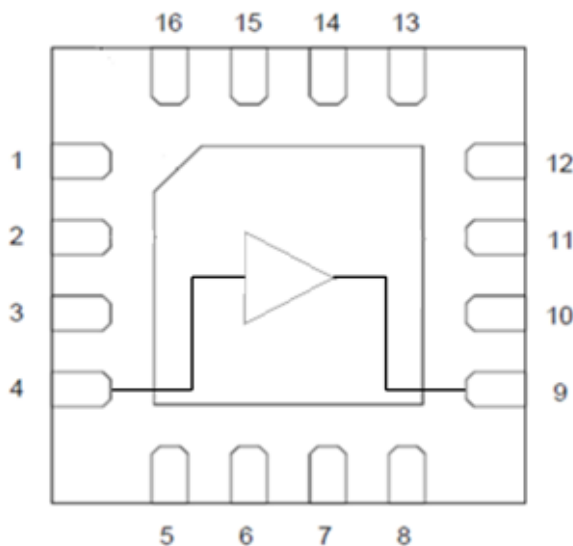


Product Overview

The QPL7420 is a GaAs pHEMT single ended RF amplifier IC featuring 20 dB of flat gain and low noise. This IC is designed for applications in the Upstream from 5 MHz to 684 MHz and in the Downstream from 47 MHz to 1800 MHz using a single 5V supply, and it can be used from 3V to 8V depending on linearity requirements. QPL7420 offers low noise and distortion plus high gain in a 3 x 3 QFN package for convenient layout and design in set top and infrastructure projects for 75 Ω CATV and satellite applications.

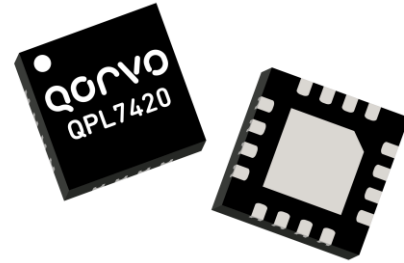
Functional Block Diagram



Top View

Ordering Information

| Part Number | Description |
|---------------|--------------------------------|
| QPL7420SB | Sample bag with 5 pieces |
| QPL7420SR | 7" Reel with 100 pieces |
| QPL7420TR7 | 7" Reel with 2500 pieces |
| QPL7420EVB-01 | 47 – 1800 MHz Evaluation Board |
| QPL7420EVB-02 | 5 – 684 MHz Evaluation Board |



3 x 3 QFN Package

Key Features

- 5 MHz to 1800 MHz Operation
- 3 V, 5 V, and 8 V Operation
- Gain; 20 dB Typical
- Noise Figure; 1.1 dB Typical at 850 MHz
- Adjustable Bias Using External Resistors
- Convenient QFN Package
- RoHS Compliant

Applications

- DOCSIS 3.1
- Downstream Applications, 47 to 1800 MHz
- Upstream Applications, 5 to 684 MHz
- Head End CMTS Equipment
- Optical Node
- FTTH GPON and GEPON
- Satellite Low Noise Amplifier
- Cable Modem and Set Top Box
- Single Ended Gain Block

Absolute Maximum Ratings

| Parameter | Rating |
|--|----------------|
| Supply Voltage (V_{DD}) | +10 V |
| Supply Current (I_{DD}) | 140 mA |
| Maximum Input Level | 65 dBmV |
| Operating Temperature Range (Bottom of case) | -40 to +100 °C |
| Storage Temperature Range | -65 to +150 °C |
| Maximum Junction Temperature | +150 °C |

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability.

Electrical Specifications, 47 – 1800 MHz (5 V)

| Parameter | Condition ⁽¹⁾ | Min | Typ | Max | Unit |
|-----------------------------|--------------------------------|-----|------|------|------|
| Supply Voltage (V_{DD}) | | | 5 | | V |
| Supply Current (I_{DD}) | | | 60 | | mA |
| Frequency Range | | 47 | | 1800 | MHz |
| Gain | | | 20.4 | | dB |
| Gain Slope | 47 -1200 MHz | | 0.2 | | dB |
| | 108 – 1800 MHz | | 0.0 | | |
| Reverse Isolation | | | -23 | | dB |
| Input Return Loss | | | 20 | | dB |
| Output Return Loss | | | 18 | | dB |
| Noise Figure | | | 1.2 | | dB |
| OIP2L | 47-1200 MHz | | 47.4 | | dBm |
| | 108 – 1800 MHz | | 46.1 | | |
| OIP2H | 47-1200 MHz | | 39.4 | | dBm |
| | 108 – 1800 MHz | | 39.4 | | |
| OIP3 | 47-1200 MHz | | 36.3 | | dBm |
| | 108 – 1800 MHz | | 35.4 | | |
| OP1dB | 47-1200 MHz | | 20.9 | | dBm |
| | 108 – 1800 MHz | | 19.3 | | |
| Thermal Resistance | Θ_{JC} (Bottom of Case) | | 27 | | °C/W |

Notes:

1. Typical performance at these conditions: Temp = +25 °C, V_{DD} = +5 V, 75 ohm system, Full band unless otherwise noted
2. OIP3; +9 dBm/ tone output, 6MHz spacing
3. OIP2; +9 dBm/tone output, 50MHz spacing

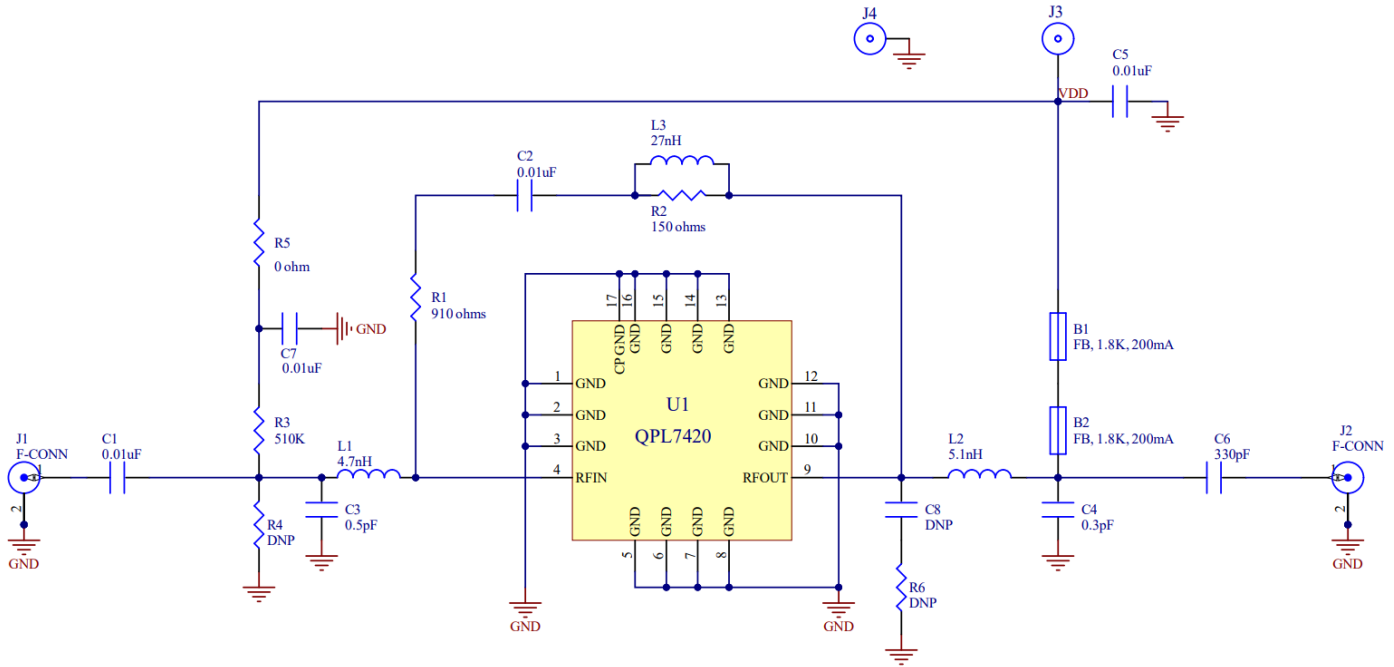
Electrical Specifications, 47 – 1800 MHz (8 V)

| Parameter | Condition ⁽¹⁾ | Min | Typ | Max | Unit |
|-----------------------------|--------------------------------|-----|------|------|----------------------|
| Supply Voltage (V_{DD}) | | | 8 | | V |
| Supply Current (I_{DD}) | | | 100 | | mA |
| Frequency Range | | 47 | | 1800 | MHz |
| Gain | | | 20.5 | | dB |
| Gain Slope | 47 -1200 MHz | | 0.2 | | dB |
| | 108 – 1800 MHz | | 0.0 | | |
| Reverse Isolation | | | -23 | | dB |
| Input Return Loss | | | 20 | | dB |
| Output Return Loss | | | 17.5 | | dB |
| Noise Figure | | | 1.2 | | dB |
| OIP2L | 47-1200 MHz | | 55.6 | | dBm |
| | 108 – 1800 MHz | | 54.0 | | |
| OIP2H | 47-1200 MHz | | 44.7 | | dBm |
| | 108 – 1800 MHz | | 44.7 | | |
| OIP3 | 47-1200 MHz | | 41.2 | | dBm |
| | 108 – 1800 MHz | | 41.2 | | |
| OP1dB | 47-1200 MHz | | 24.5 | | dBm |
| | 108 – 1800 MHz | | 23.5 | | |
| Thermal Resistance | Θ_{JC} (Bottom of Case) | | 27 | | $^{\circ}\text{C/W}$ |

Notes:

1. Typical performance at these conditions: Temp = +25 $^{\circ}\text{C}$, V_{DD} = +8 V, 75 ohm system, Full band unless otherwise noted
2. OIP3; +9 dBm/ tone output, 6MHz spacing
3. OIP2; +9 dBm/tone output, 50MHz spacing

Evaluation Board Schematic, 47 – 1800 MHz



Evaluation Board Assembly Drawing, 47 – 1800 MHz

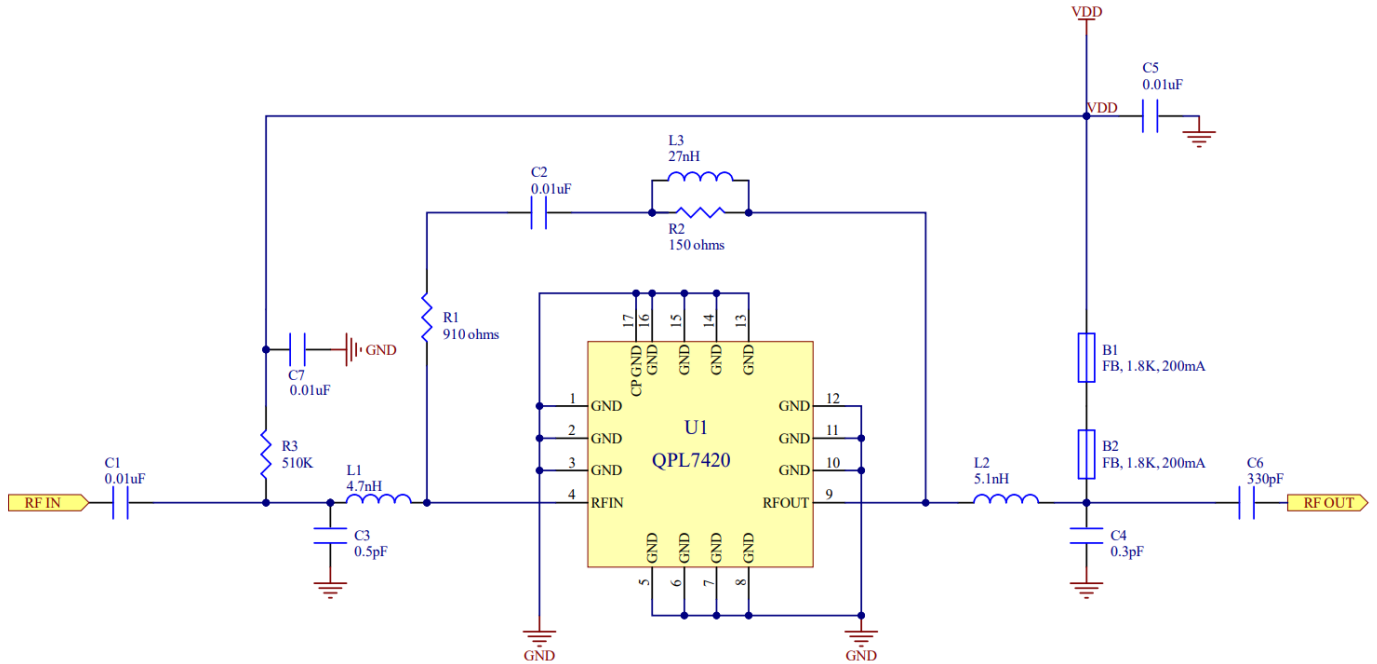




Evaluation Board Bill of Materials, 47 – 1800 MHz

| Designator | Description | Manufacturer | Part Number |
|----------------|---|-----------------------------------|-------------------------|
| PCB | QPL7420-4000 | TTM | QPL7420-4000(A) |
| U1 | 20dB FTTH Amplifier | Qorvo | QPL7420 |
| B1, B2 | FER, BEAD, 1.8K, 200mA, 0402 | TDK | MMZ1005A182ET000 |
| C1, C2, C5, C7 | CAP, 0.01uF, 10%, 50V, X7R, 0402 | Murata Electronics | GCM155R71H103KA55D |
| C3 | CAP, 0.5pF, ±0.05pF, 50V, HI-Q, 0402 | Murata Electronics | GJM1555C1HR50WB01D |
| C4 | CAP, 0.3pF, +/-0.05pF, 50V, HI-Q, 0402 | Murata Electronics | GJM1555C1HR30WB01D |
| C6 | CAP, 330pF, 10%, 50V, X8L, 0402 | Murata Electronics | GCM155L81H331KA37D |
| J1, J2 | CONN, F FEM EDGE MOUNT, 75 OHMS, 0.068" | Millimeter Wave Technologies, LLC | MW-846-C-DD-75 |
| J3, J4 | TERM. SOLDER TURRET, 0.062 PCB | Mill-Max Manufacturing | 2533-0-00-44-00-00-07-0 |
| L1 | IND, 4.7nH, +/-0.3nH, M/L, 0402 | Murata Electronics | LQG15HN4N7S02D |
| L2 | IND, 5.1nH, +/- 0.3nH, 300mA, M/L, 0402 | Murata Electronics | LQG15HS5N1S02D |
| L3 | IND, 27nH, 5%, M/L, 0402 | Murata Electronics | LQG15HN27NJ02D |
| R1 | RES, 910 Ω, 5%, 1/16W, 0402 | Panasonic Industrial | ERJ-2GEJ911X |
| R2 | RES, 150 OHM, 5%, 1/16W, 0402 | Kamaya, Inc | RMC1/16S-151JTH |
| R3 | RES, 510K, 5%, 1/10W, 0402 510K | Kamaya, Inc | RMC 1/16S-514JTH |
| R5 | RES, 0 OHM, 5%, 1/10W, 0402 | Kamaya, Inc | RMC1/16SJPTH |
| C8, R4, R6 | Not Populated | | |

Typical Application Schematic, 47 – 1800 MHz



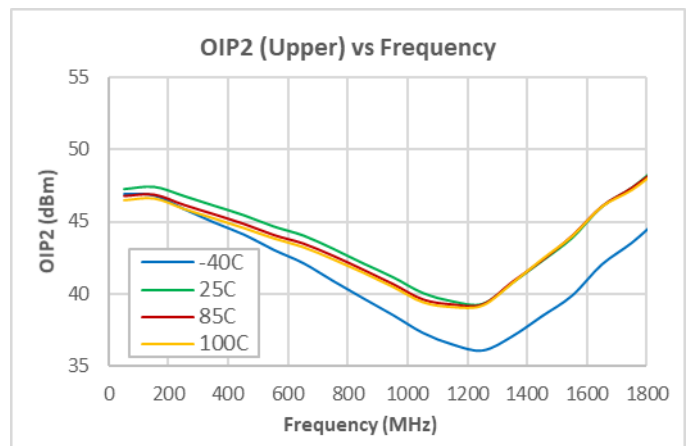
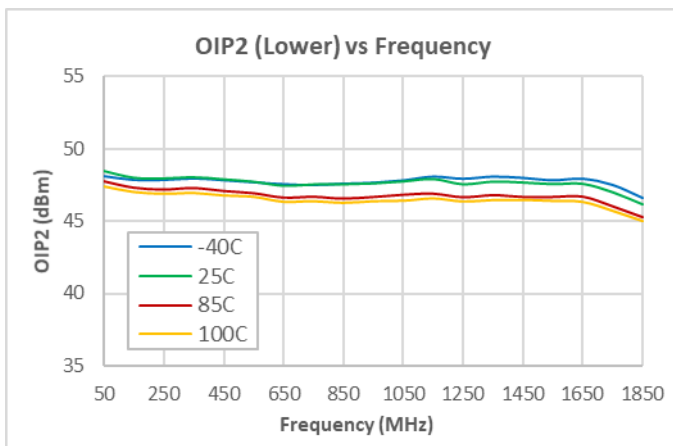
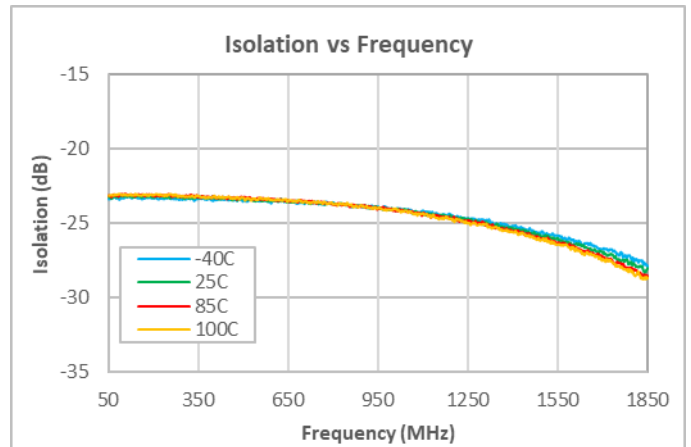
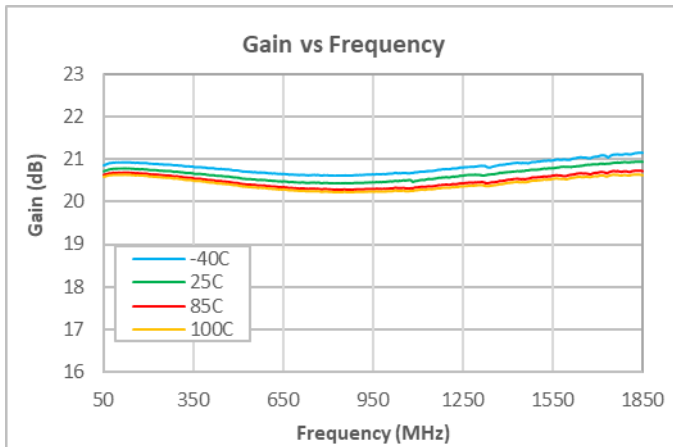
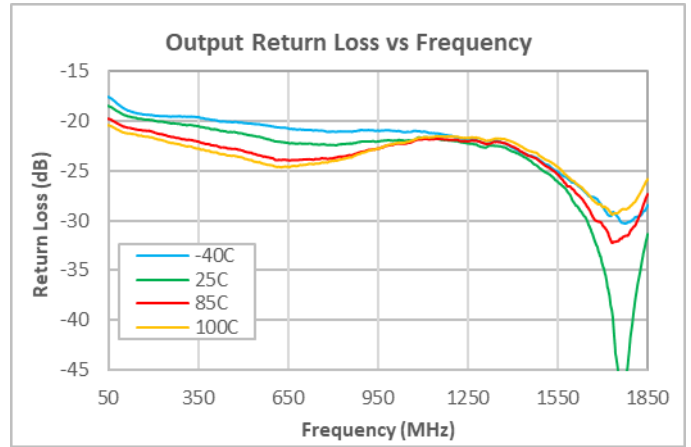
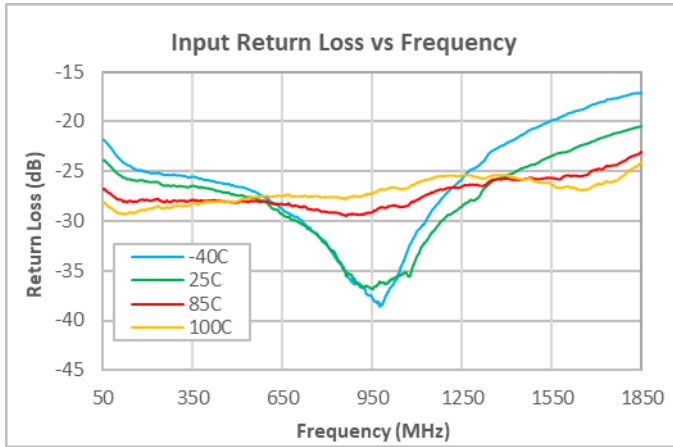
Notes:

1. C3/L1 tunes input return loss.
2. L2/C4 tunes output return loss with some contribution from C6.
3. The feedback network is composed of R1 and R2, with C2 being a DC block and L3 providing high end peaking. The ratio of R1 to R2 controls flatness and tilt while the total feedback resistance affects device gain.
4. B1, B2 provides the bias path with RF isolation from the RF output path.
5. R3 is adjusted to increase linearity or reduce power to set the desired operating point (Refer to Table 1 below).

Table 1, Pullup Resistor Options

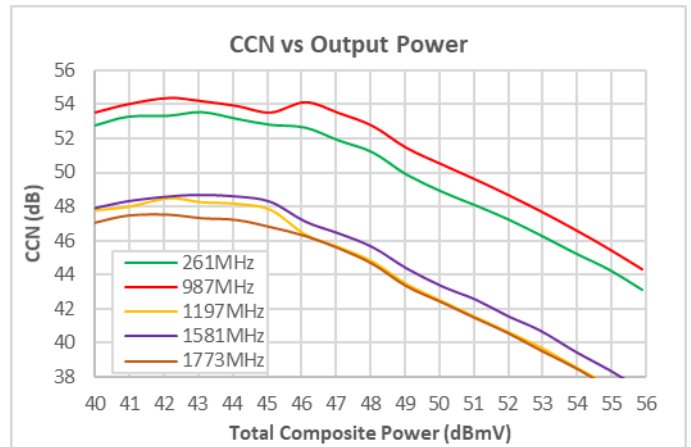
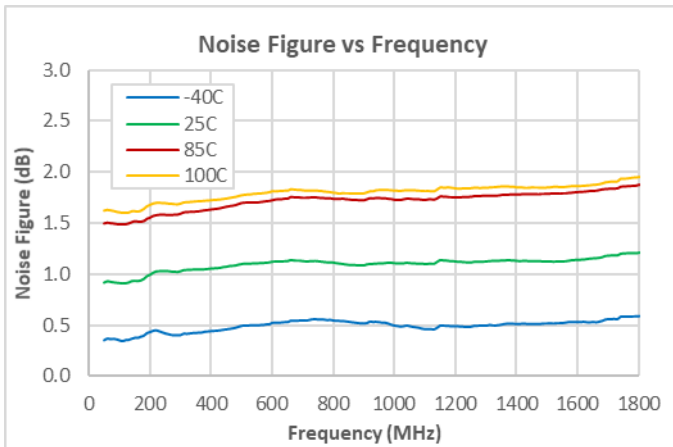
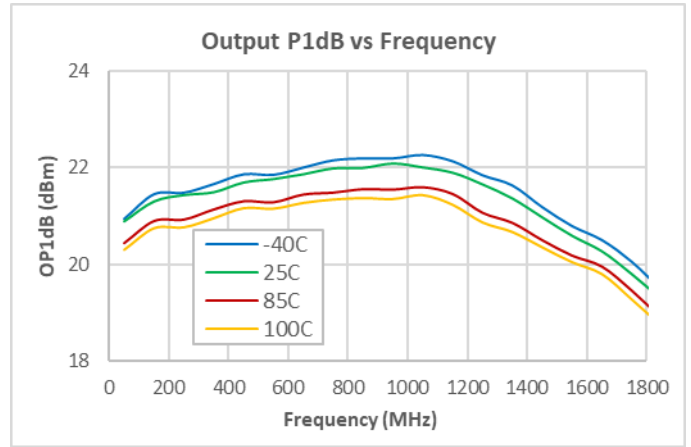
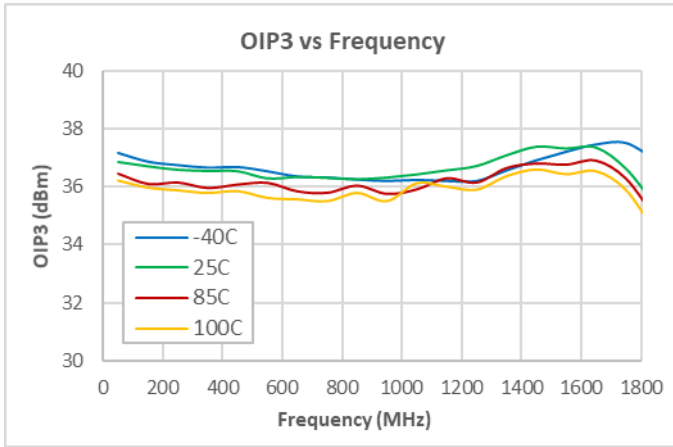
| Bias Current vs R3/R4 | | | |
|-----------------------|-----------------------|------------|-------------|
| R3 Pullup (ohms) | R4 Pulldown (ohms) | VDD (V) | IDD (mA) |
| DNP | DNP | 8 | 80.0 |
| 620K | DNP | 8 | 100.0 |
| 240K | DNP | 8 | 120.0 |
| 180K | DNP | 8 | 140.0 |
| DNP | DNP | 5 | 50.0 |
| 180K | DNP | 5 | 80.0 |
| 76.8K | DNP | 5 | 120.0 |
| 56K | DNP | 5 | 140.0 |

Performance Data, 47 – 1800 MHz (5 V)



- Notes:
- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
 - (2) OIP2: 9 dBm/tone output, 50 MHz spacing.

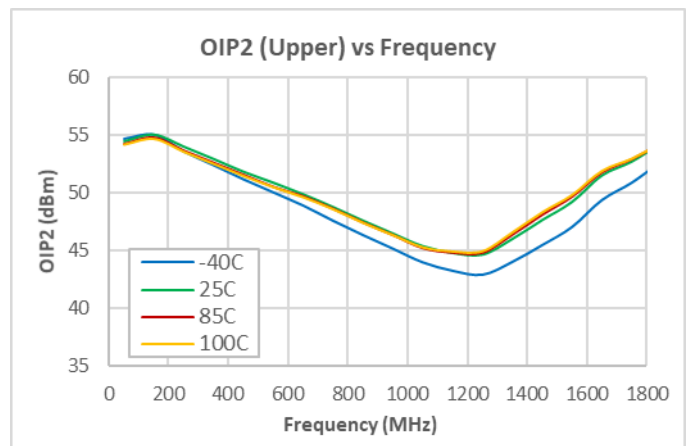
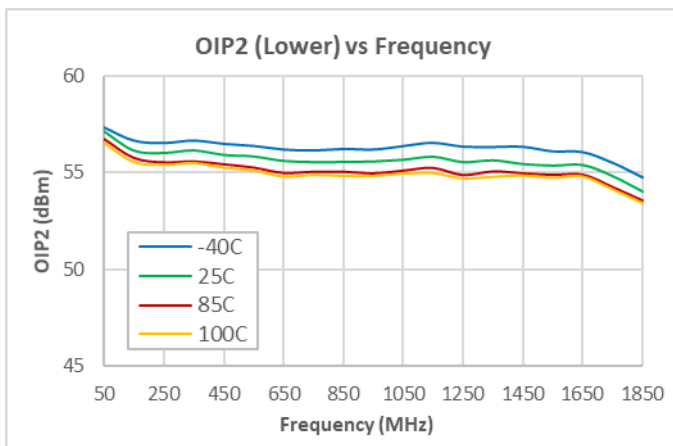
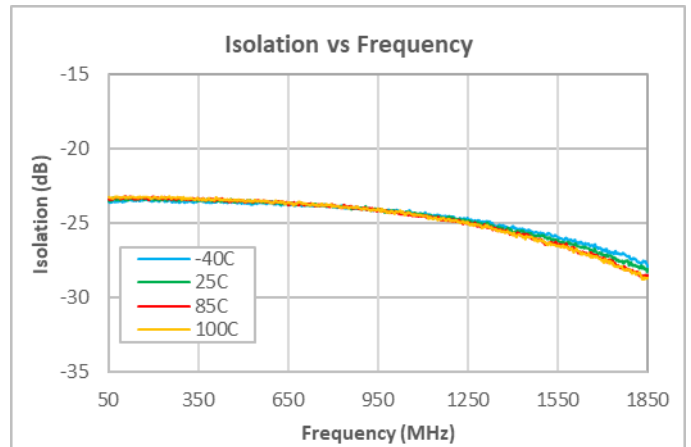
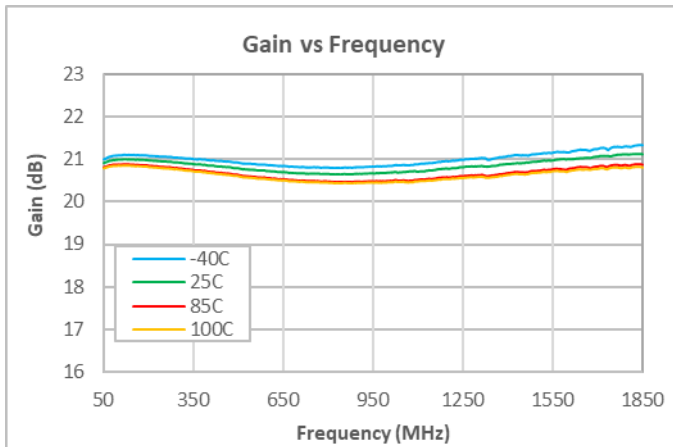
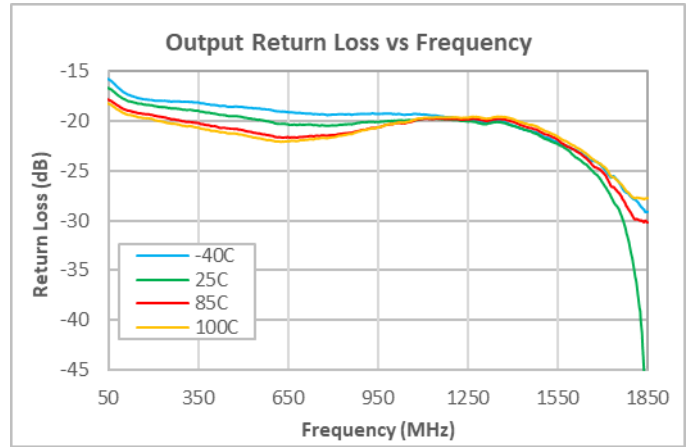
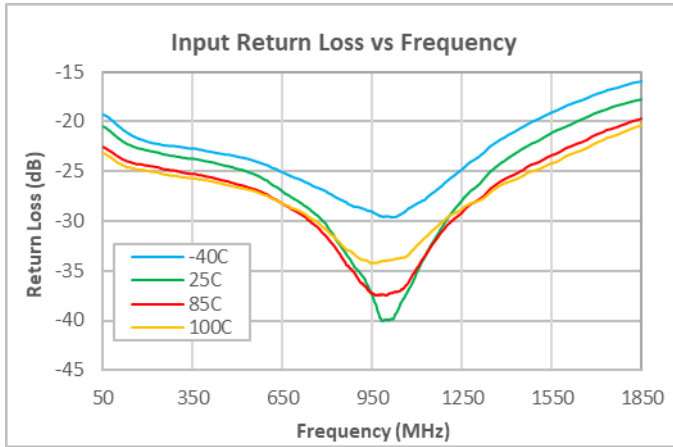
Performance Data, 47 – 1800 MHz (5 V)



Notes:

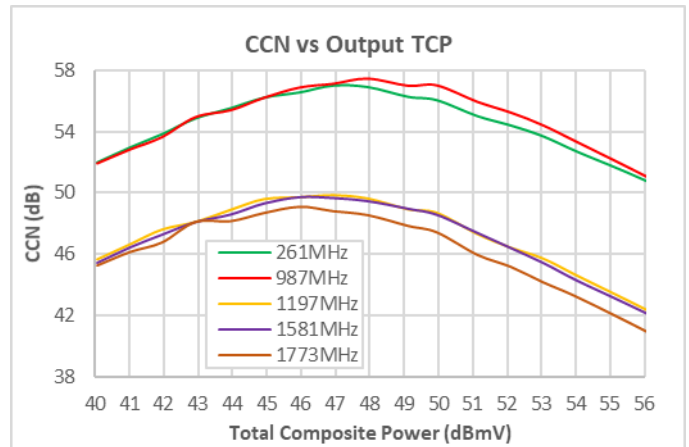
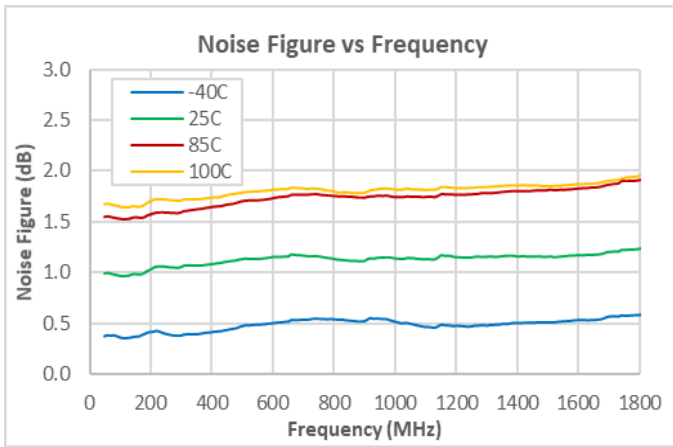
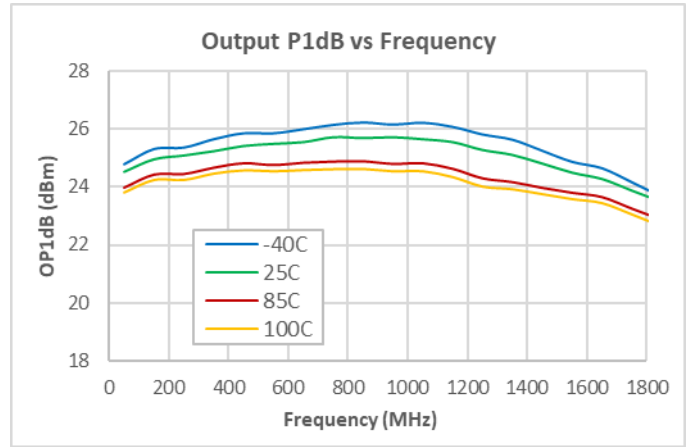
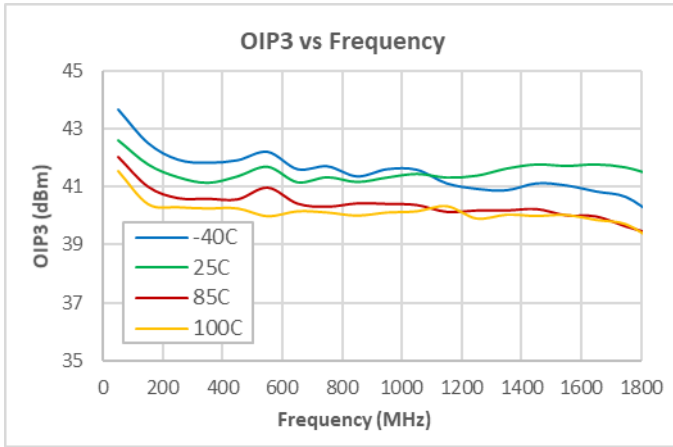
- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
- (2) OIP3: 9 dBm / tone output, 6 MHz spacing.
- (3) CCN: 261 – 1791 MHz SC QAM, 0 dB Tilt, 6 dB Stepdown at 1020 MHz.

Performance Data, 47 – 1800 MHz (8 V)



- Notes:
- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
 - (2) OIP2: 9 dBm/tone output, 50 MHz spacing.

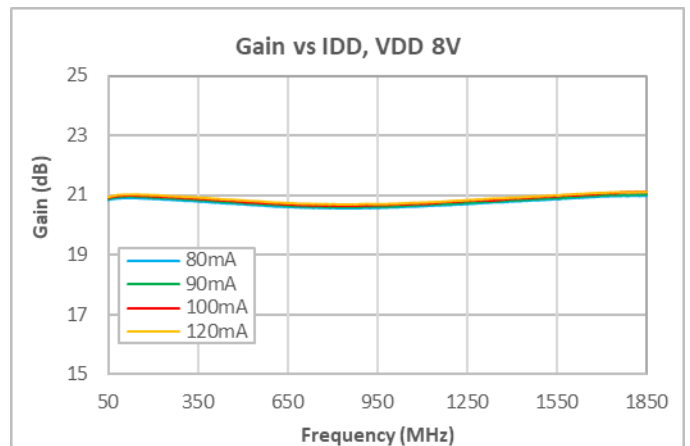
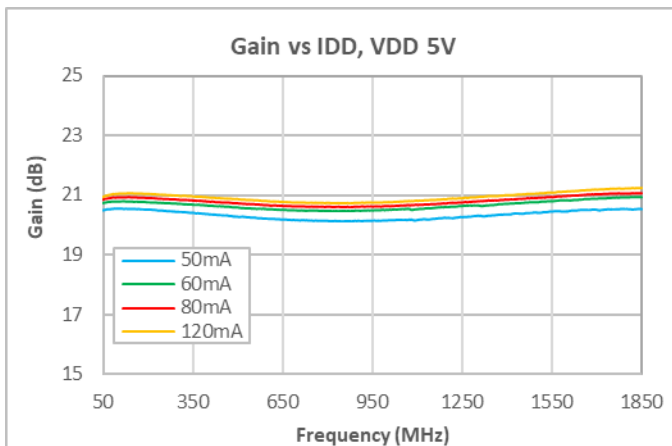
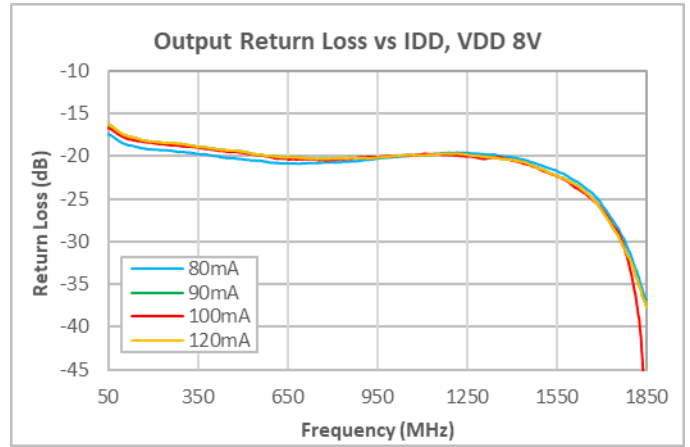
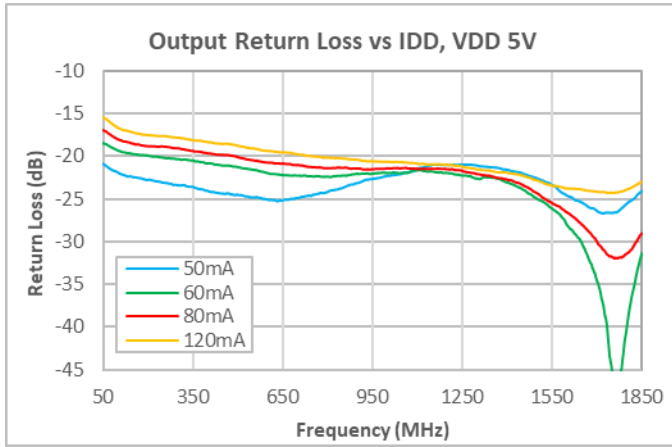
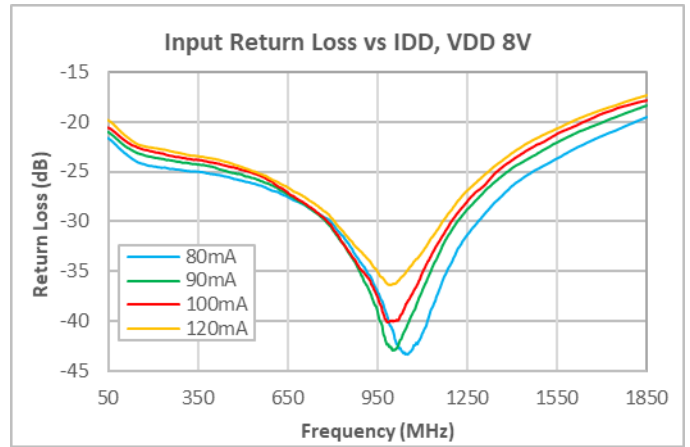
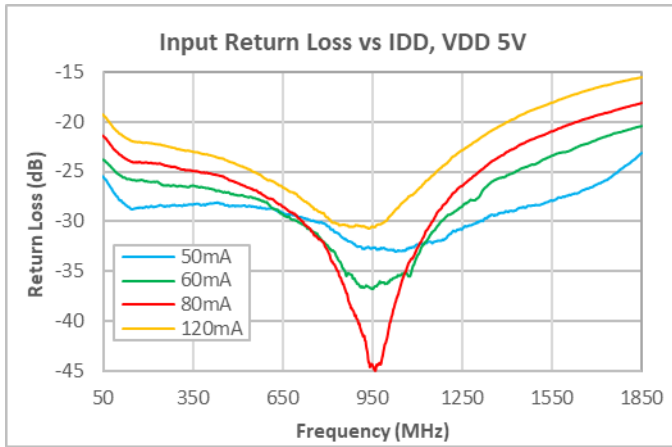
Performance Data, 47 – 1800 MHz (8 V)



Notes:

- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
- (2) OIP3: 9 dBm / tone output, 6 MHz spacing.
- (3) CCN: 261 – 1791 MHz SC QAM, 0 dB Tilt, 6 dB Stepdown at 1020 MHz.

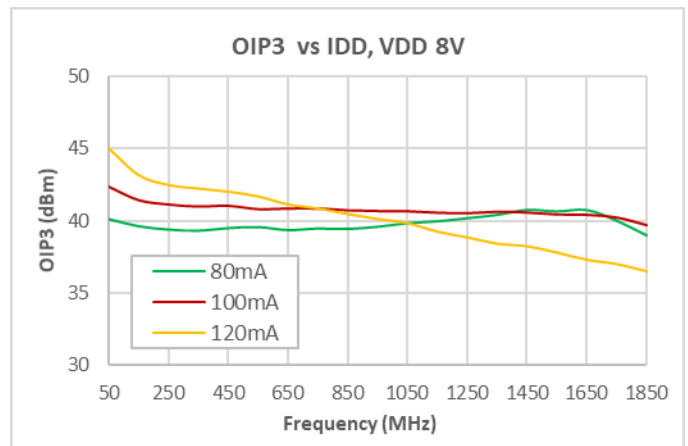
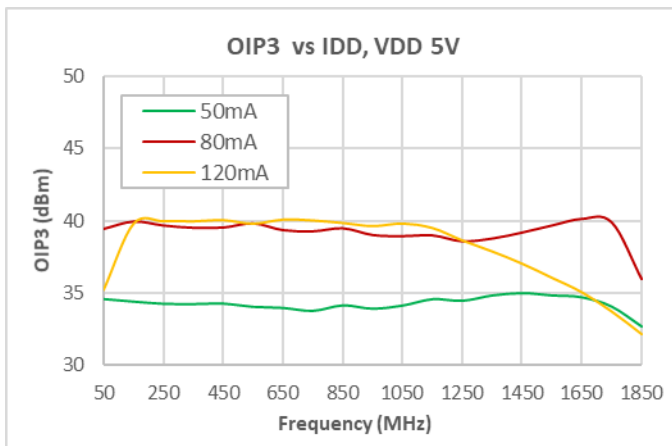
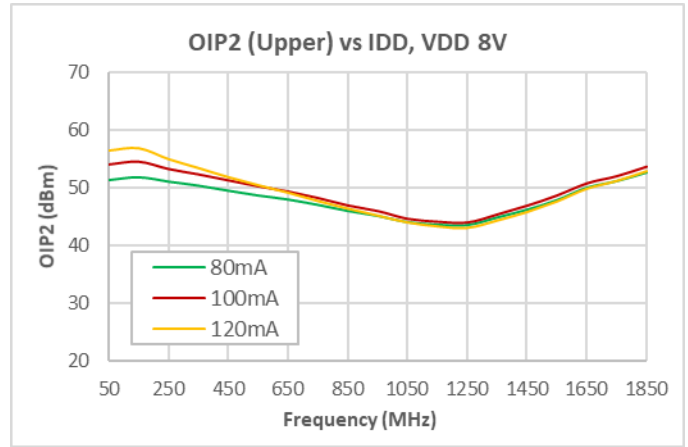
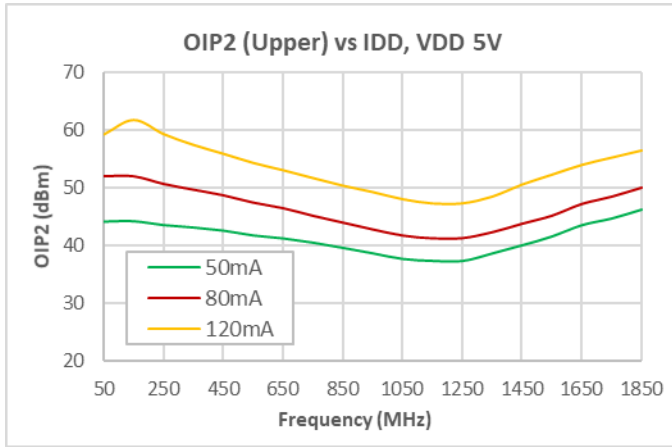
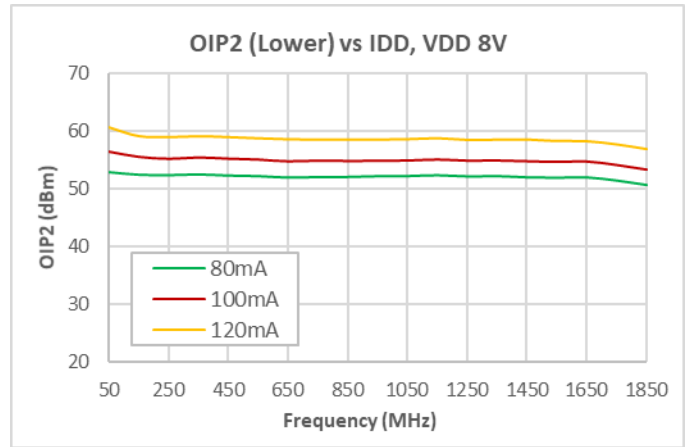
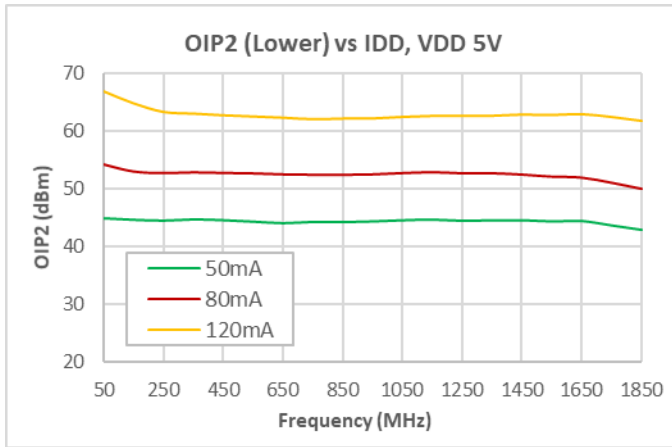
Performance Data vs Supply Voltage, 47 – 1800 MHz



Notes:

- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).

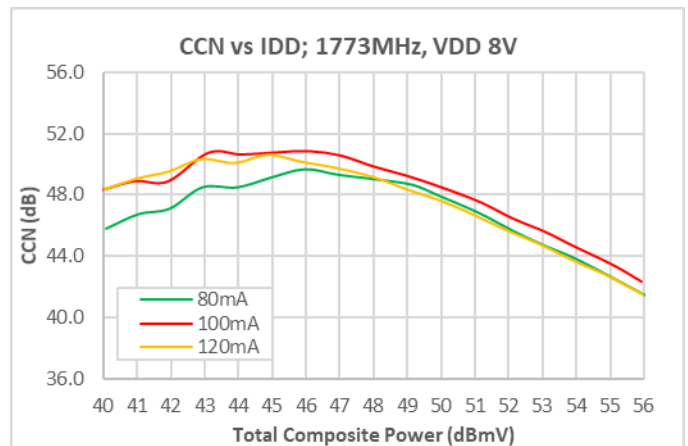
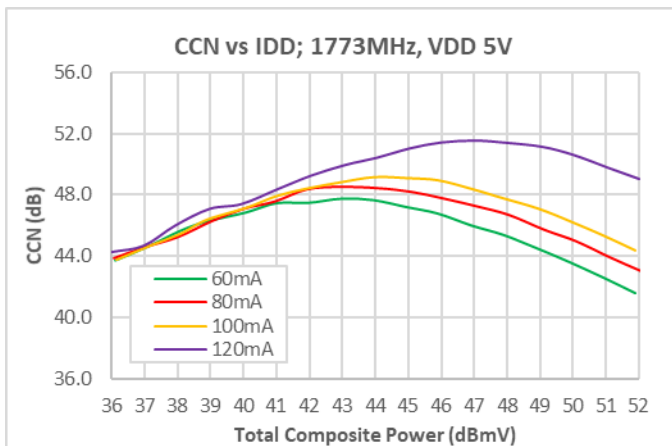
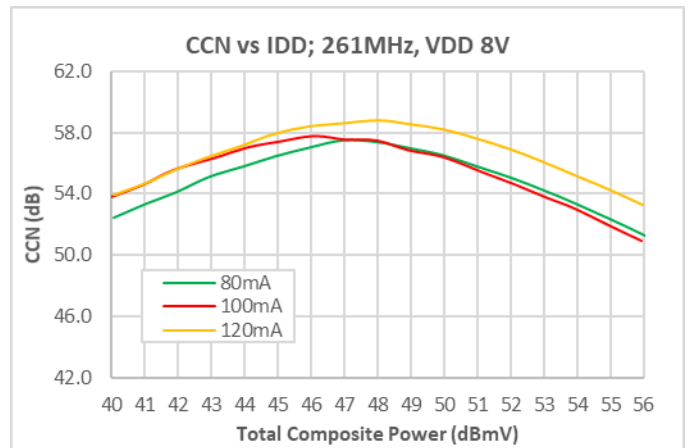
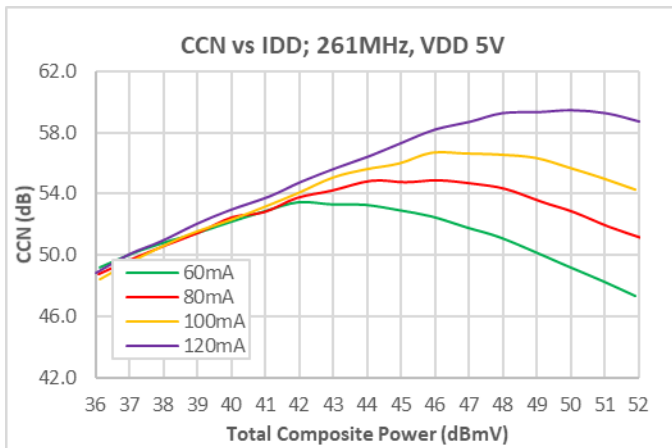
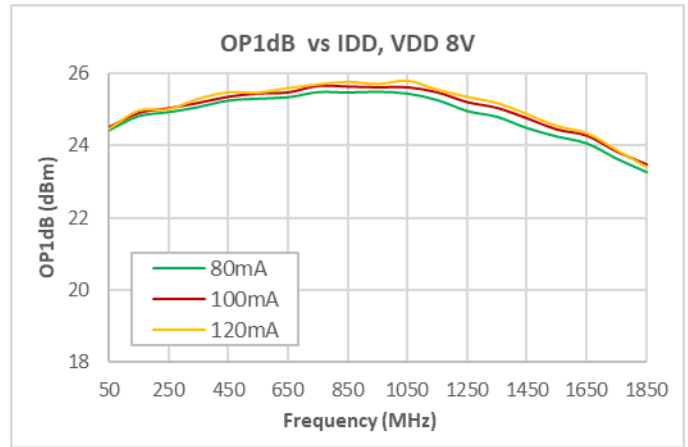
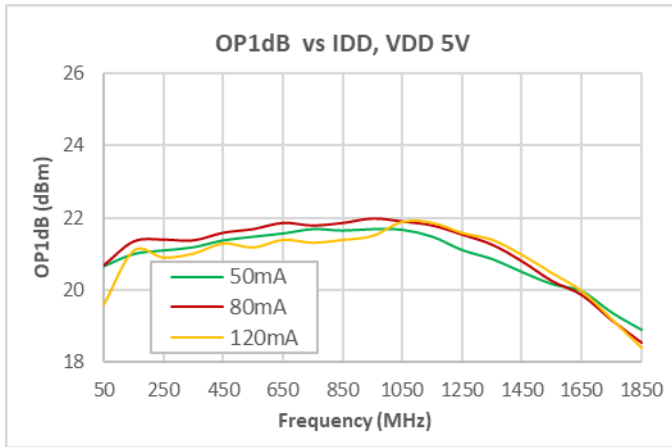
Performance Data vs Supply Voltage, 47 – 1800 MHz



Notes:

- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
- (2) OIP2; 9 dBm/tone, 50 MHz spacing.
- (3) OIP3; 9 dBm/tone, 6 MHz spacing.

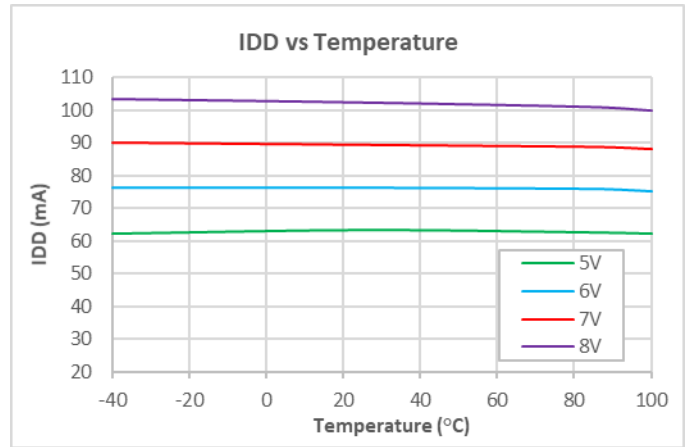
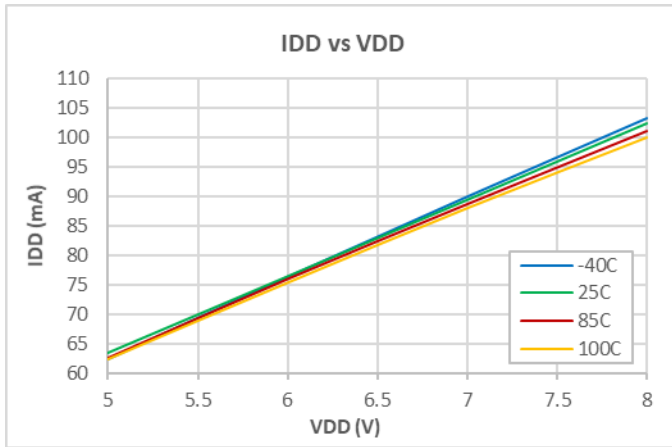
Performance Data vs Supply Voltage, 47 – 1800 MHz



Notes:

- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
- (2) CCN: 261 – 1791 MHz SC QAM, 0 dB Tilt, 6 dB Stepdown at 1020 MHz.

Performance Data vs Supply Voltage, 47 – 1800 MHz



Notes:

- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).

Electrical Specifications, 5 – 700 MHz (5 V)

| Parameter | Condition ⁽¹⁾ | Min | Typ | Max | Unit |
|-----------------------------------|--|-----|------|-----|------|
| Supply Voltage (V _{DD}) | | | 5 | | V |
| Supply Current (I _{DD}) | | | 50 | | mA |
| Frequency Range | | 5 | | 700 | MHz |
| Gain | | | 20.3 | | dB |
| Gain Slope | | | 0.1 | | dB |
| Reverse Isolation | | | -23 | | dB |
| Input Return Loss | | | 19 | | dB |
| Output Return Loss | | | 18.5 | | dB |
| Noise Figure | | | 1.3 | | dB |
| MER | At 53.5dBmV TCP, 5 - 204 MHz, 0dB tilt, 33ch 256QAM ITU-T J.83, Annex B | | 42 | | dB |
| OIP2L | | | 41.5 | | dBm |
| OIP2H | | | 42.7 | | dBm |
| OIP3 | | | 33.0 | | dBm |
| OP1dB | 204 MHz | | 21.5 | | dBm |
| Thermal Resistance | Θ _{JC} , Bottom of Case | | 27 | | °C/W |

Notes:

1. Typical performance at these conditions: Temp = +25 °C, V_{DD} = +5V, 75 ohm system, Full band unless otherwise noted
2. OIP3; +9 dBm/ tone output, 6 MHz spacing
3. OIP2; +9 dBm/tone output, 6 MHz spacing

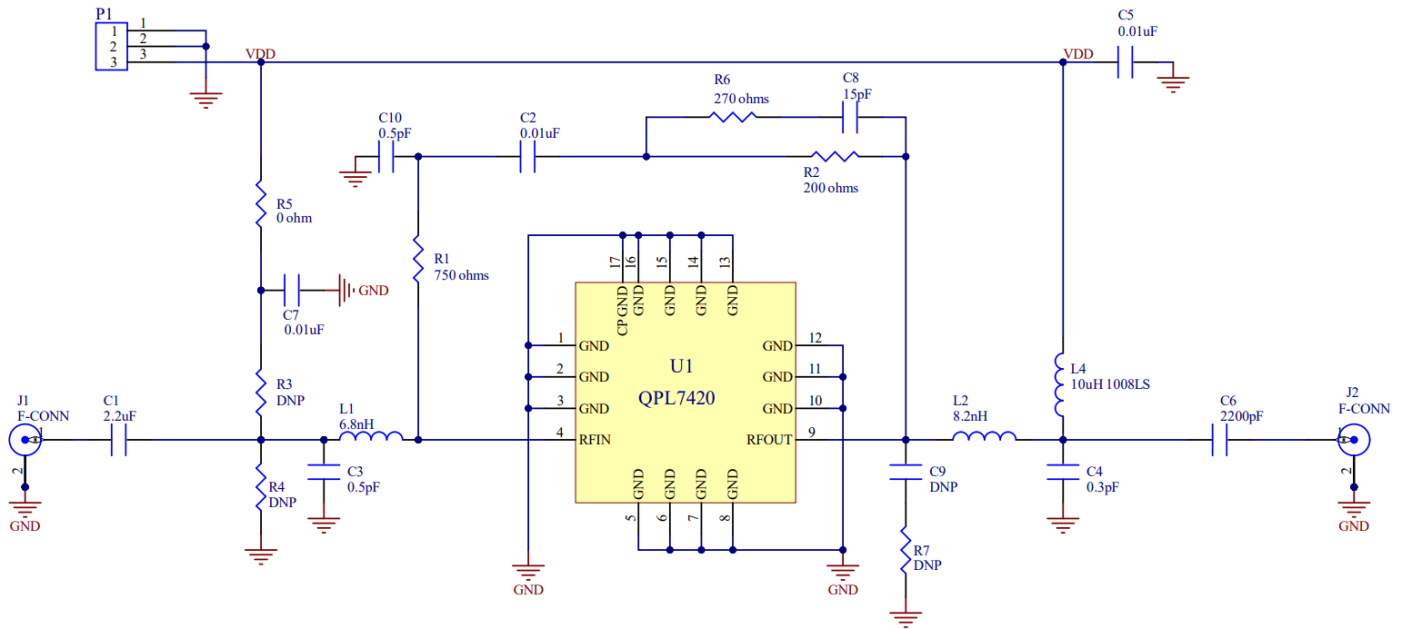
Electrical Specifications, 5 – 700 MHz (8 V)

| Parameter | Condition ⁽¹⁾ | Min | Typ | Max | Unit |
|-----------------------------------|--|-----|------|-----|------|
| Supply Voltage (V _{DD}) | | | 8 | | V |
| Supply Current (I _{DD}) | | | 80 | | mA |
| Frequency Range | | 5 | | 700 | MHz |
| Gain | | | 20.7 | | dB |
| Gain Slope | | | 0.0 | | dB |
| Reverse Isolation | | | 19.5 | | dB |
| Input Return Loss | | | 22 | | dB |
| Output Return Loss | | | 18 | | dB |
| Noise Figure | | | 1.3 | | dB |
| MER | At 57.5dBmV TCP, 5 - 204 MHz, 0dB tilt, 33ch 256QAM ITU-T J.83, Annex B | | 45dB | | dB |
| OIP2L | | | 50.8 | | dBm |
| OIP2H | | | 48.6 | | dBm |
| OIP3 | | | 39.3 | | dBm |
| OP1dB | 204 MHz | | 25.5 | | dBm |
| Thermal Resistance | Θ _{JC} , Bottom of Case | | 27 | | °C/W |

Notes:

1. Typical performance at these conditions: Temp = +25 °C, V_{DD} = +5V, 75 ohm system, Full band unless otherwise noted
2. OIP3; +9 dBm/ tone output, 6 MHz spacing
3. OIP2; +9 dBm/tone output, 6 MHz spacing

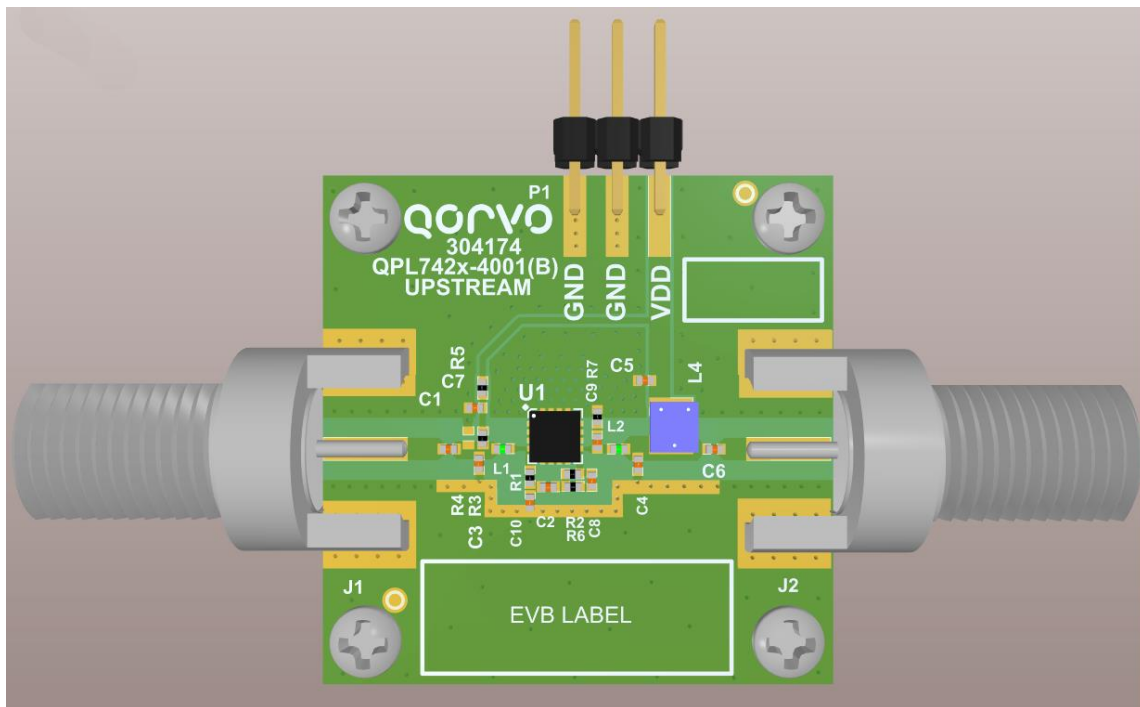
Evaluation Board Schematic, 5 – 700 MHz



Notes:

1. C3/L1 tunes input return loss.
2. L2/C4 tunes output return loss with some contribution from C6.
3. C9/R7 can also be used for output return loss tuning if needed for bandwidth limiting and stability enhancement.
4. R1, R2, and the blocking cap, C2 are the basic feedback loop for setting gain.
5. C8 and R6 in parallel with R2 help improve gain flatness at low frequency.
6. C10 improves gain slope when C8 and R6 are present.
7. L4 provides the bias path with RF isolation from the RF output path. A variety of RF chokes may be used as long as sufficient inductance is provided to ensure good performance at 5MHz with bias without causing unwanted behavior out of band.
8. R3 and R4 are used to change the bias current bias current for desired linearity and NPR dynamic range (Refer to Table 1).

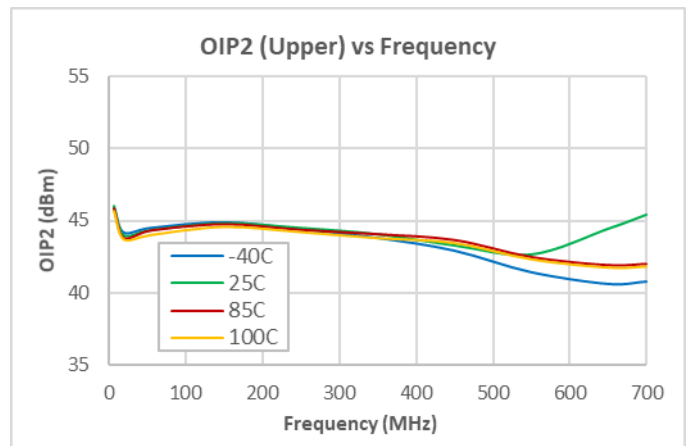
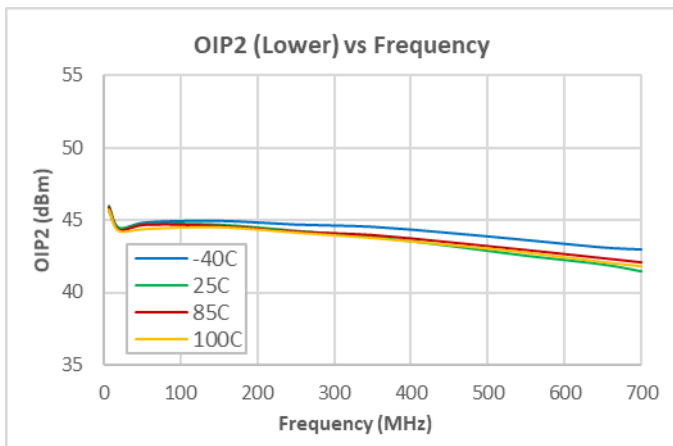
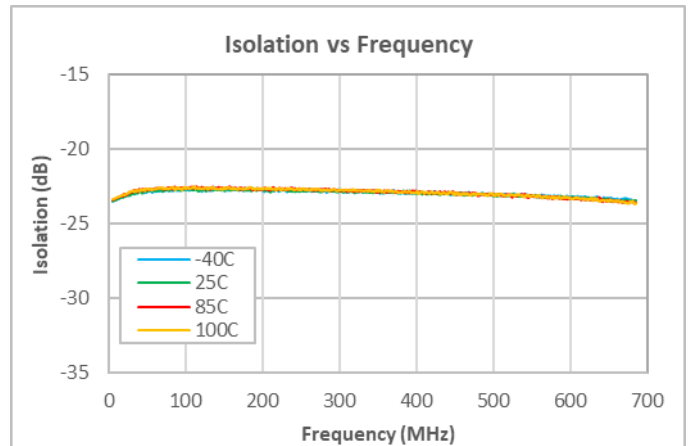
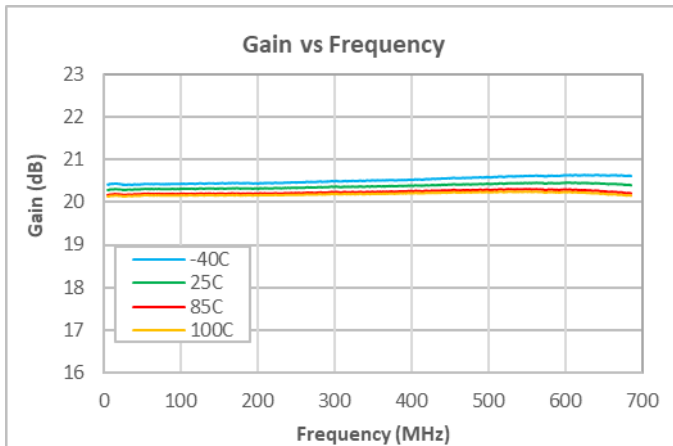
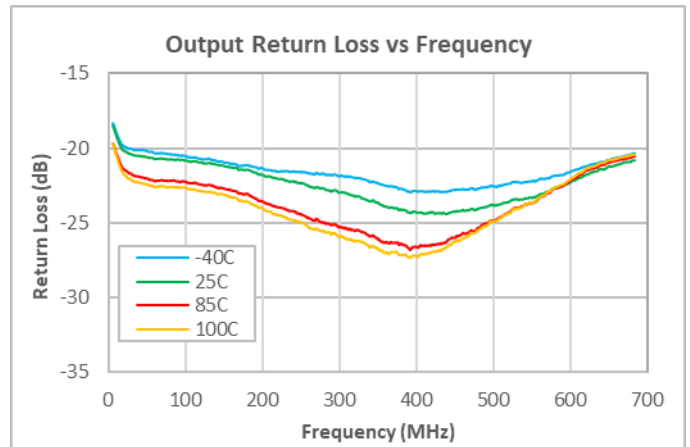
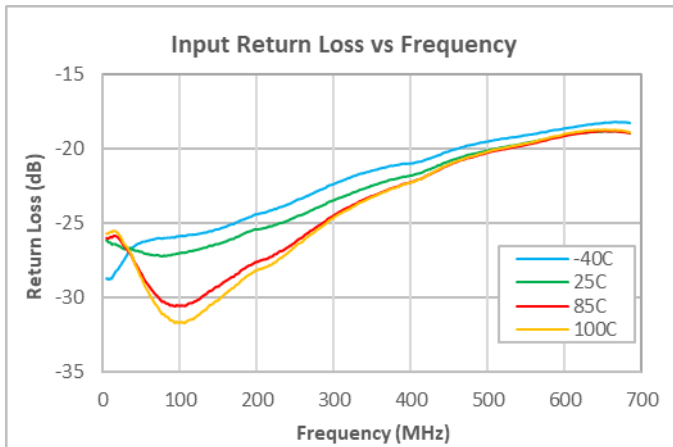
Evaluation Board Assembly Drawing, 5 – 700 MHz



Evaluation Board Bill of Materials, 5 – 700 MHz

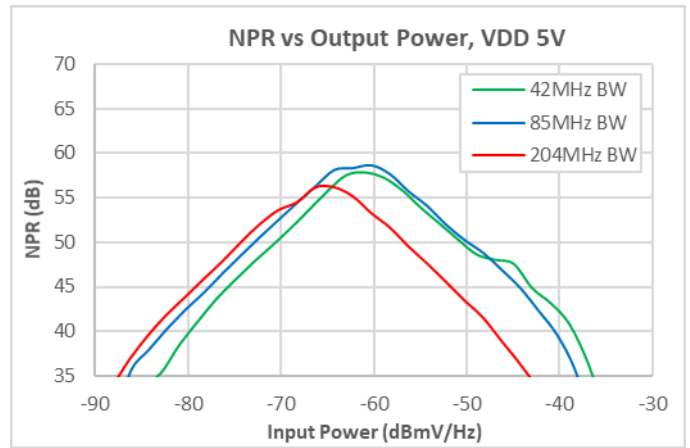
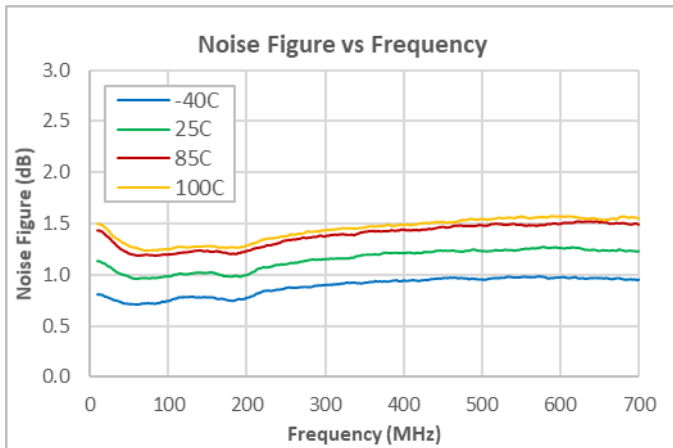
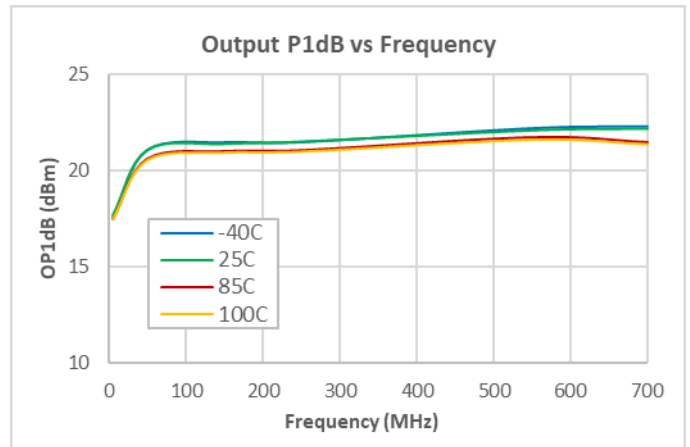
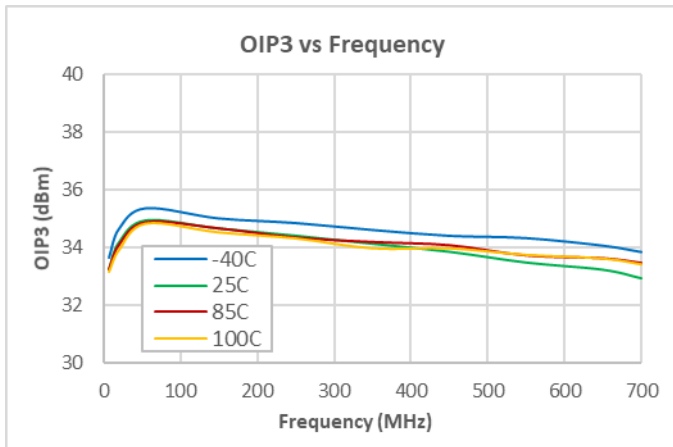
| Designator | Description | Manufacturer | Part Number |
|----------------|--|------------------------------|--------------------|
| PCB | QPL7420-4001 | TTM | QPL7420-4001(B) |
| U1 | 20dB FTTH Amplifier | Qorvo | QPL7420 |
| C1 | CAP, 2.2uF, 10%, 16V, X5R, 0402 | Murata | GRM155R61C225KE11D |
| C2, C5, C7 | CAP, 0.01uF, 10%, 50V, X7R, 0402 | Murata | GCM155R71H103KA55D |
| C3, C10 | CAP, 0.5pF, ±0.05pF, 50V, HI-Q, 0402 | Murata | GJM1555C1HR50WB01D |
| C4 | CAP, 0.3pF, +/-0.05pF, 50V, HI-Q, 0402 | Murata | GJM1555C1HR30WB01D |
| C6 | CAP, 2200pF, 5%, 50V, X7R, 0402 | Murata | GRM155R71H222JA01D |
| C8 | CAP, 15pF, 2%, 50V, HI-Q, 0402 | Murata | GJM1555C1H150GB01D |
| L1 | IND, 6.8nH, 2%, 600mA, M/L, 0402 | Murata | LQG15HS6N8G02D |
| L2 | IND, 8.2nH, 2%, 550mA, M/L, 0402 | Murata | LQG15HS8N2G02D |
| L4 | IND, 10uH, 10%, W/W, 1008 | Coilcraft | 1008LS-103XJLC |
| R1 | RES, 750 OHM, 1%, 1/16W, 0402 | Yageo | RC0402FR-07750RL |
| R2 | RES, 200 OHM, 5%, 1/16W, 0402 | Kamaya | RMC1/16S-201JTH |
| R5 | RES, 0 OHM, 5%, 1/10W, 0402 | Kamaya | RMC1/16SJPTH |
| R6 | RES, 270 OHM, 1%, 1/16W, 0402 | Yageo | RC0402FR-07270RL |
| J1, J2 | CONN, F FEM EDGE MOUNT, 75 OHMS, 0.068" | Millimeter Wave Technologies | MW-846-C-DD-75 |
| P1 | CONN, HDR, ST, 1x3, 0.100", HI-TEMP, T/H | Samtec Inc. | HTSW-103-07-G-S |
| Heat Sink | HEATSINK BLOCK, 1.16 SQ I | Robert S. Wells | EEF-102059 |
| Screws | SCREW, 2-56X3/16", SOCKET HD | McMaster-Carr Supply Co. | 92196A076 |
| C9, R3, R4, R7 | Not Populated Item | | |

Performance Data, 5 – 700 MHz (5 V)



- Notes:
- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
 - (2) OIP2; +9 dBm/tone output, 6 MHz spacing

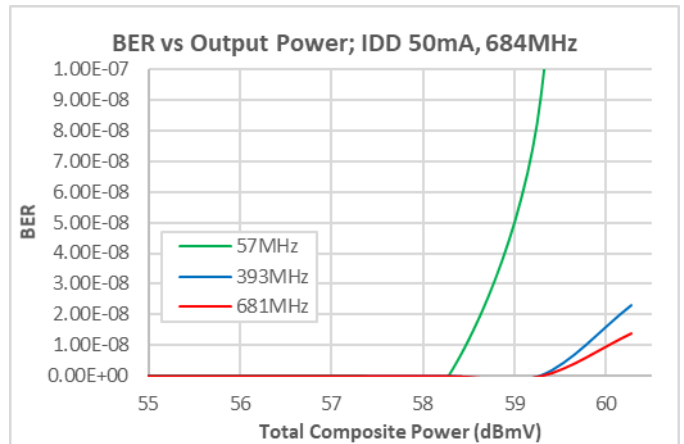
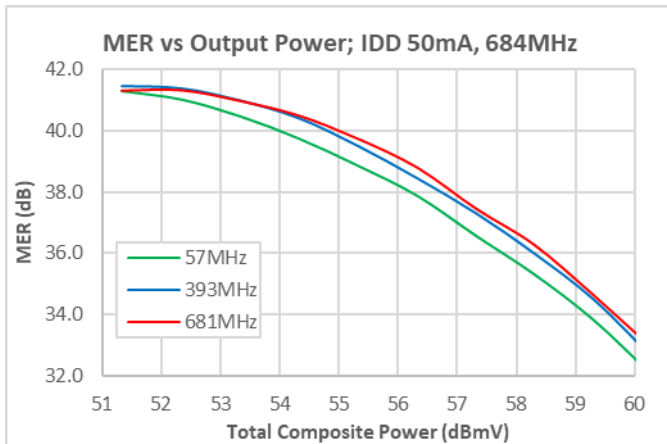
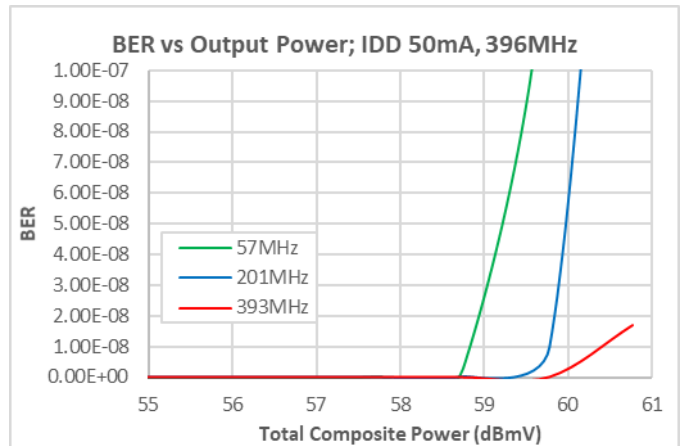
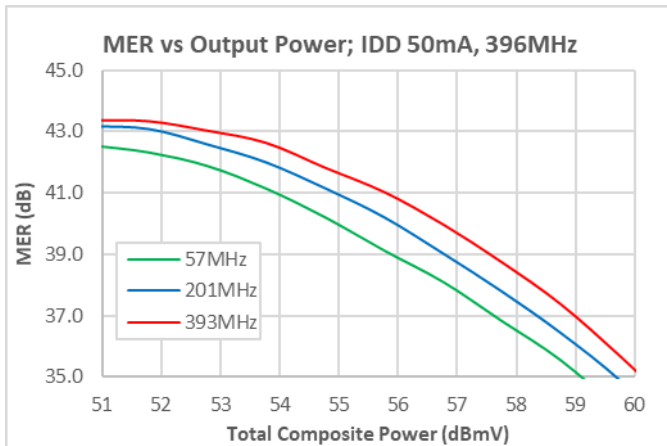
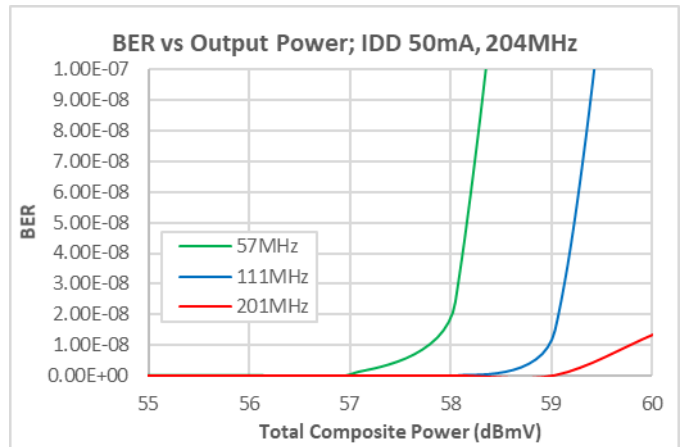
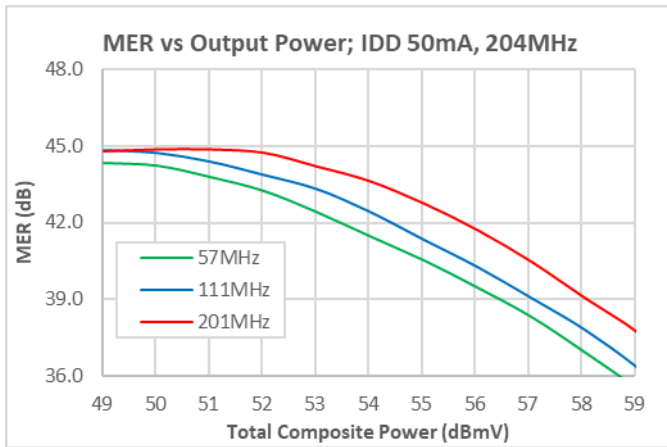
Performance Data, 5 – 700 MHz (5 V)



Notes:

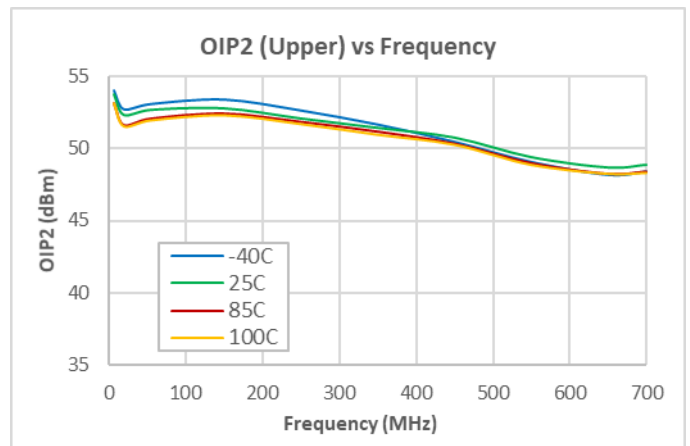
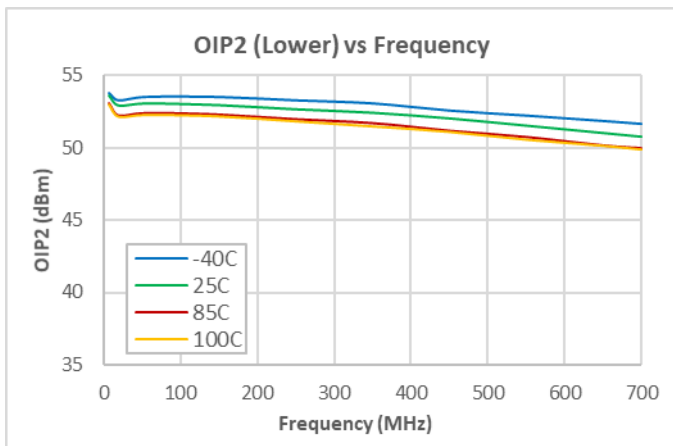
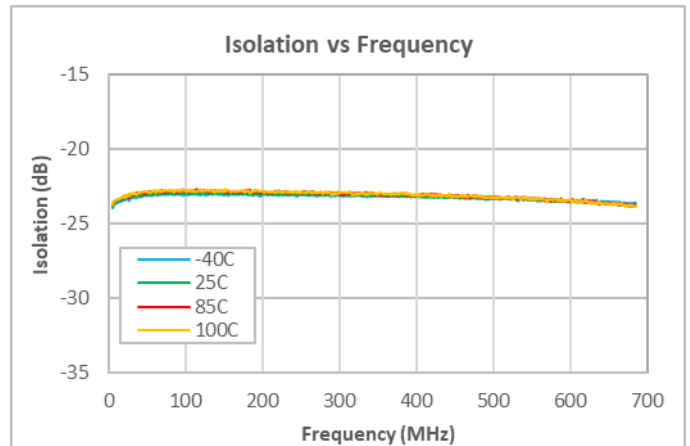
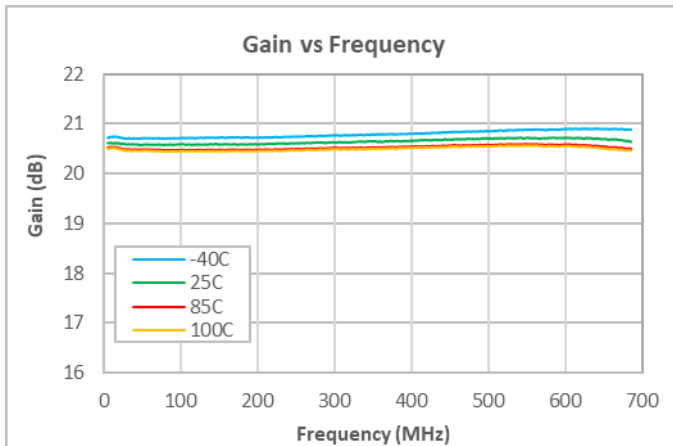
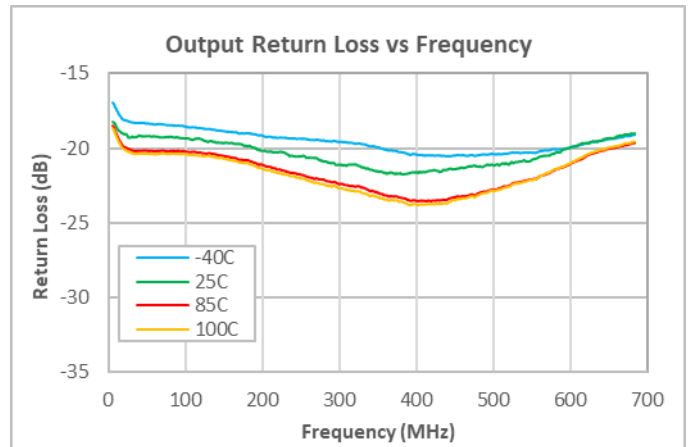
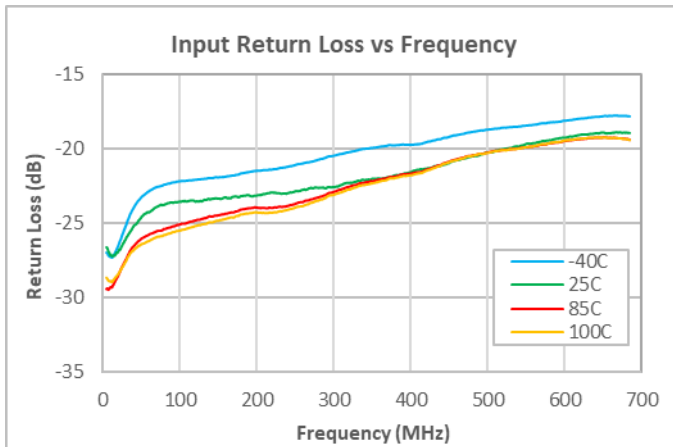
- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
- (2) OIP3; +9 dBm/tone output, 6 MHz spacing

Performance Data, 5 – 700 MHz (5 V)



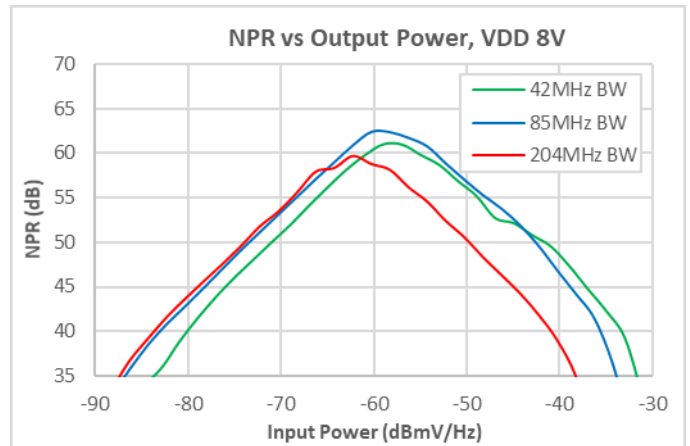
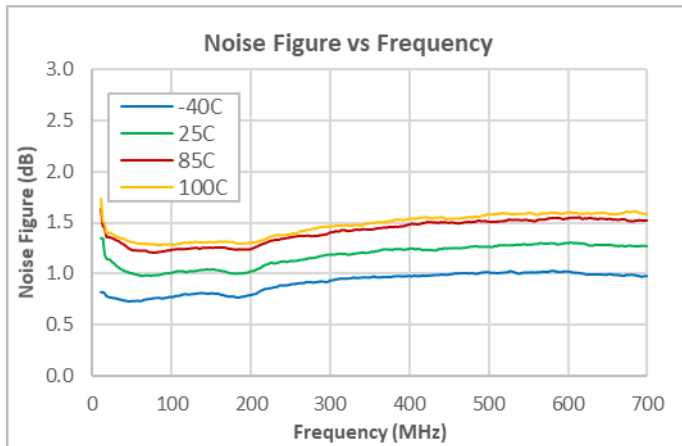
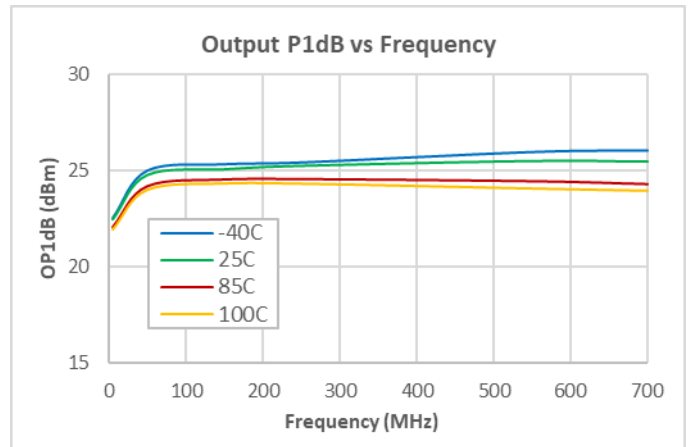
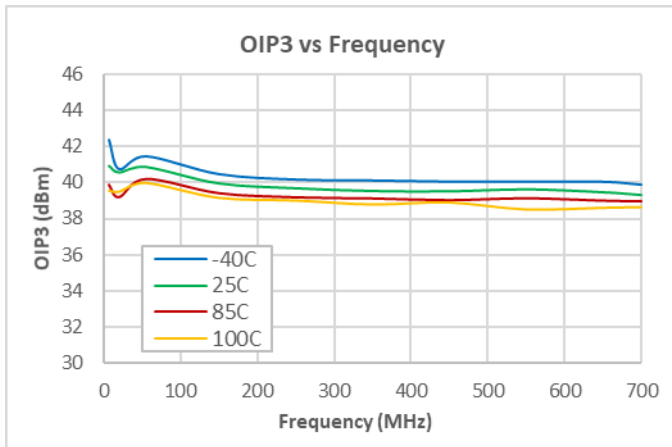
- Notes:
- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
 - (2) MER/BER; 256 QAM, 0dB Tilt, ITU-T J.83, Annex B, Source Corrected, Maximum Correction 4.3 dB
 - a. 204 MHz; 33Ch. 5 – 204 MHz
 - b. 396 MHz; 65Ch. 5 – 396 MHz
 - c. 684 MHz; 133Ch. 5 – 684 MHz

Performance Data, 5 – 700 MHz (8 V)



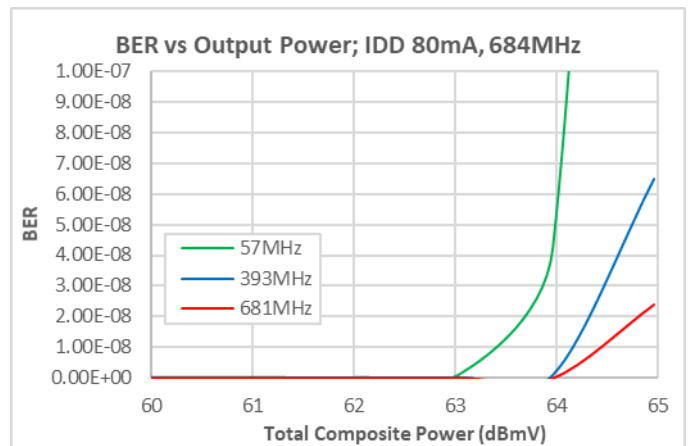
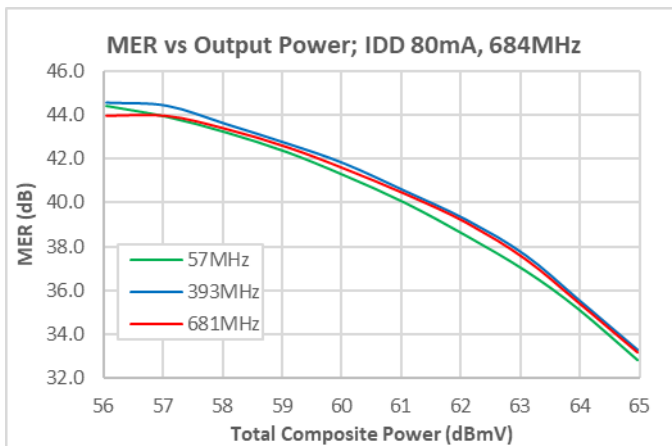
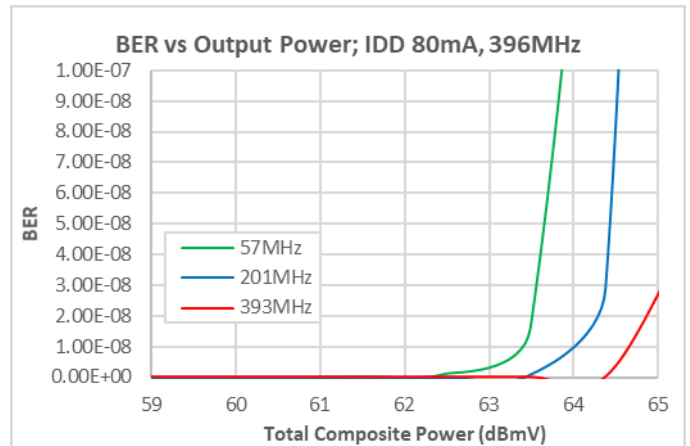
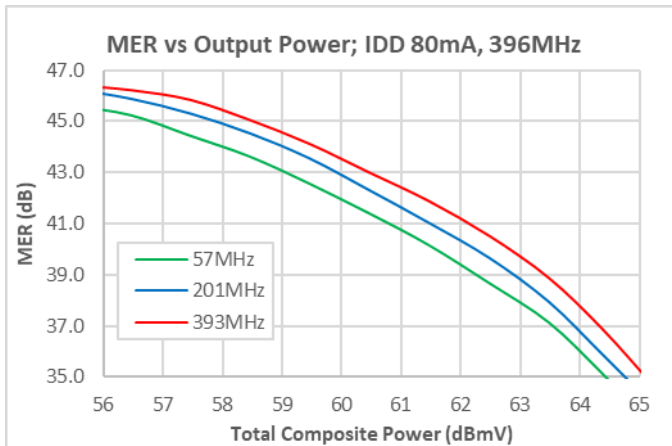
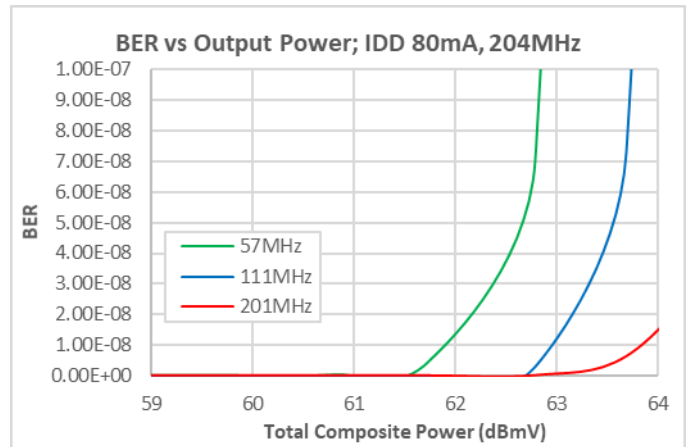
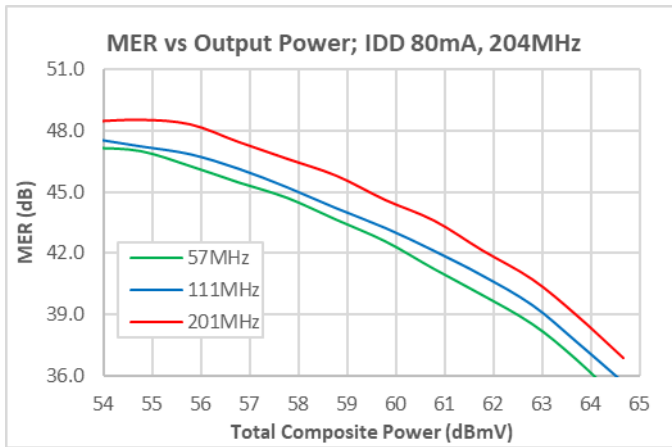
- Notes:
- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
 - (2) OIP2; +9 dBm/tone output, 6 MHz spacing

Performance Data, 5 – 700 MHz (8 V)



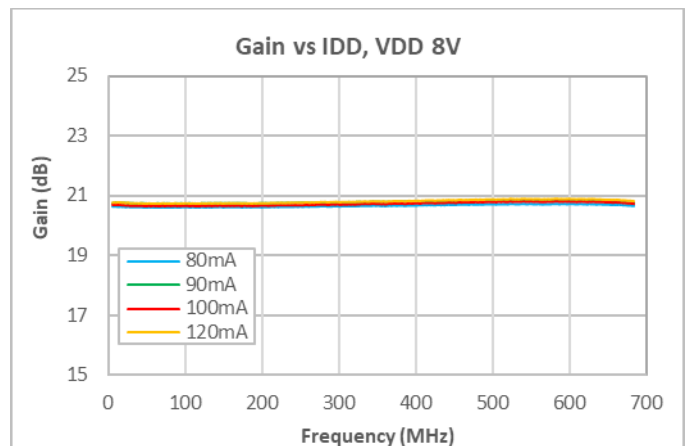
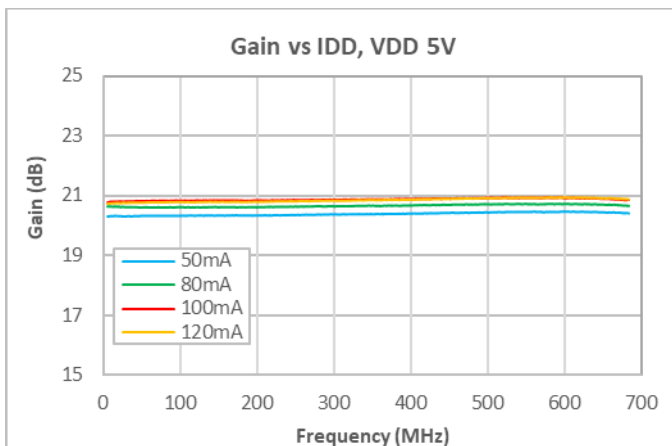
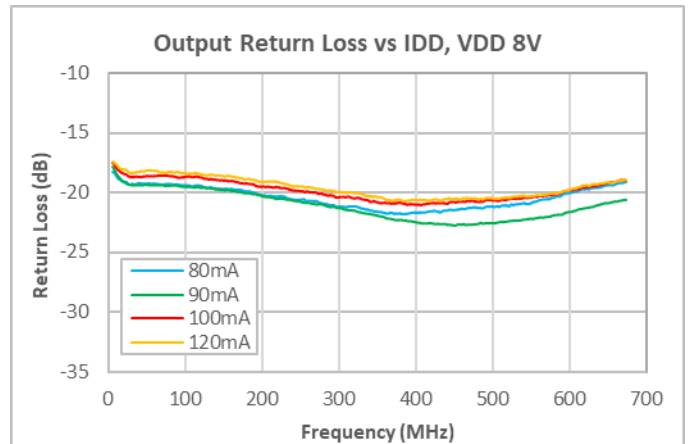
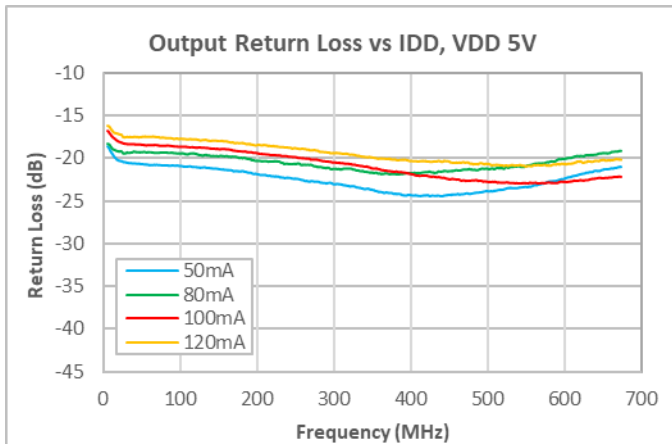
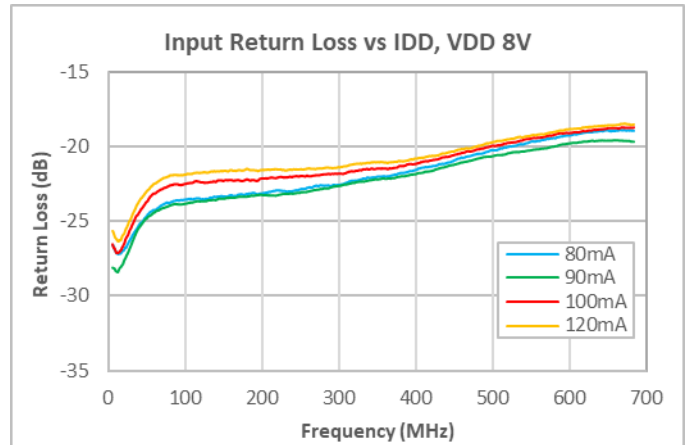
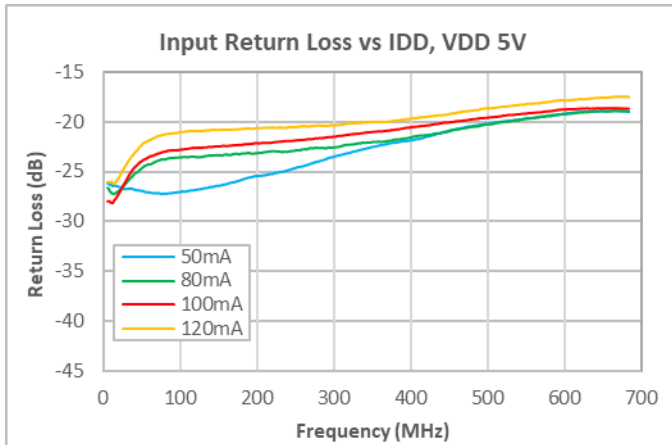
Notes:

- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
- (2) OIP3; +9 dBm/tone output, 6 MHz spacing

Performance Data, 5 – 700 MHz (8 V)

Notes:

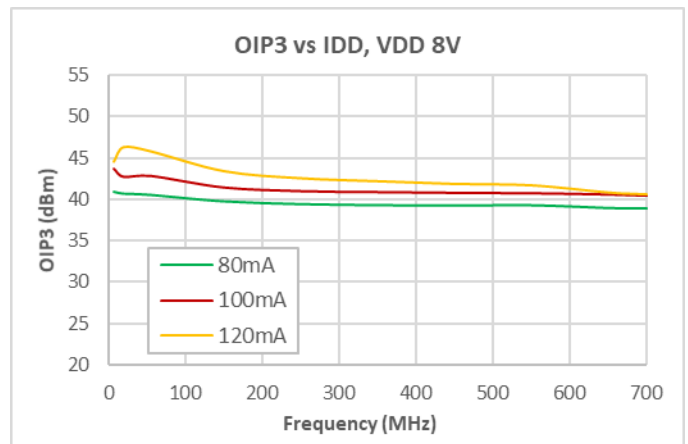
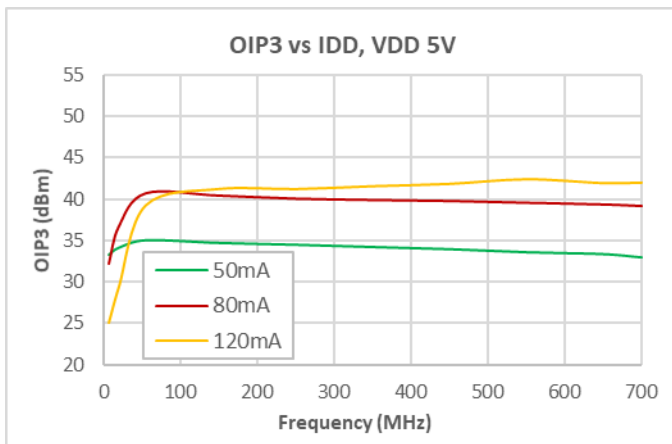
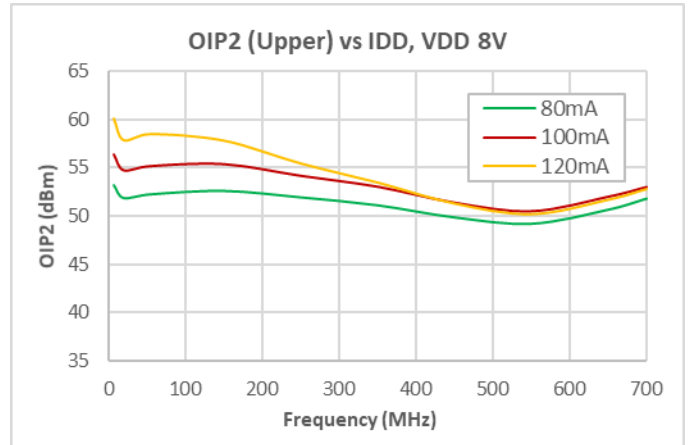
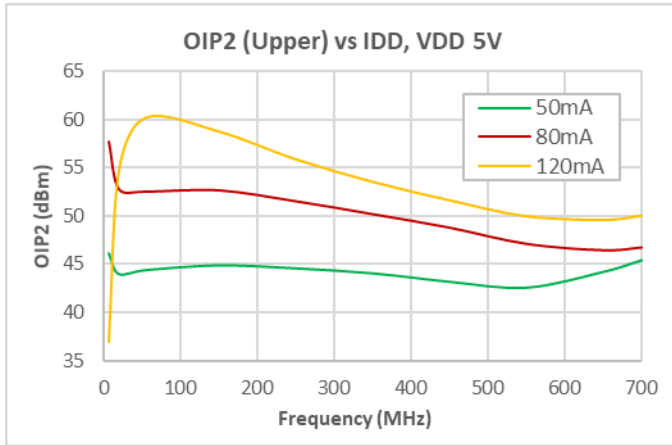
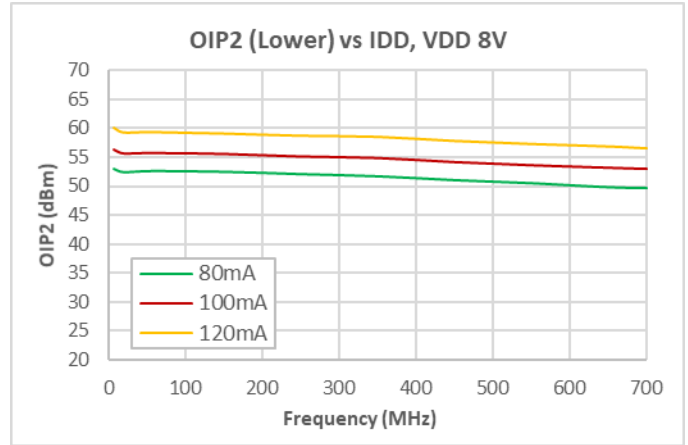
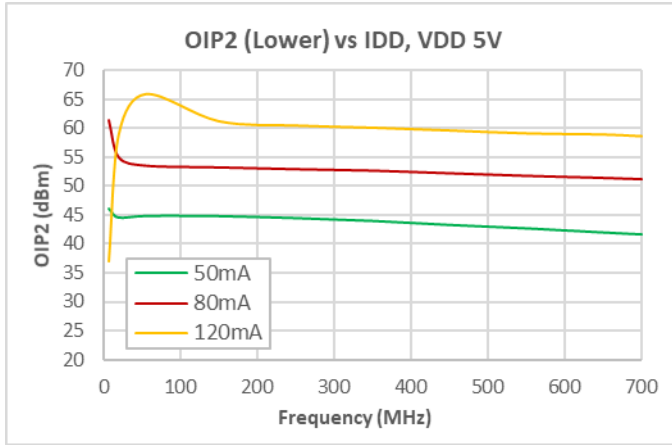
- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
- (2) MER/BER; 256 QAM, 0dB Tilt, ITU-T J.83, Annex B, Source Corrected, Maximum Correction 4.3 dB.
 - a. 204 MHz; 33Ch. 5 – 204 MHz
 - b. 396 MHz; 65Ch. 5 – 396 MHz
 - c. 684 MHz; 133Ch. 5 – 684 MHz

Performance Data vs Supply Voltage, 5 – 700 MHz



Notes:
 (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).

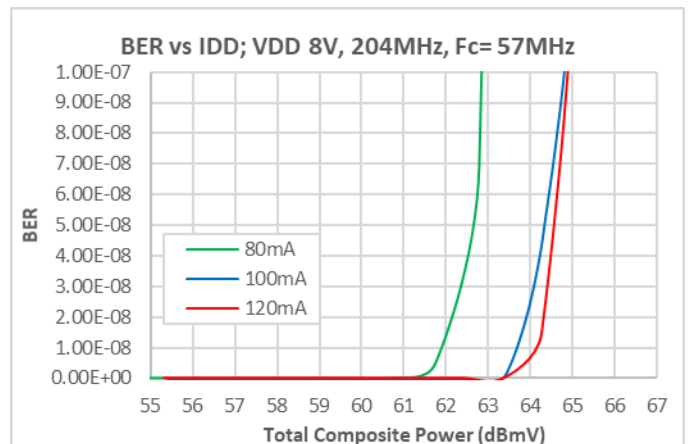
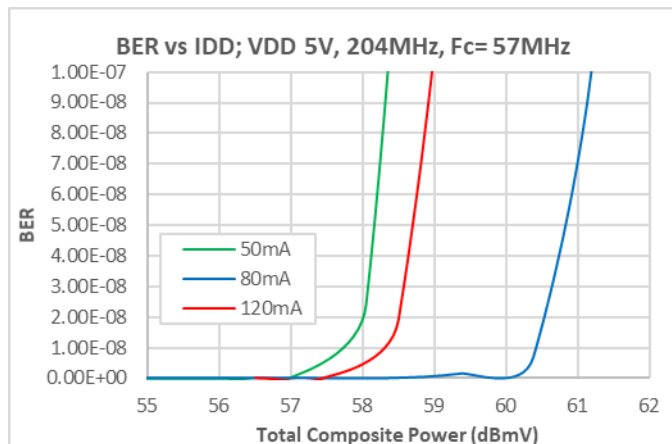
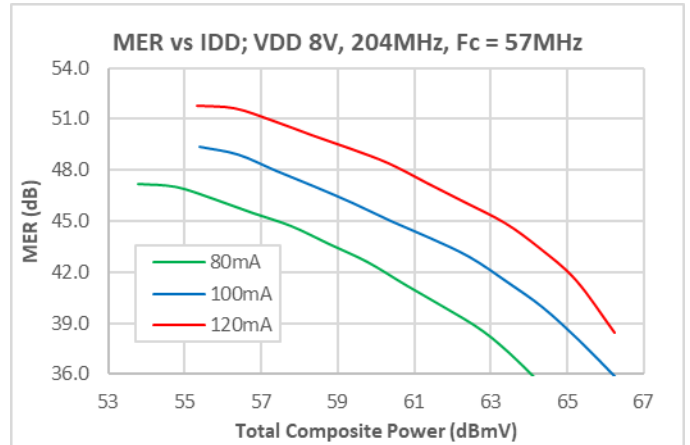
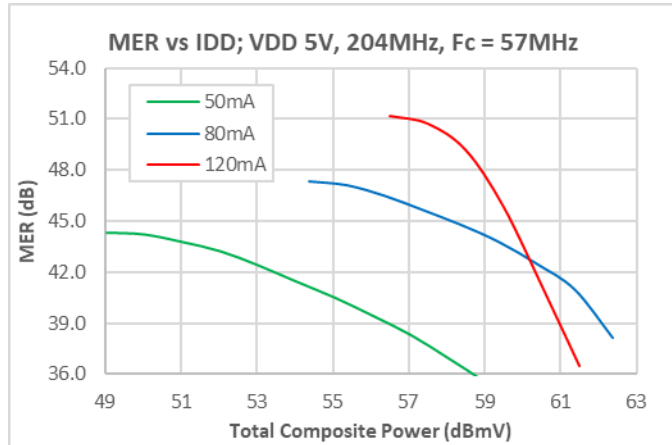
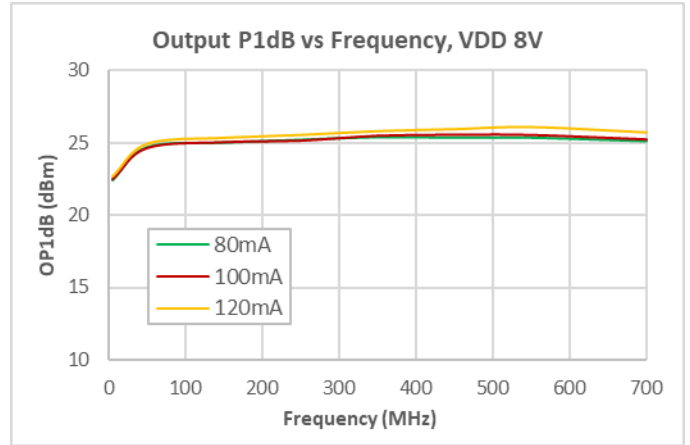
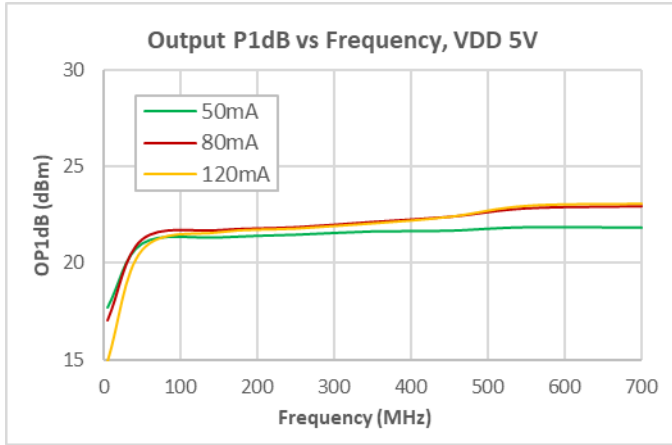
Performance Data vs Supply Voltage, 5 – 700 MHz



Notes:

- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
- (2) OIP2; 9 dBm/tone.
- (3) OIP3; 9 dBm/tone

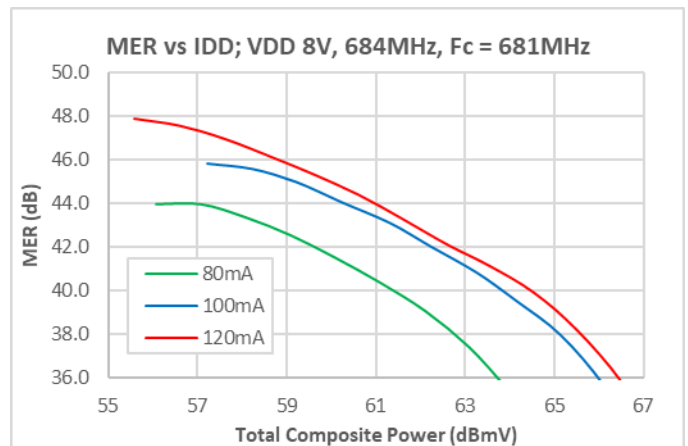
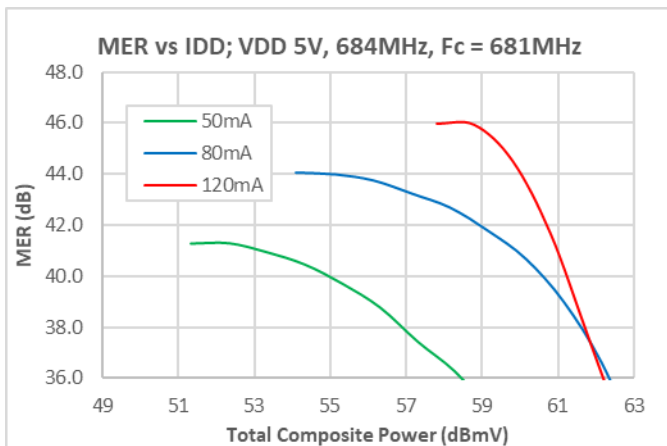
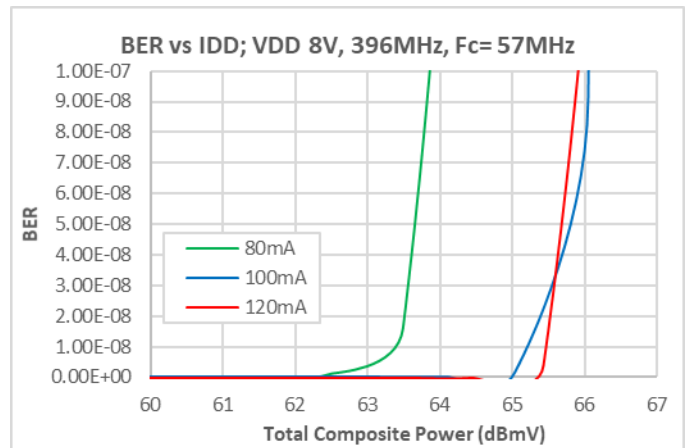
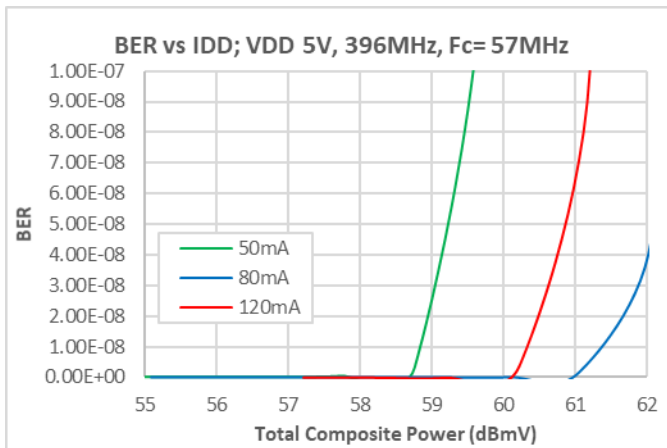
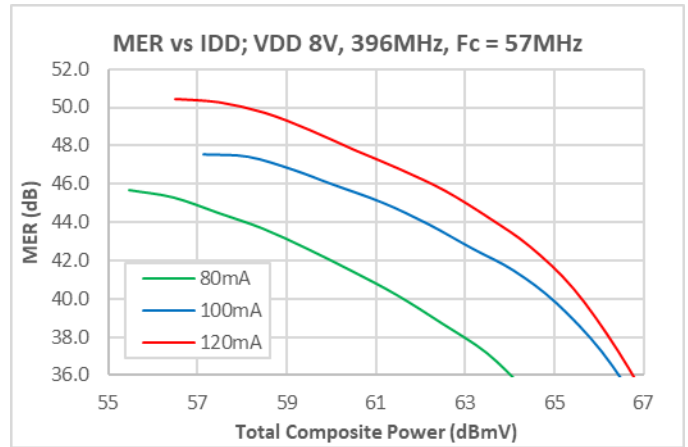
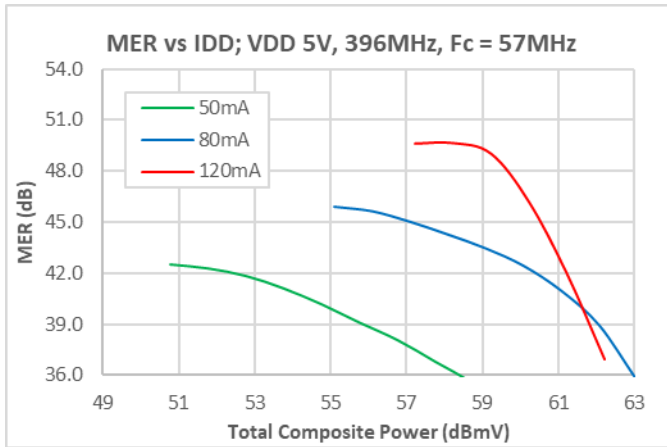
Performance Data vs Supply Voltage, 5 – 700 MHz



Notes:

- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
- (2) MER/BER; 256 QAM, 0dB Tilt, ITU-T J.83, Annex B, Source Corrected, Maximum Correction 4.3 dB.
 - a. 204 MHz; 33Ch. 5 – 204 MHz
 - b. 396 MHz; 65Ch. 5 – 396 MHz
 - c. 684 MHz; 133Ch. 5 – 684 MHz

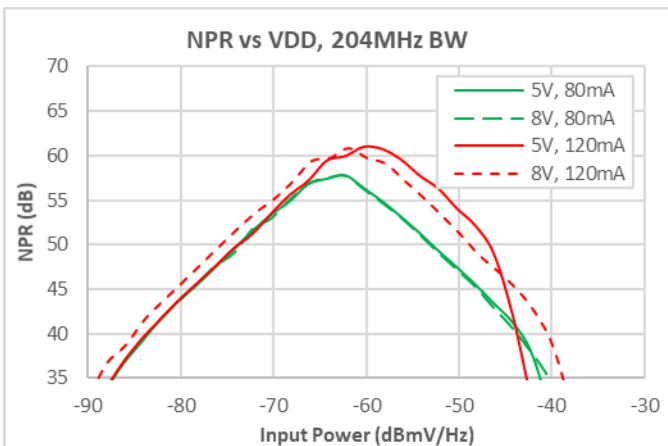
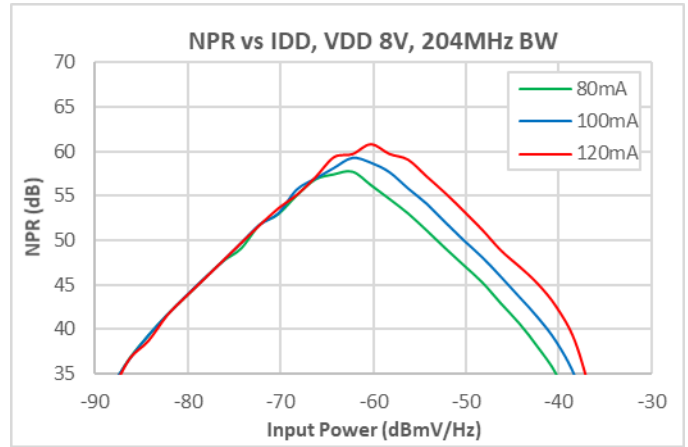
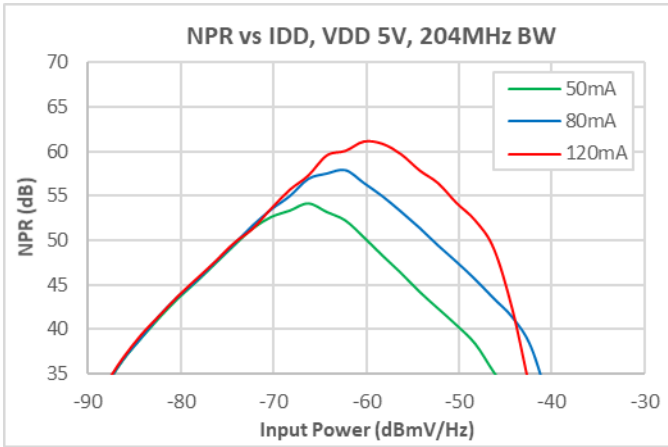
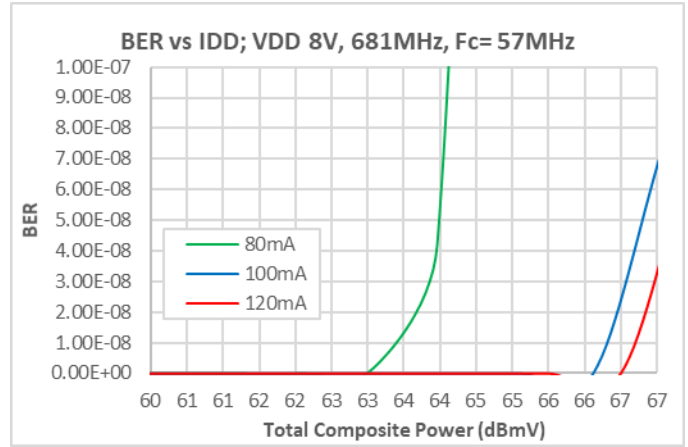
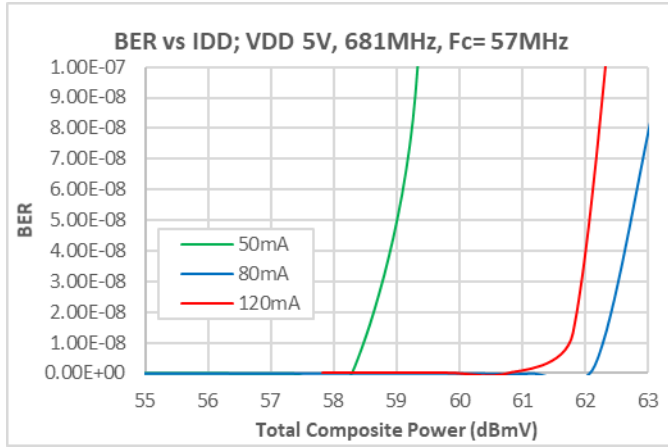
Performance Data vs Supply Voltage, 5 – 700 MHz



Notes:

- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
- (2) MER/BER; 256 QAM, 0dB Tilt, ITU-T J.83, Annex B, Source Corrected, Maximum Correction 4.3 dB.
 - a. 204 MHz; 33Ch. 5 – 204 MHz
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 - c. 684 MHz; 133Ch. 5 – 684 MHz

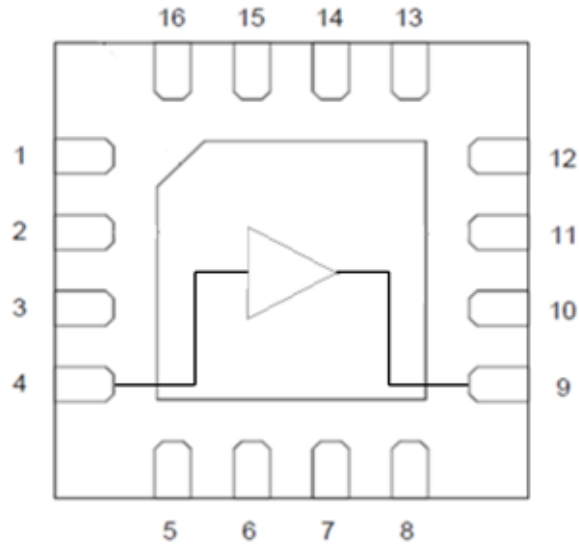
Performance Data vs Supply Voltage, 5 – 700 MHz



Notes:

- (1) Temperature 25 °C, 75 ohm test system, nominal current (unless otherwise noted).
- (2) MER/BER; 256 QAM, 0dB Tilt, ITU-T J.83, Annex B, Source Corrected, Maximum Correction 4.3 dB.
 - a. 204 MHz; 33Ch. 5 – 204 MHz
 - b. 396 MHz; 65Ch. 5 – 396 MHz
 - c. 684 MHz; 133Ch. 5 – 684 MHz

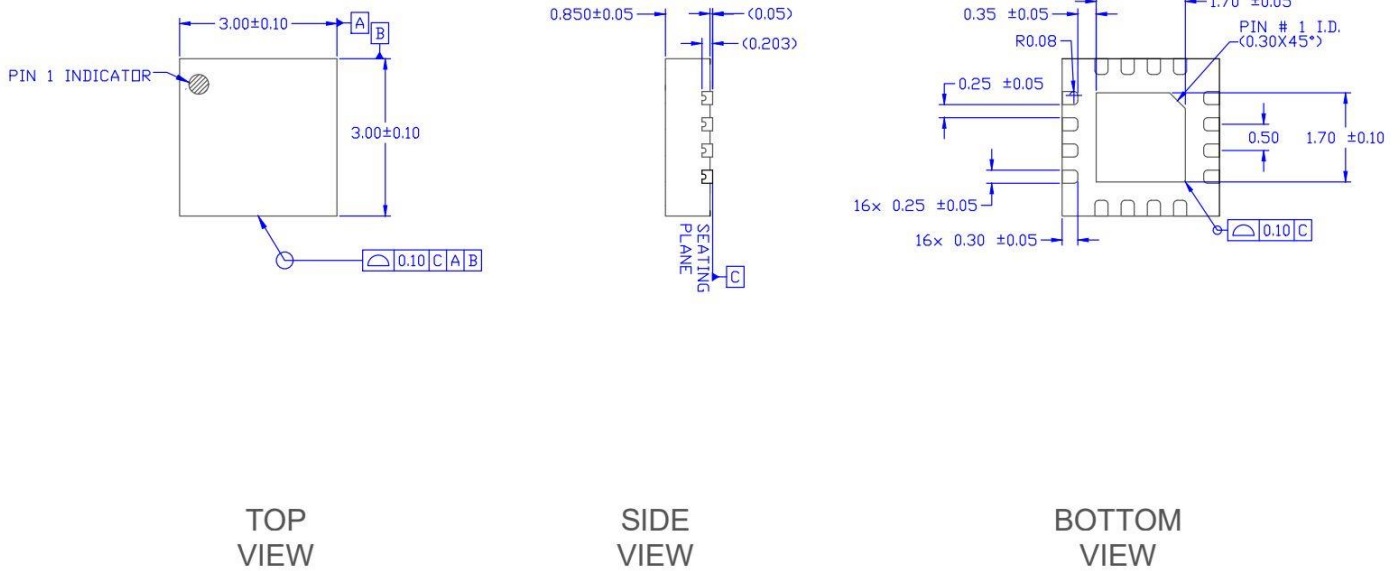
Pin Configuration and Description



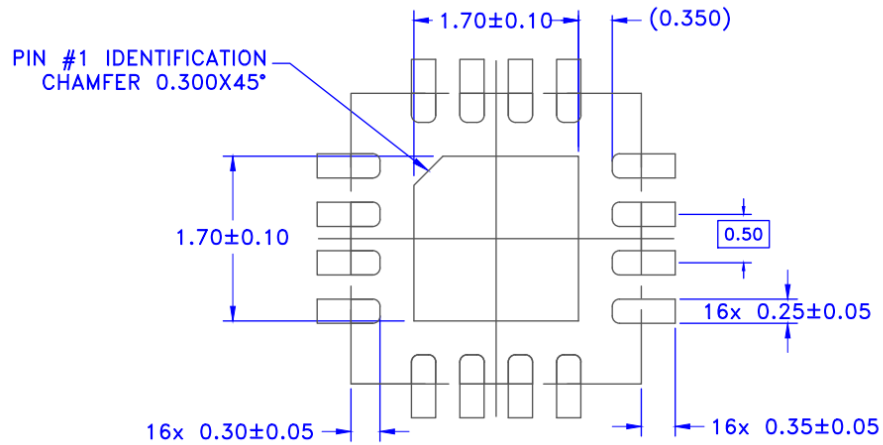
Top View

| Pin Number | Label | Description |
|-------------------|--------------|--|
| 4 | RF IN | RF Input, DC blocking capacitor required. |
| 9 | RF OUT / VDD | RF Output – VDD bias choke required. |
| 1 - 3, 5-8, 10-16 | GND | Internally Not Connected. |
| Backside Paddle | GND | Ground. Use recommended via pattern to minimize inductance and thermal resistance. See PCB Mounting Pattern for suggested footprint. |

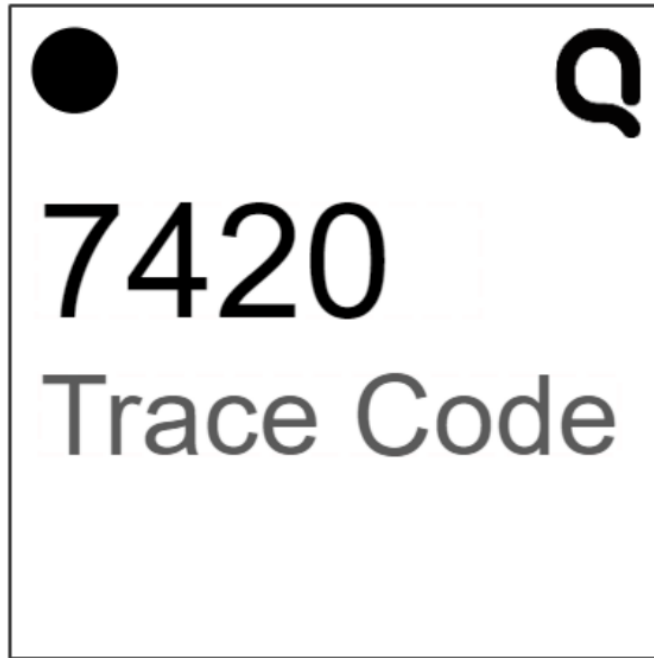
Package Outline



Recommended Mounting Pattern



Package Marking



- Pin 1 Indicator
Qorvo Logo - Use Q5D
Trace Code to be assigned by SubCon