	-49.83	-51.34	-51.97
2300	-48.97	-49.99	-50.30	-46.67	-47.98	-48.66
2350	-57.70	-60.11	-61.97	-46.67	-47.74	-48.25
2400	-44.47	-45.52	-45.71	-45.49	-46.35	-46.75
2450	-40.22	-41.31	-41.62	-44.31	-44.89	-45.22
2500	-33.39	-34.70	-35.12	-41.28	-41.95	-42.20
2550	-29.38	-30.80	-31.23	-50.66	-51.30	-51.66
2600	-28.24	-29.82	-30.37	-55.42	-55.83	-55.83
2650	-27.08	-28.38	-28.87	-47.40	-49.65	-49.98
2700	-35.93	-37.35	-37.98	-43.44	-44.77	-44.86

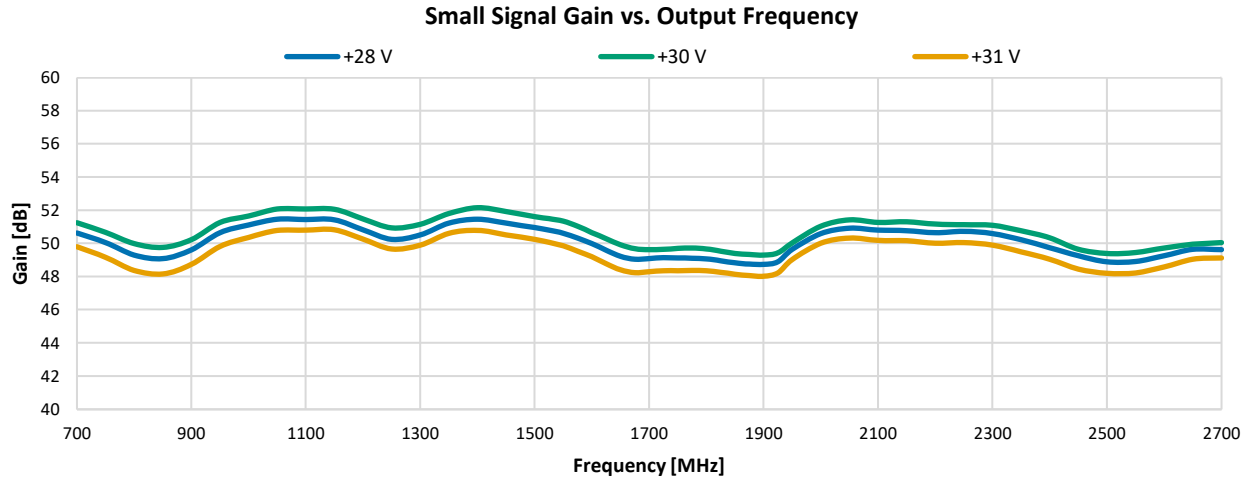
Typical Performance Data

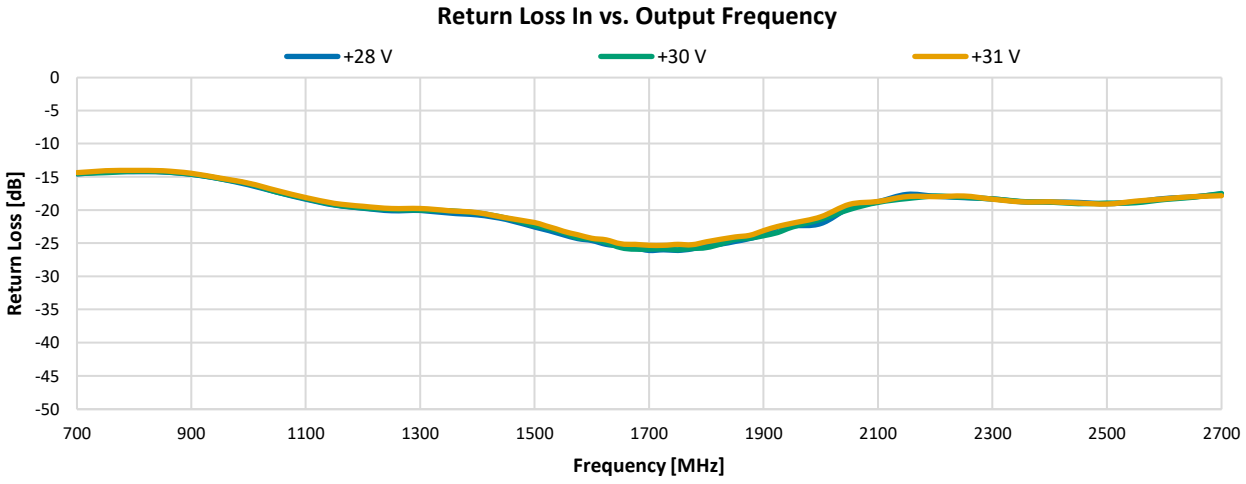
Test Conditions: Temperature = +25°C.

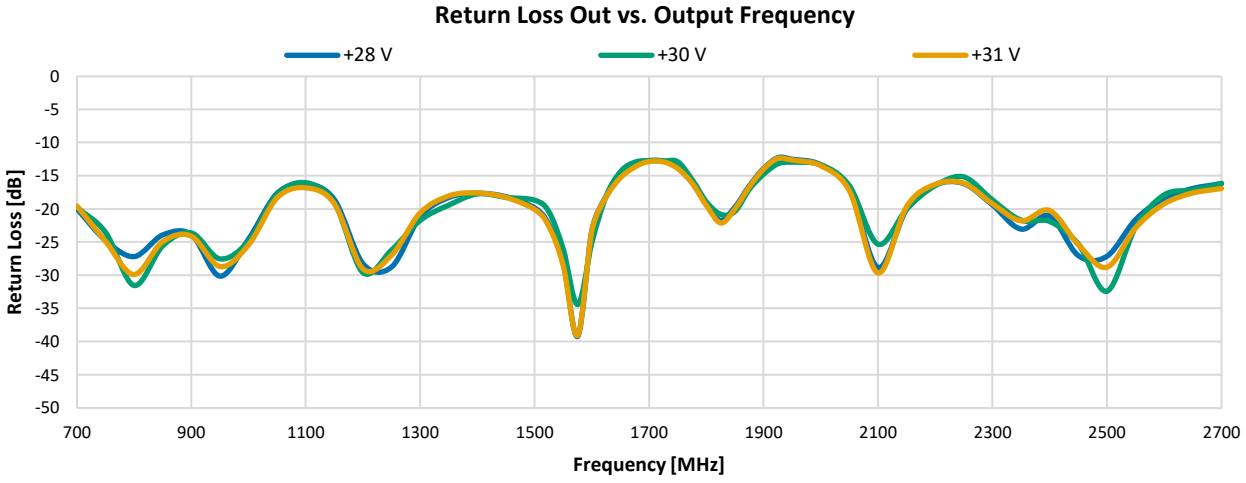
Freq. (MHz)	2nd Order Intercept Point (dBm)			3rd Order Intercept Point (dBm)		
	+28 V	+30 V	+31 V	+28 V	+30 V	+31 V
700	59.85	60.82	61.53	55.55	55.75	55.81
750	60.77	61.57	62.37	55.59	55.80	55.86
800	59.61	60.34	61.12	55.45	55.66	55.69
850	60.21	61.08	61.76	55.32	55.57	55.59
900	61.68	62.81	63.46	55.48	55.75	55.81
950	64.22	65.98	66.69	55.94	56.28	56.33
1000	63.96	65.71	66.50	55.90	56.32	56.46
1050	62.81	63.86	64.55	55.13	55.58	55.69
1100	58.20	58.99	59.61	54.95	55.44	55.51
1150	56.13	57.02	57.68	54.62	55.08	55.13
1200	53.65	54.31	55.05	53.65	54.28	54.39
1250	52.03	52.79	53.45	52.03	52.79	53.45
1300	51.93	52.70	53.39	51.93	52.70	53.39
1350	52.48	53.34	53.98	52.48	53.34	53.98
1400	52.82	53.58	54.22	52.82	53.58	54.22
1450	55.35	55.99	56.55	55.35	55.99	56.05
1500	59.06	59.75	60.20	55.95	56.56	56.43
1525	61.09	61.78	62.27	56.08	56.66	56.56
1550	62.77	63.47	63.95	56.19	56.77	56.64
1575	64.28	64.95	65.47	56.27	56.77	56.72
1600	65.49	66.21	66.74	56.28	56.74	56.72
1625	66.57	67.34	67.89	56.18	56.64	56.60
1650	67.29	68.08	68.73	56.07	56.48	56.49
1675	67.03	67.86	68.55	56.05	56.45	56.48
1700	67.57	68.52	69.18	56.31	56.73	56.74
1725	66.68	67.51	68.36	56.31	56.59	56.71
1750	65.59	66.51	67.31	56.13	56.45	56.56
1775	64.86	65.82	66.55	55.86	56.19	56.27
1800	64.46	65.23	66.17	55.50	55.82	56.02
1825	65.00	65.89	66.69	55.23	55.59	55.67
1850	65.41	66.27	67.16	54.98	55.32	55.46
1875	65.25	65.84	66.84	54.85	55.21	55.25
1900	66.45	67.04	67.80	54.69	54.96	55.09
1925	70.40	70.83	71.84	54.29	54.58	54.74
1950	76.32	76.94	77.85	54.70	55.04	55.13
2000	85.43	86.69	86.37	55.05	55.31	55.49
2050	92.23	93.26	93.16	55.35	55.67	55.79
2100	112.87	113.18	113.23	55.33	55.56	55.75
2150	102.25	104.48	105.35	54.84	54.95	55.20
2200	98.56	97.54	99.65	55.24	55.45	55.61
2250	81.94	83.39	84.07	55.49	55.67	55.88
2300	90.60	92.12	92.22	55.67	55.84	56.06
2350	99.94	101.22	102.75	55.71	55.84	56.09
2400	88.56	89.64	90.63	55.40	55.56	55.82
2450	82.99	84.24	85.13	55.49	55.66	55.96
2500	75.91	77.19	78.23	55.44	55.69	55.97
2550	71.24	72.89	73.69	55.60	55.82	56.07
2600	69.77	71.30	72.20	55.76	56.00	56.23
2650	69.24	70.42	71.32	55.61	55.86	56.09
2700	77.42	78.74	79.52	54.59	54.97	55.15

Typical Performance Graphs

Test Conditions: Temperature = +25°C.

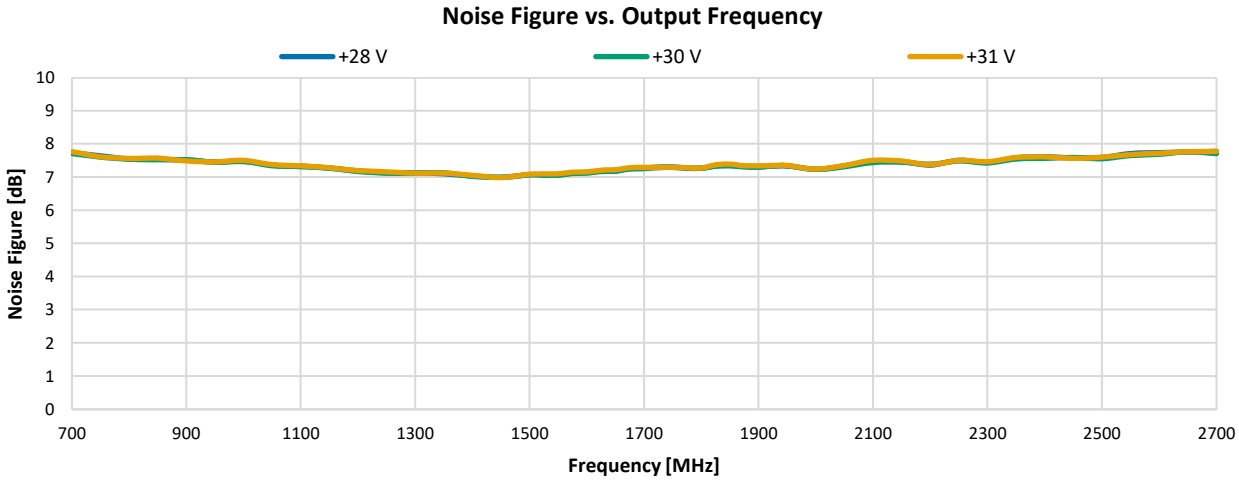


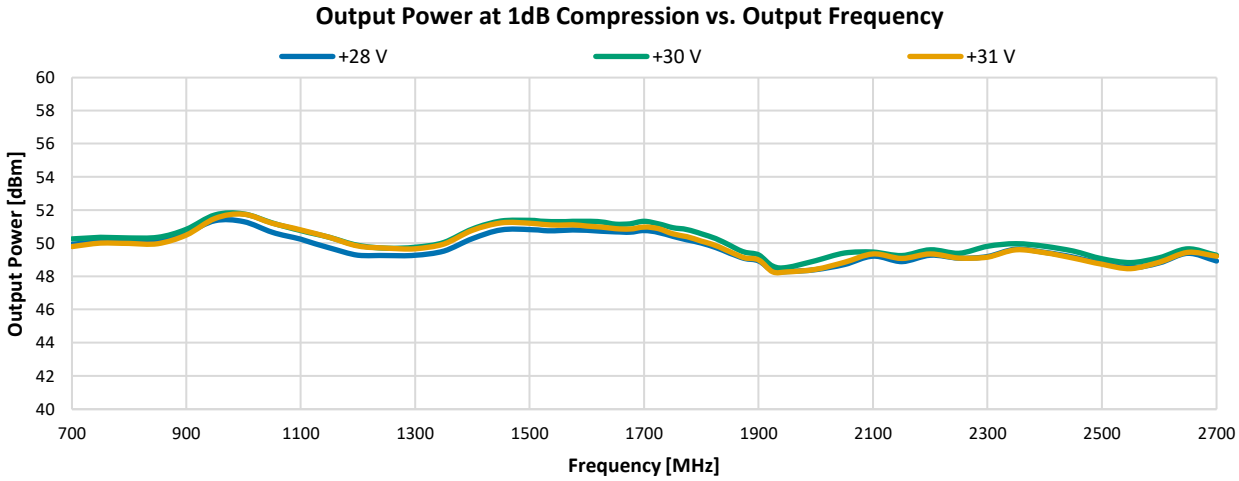


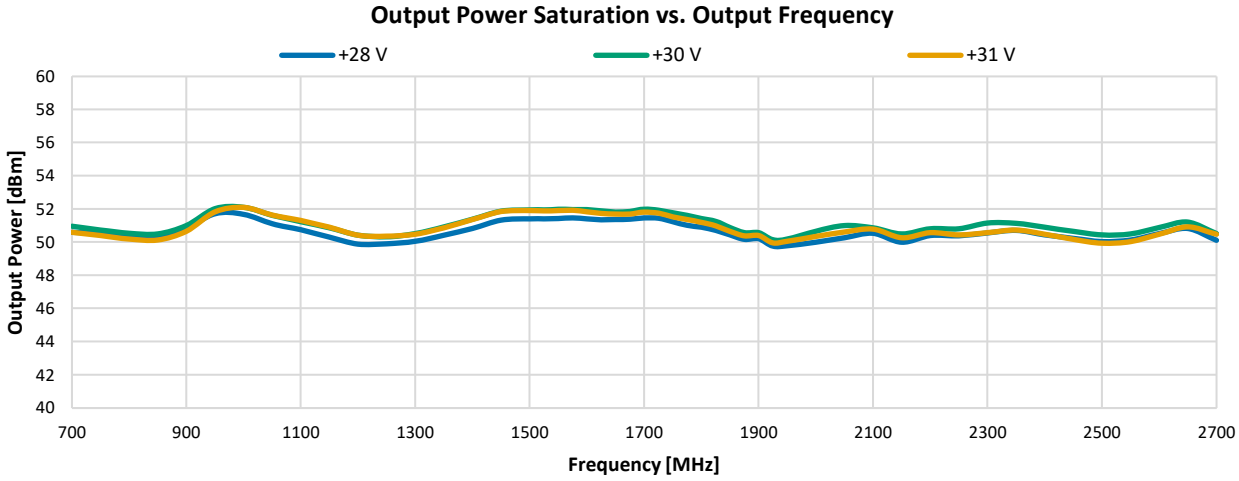


Typical Performance Graphs

Test Conditions: Temperature = +25°C.

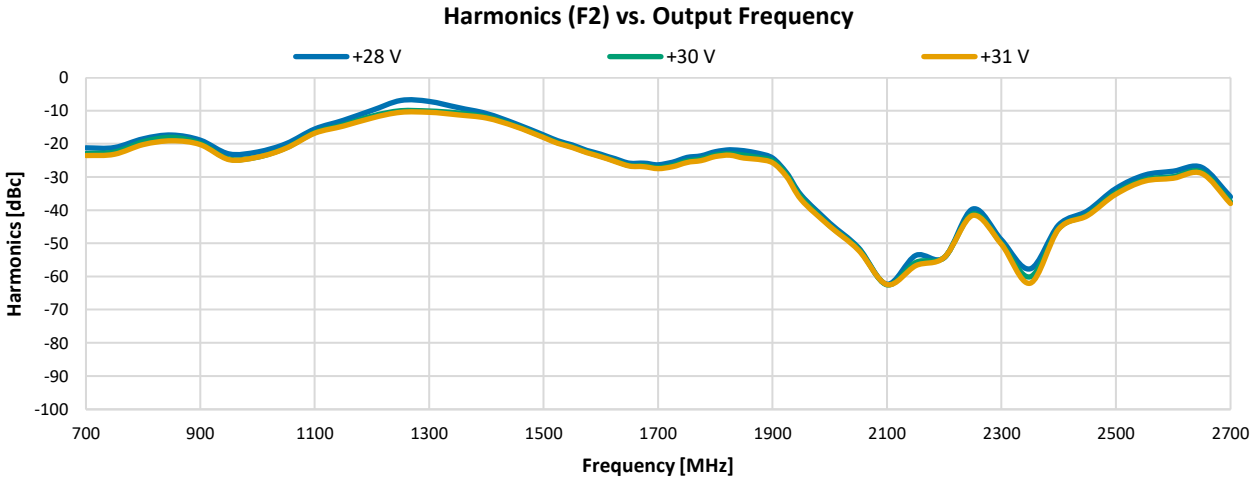


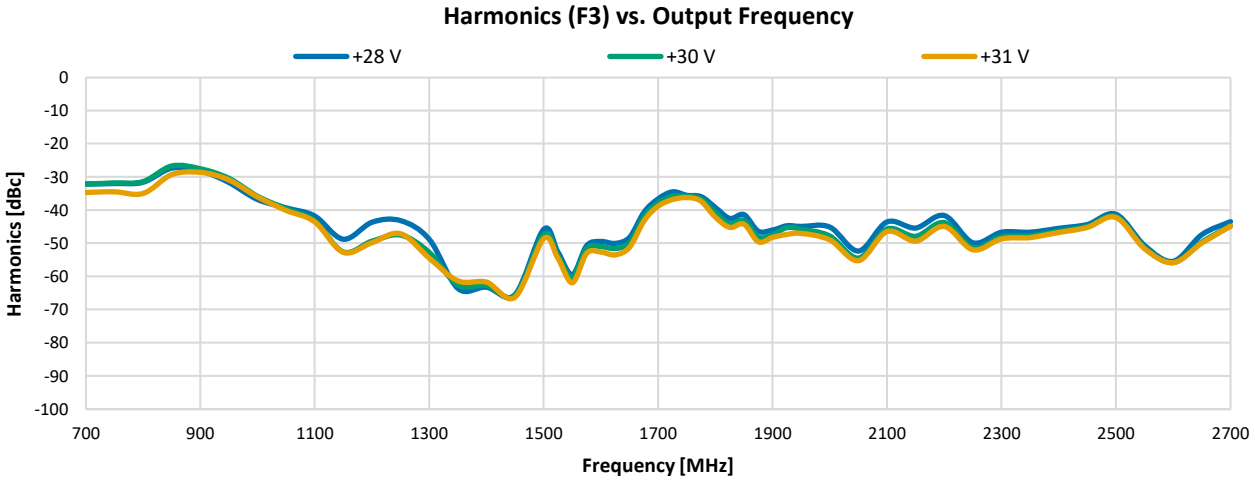




Typical Performance Graphs

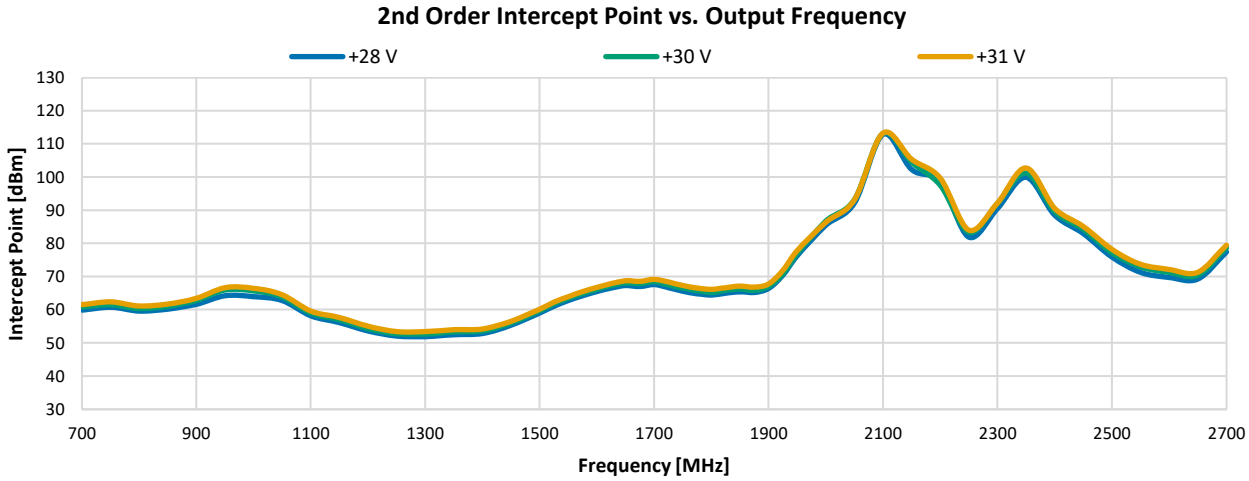
Test Conditions: Temperature = +25°C.

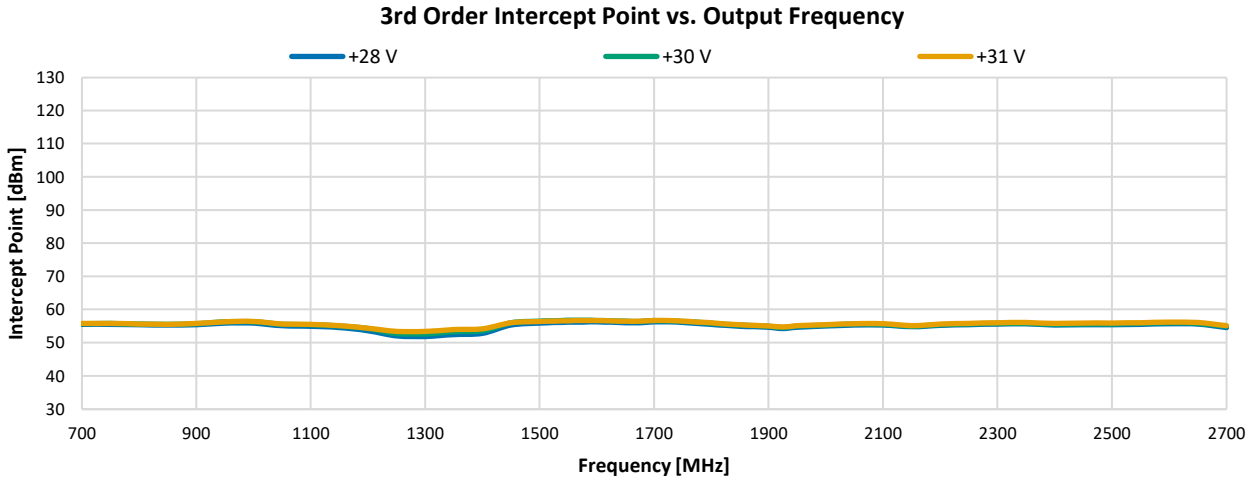




Typical Performance Graphs

Test Conditions: Temperature = +25°C.

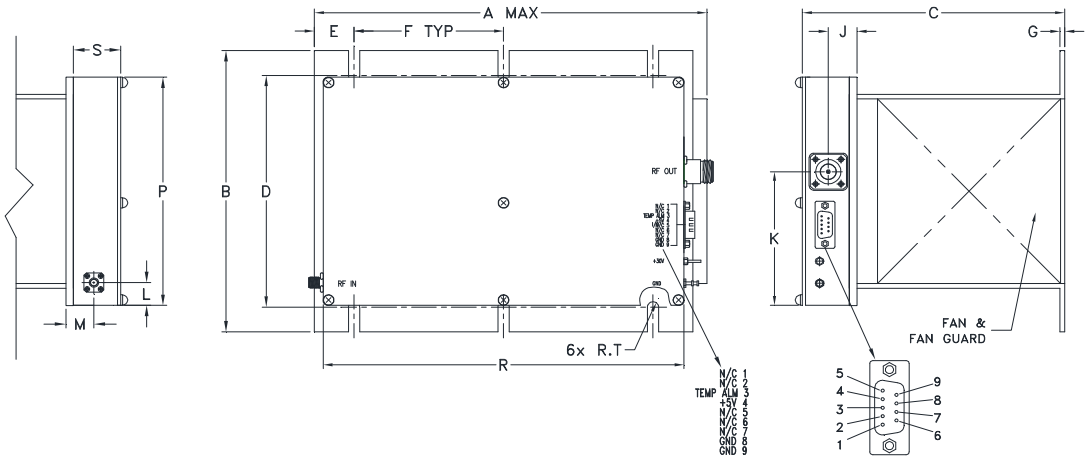




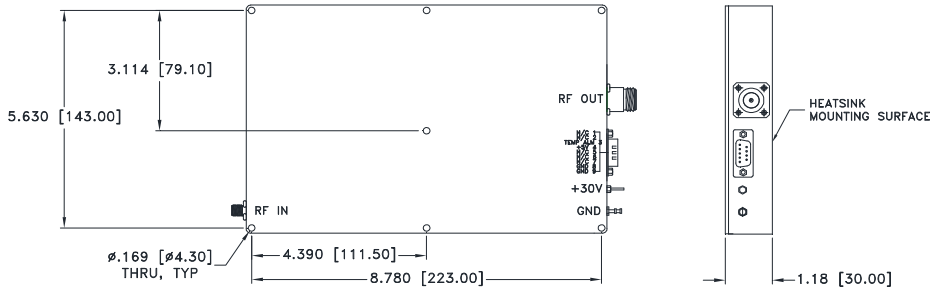
Case Style BT

Outline Dimensions

BT2247



MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
BT2247	9.85 (250.19)	7.3 (185.42)	6.6 (167.64)	6.00 (152.40)	.98 (24.89)	3.75 (95.25)	.13 (3.30)	- -	.72 (18.24)	3.46 (88.00)	.59 (15.00)	.70 (17.75)	- -

CASE#	P	Q	R	S	T	U	WT, GRAM	WT WITHOUT HEATSINK, GRAM
BT2247	5.91 (150.00)	- -	9.06 (230.00)	1.18 (30.00)	.135 (3.43)	- -	5350	1820

Dimensions in inches. Tolerances: 2 Pl. + .03; 3Pl. + .015

Notes:

1. Case material: Aluminum alloy.
2. Finish:
   For RoHS Case Styles: Clear Chemical conversion coating, non-chrome or trivalent chrome based.
3. Heatsink finish: Black anodize.
4. Refer to the individual model data sheet for the type of connectors available.
5. Recommended screw for mounting model without heatsink on 3/32” thick sheet: #6-32, 1.50” Length.

Mini-Circuits

Environmental Specifications **ENV23T19**

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-20° to 45°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Stabilization Bake	(non-operating) 125°C, 24 hours	- - -
Burn-in at Elevated Temp.	(DC on) 160 hours at 60° C base plate Temperature	MIL-STD-202, Method 108
Thermal Shock	-55° to 100°C, 5 cycles	MIL-STD-202, Method 107, Condition A, except 100°C