



**THE DATASHEET OF
MRF6P3300HR3**



MRF6P3300HR3/HR5 replaced by MRFE6P3300HR3/HR5. Refer to Device Migration PCN12895 for more details.

RF Power Field Effect Transistor

N-Channel Enhancement-Mode Lateral MOSFETs

Designed for broadband commercial and industrial applications with frequencies from 470 to 860 MHz. The high gain and broadband performance of this device make it ideal for large-signal, common-source amplifier applications in 32 volt analog or digital television transmitter equipment.

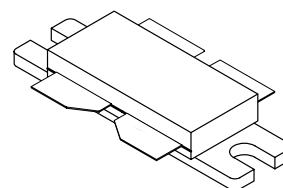
- Typical Narrowband Two-Tone Performance @ 860 MHz: $V_{DD} = 32$ Volts, $I_{DQ} = 1600$ mA, $P_{out} = 270$ Watts PEP
 Power Gain — 20.2 dB
 Drain Efficiency — 44.1%
 IMD — -30.8 dBc
- Typical Narrowband DVB-T OFDM Performance @ 860 MHz: $V_{DD} = 32$ Volts, $I_{DQ} = 1600$ mA, $P_{out} = 60$ Watts Avg., 8K Mode, 64 QAM
 Power Gain — 20.4 dB
 Drain Efficiency — 29%
 ACPR @ 3.9 MHz Offset — -57 dBc @ 20 kHz Bandwidth
- Capable of Handling 10:1 VSWR, @ 32 Vdc, 860 MHz, 300 Watts CW Output Power

Features

- Characterized with Series Equivalent Large-Signal Impedance Parameters
- Internally Matched for Ease of Use
- Designed for Push-Pull Operation Only
- Qualified Up to a Maximum of 32 V_{DD} Operation
- Integrated ESD Protection
- RoHS Compliant
- In Tape and Reel. R3 Suffix = 250 Units per 56 mm, 13 inch Reel.
 R5 Suffix = 50 Units per 56 mm, 13 inch Reel.

MRF6P3300HR3
MRF6P3300HR5

470-860 MHz, 300 W, 32 V
LATERAL N-CHANNEL
RF POWER MOSFETS



CASE 375G-04, STYLE 1
NI-860C3

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Table 1. Maximum Ratings

| Rating | Symbol | Value | Unit |
|--------------------------------------|-----------|-------------|------|
| Drain-Source Voltage | V_{DSS} | -0.5, +68 | Vdc |
| Gate-Source Voltage | V_{GS} | -0.5, +12 | Vdc |
| Storage Temperature Range | T_{stg} | -65 to +150 | °C |
| Case Operating Temperature | T_C | 150 | °C |
| Operating Junction Temperature (1,2) | T_J | 225 | °C |

Table 2. Thermal Characteristics

| Characteristic | Symbol | Value (2,3) | Unit |
|--------------------------------------|-----------------|-------------|------|
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | | °C/W |
| Case Temperature 80°C, 300 W CW | | 0.23 | |
| Case Temperature 82°C, 220 W CW | | 0.24 | |
| Case Temperature 79°C, 100 W CW | | 0.27 | |
| Case Temperature 81°C, 60 W CW | | 0.27 | |

1. Continuous use at maximum temperature will affect MTTF.
2. MTTF calculator available at <http://www.freescale.com/rf>. Select Software & Tools/Development Tools/Calculators to access MTTF calculators by product.
3. Refer to AN1955, *Thermal Measurement Methodology of RF Power Amplifiers*. Go to <http://www.freescale.com/rf>. Select Documentation/Application Notes - AN1955.

Table 3. ESD Protection Characteristics

| Test Methodology | Class |
|---------------------------------------|--------------|
| Human Body Model (per JESD22-A114) | 3B (Minimum) |
| Machine Model (per EIA/JESD22-A115) | C (Minimum) |
| Charge Device Model (per JESD22-C101) | IV (Minimum) |

Table 4. Electrical Characteristics ($T_C = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|-----------|-----|-----|-----|-----------------|
| Off Characteristics (1) | | | | | |
| Zero Gate Voltage Drain Leakage Current (4) ($V_{DS} = 68\text{ Vdc}$, $V_{GS} = 0\text{ Vdc}$) | I_{DSS} | — | — | 10 | μAdc |
| Zero Gate Voltage Drain Leakage Current (4) ($V_{DS} = 32\text{ Vdc}$, $V_{GS} = 0\text{ Vdc}$) | I_{DSS} | — | — | 1 | μAdc |
| Gate-Source Leakage Current ($V_{GS} = 5\text{ Vdc}$, $V_{DS} = 0\text{ Vdc}$) | I_{GSS} | — | — | 1 | μAdc |

On Characteristics (1)

| | | | | | |
|--|--------------|---|------|-----|-----|
| Gate Threshold Voltage ($V_{DS} = 10\text{ Vdc}$, $I_D = 350\ \mu\text{Adc}$) | $V_{GS(th)}$ | 1 | 2.2 | 3 | Vdc |
| Gate Quiescent Voltage ($V_{DD} = 32\text{ Vdc}$, $I_D = 1600\text{ mAdc}$, Measured in Functional Test) | $V_{GS(Q)}$ | 2 | 2.8 | 4 | Vdc |
| Drain-Source On-Voltage ($V_{GS} = 10\text{ Vdc}$, $I_D = 2.4\text{ Adc}$) | $V_{DS(on)}$ | — | 0.22 | 0.3 | Vdc |

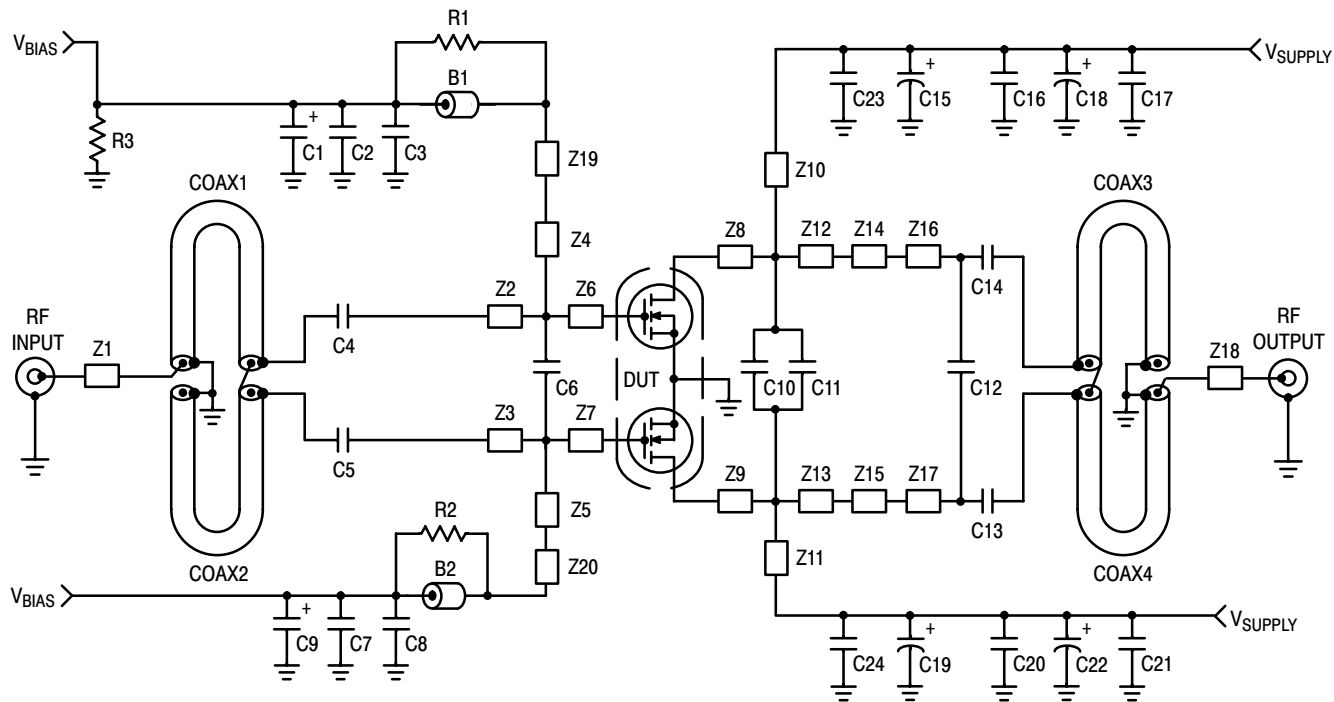
Dynamic Characteristics (1,2)

| | | | | | |
|---|-----------|---|-----|---|----|
| Reverse Transfer Capacitance ($V_{DS} = 32\text{ Vdc} \pm 30\text{ mV(rms)ac}$ @ 1 MHz, $V_{GS} = 0\text{ Vdc}$) | C_{rss} | — | 1.4 | — | pF |
|---|-----------|---|-----|---|----|

Functional Tests (3) (In Freescale Narrowband Test Fixture, 50 ohm system) $V_{DD} = 32\text{ Vdc}$, $I_{DQ} = 1600\text{ mA}$, $P_{out} = 270\text{ W PEP}$, $f_1 = 857\text{ MHz}$, $f_2 = 863\text{ MHz}$

| | | | | | |
|--|----------|----|-------|-----|-----|
| Power Gain | G_{ps} | 19 | 20.2 | 23 | dB |
| Drain Efficiency | η_D | 41 | 44.1 | — | % |
| Intermodulation Distortion | IMD | — | -30.8 | -28 | dBc |
| Input Return Loss | IRL | — | -24 | -9 | dB |
| P_{out} @ 1 dB Compression Point, CW ($f = 860\text{ MHz}$) | P1dB | — | 320 | — | W |

1. Each side of the device measured separately.
2. Part internally matched both on input and output.
3. Measurement made with device in push-pull configuration.
4. Drains are tied together internally as this is a total device value.



| | | | |
|----------|----------------------------|----------|--|
| Z1 | 0.401" x 0.081" Microstrip | Z12, Z13 | 0.225" x 0.507" Microstrip |
| Z2, Z3 | 0.563" x 0.101" Microstrip | Z14, Z15 | 0.440" x 0.435" Microstrip |
| Z4, Z5 | 1.186" x 0.058" Microstrip | Z16, Z17 | 0.123" x 0.215" Microstrip |
| Z6, Z7 | 0.416" x 0.727" Microstrip | Z18 | 0.401" x 0.081" Microstrip |
| Z8, Z9 | 0.191" x 0.507" Microstrip | Z19, Z20 | 0.339" x 0.165" Microstrip |
| Z10, Z11 | 1.306" x 0.150" Microstrip | PCB | Arlon CuClad 250GX-0300-55-22, 0.030", $\epsilon_r = 2.55$ |

Figure 1. 820-900 MHz Narrowband Test Circuit Schematic

Table 5. 820-900 MHz Narrowband Test Circuit Component Designations and Values

| Part | Description | Part Number | Manufacturer |
|------------------|--|--------------------|------------------|
| B1, B2 | Ferrite Beads, Short | 2743019447 | Fair-Rite |
| C1, C9 | 1.0 μ F, 50 V Tantalum Chip Capacitors | T491C105K050AT | Kemet |
| C2, C7, C17, C21 | 0.1 μ F, 50 V Chip Capacitors | CDR33BX104AKYS | Kemet |
| C3, C8, C16, C20 | 1000 pF Chip Capacitors | ATC100B102JT50XT | ATC |
| C4, C5, C13, C14 | 100 pF Chip Capacitors | ATC100B101JT500XT | ATC |
| C6, C12 | 8.2 pF Chip Capacitors | ATC100B8R2JT500XT | ATC |
| C10 | 9.1 pF Chip Capacitor | ATC100B9R1BT500XT | ATC |
| C11 | 1.8 pF Chip Capacitor | ATC100B1R8BT500XT | ATC |
| C15, C19 | 47 μ F, 50 V Electrolytic Capacitors | EMVY500ADA470MF80G | Nippon |
| C18, C22 | 470 μ F, 63 V Electrolytic Capacitors | ESME630ELL471MK25S | United Chemi-Con |
| C23, C24 | 22 pF Chip Capacitors | ATC100B220FT500XT | ATC |
| Coax1, 2, 3, 4 | 50 Ω , Semi Rigid Coax, 2.06" Long | UT-141A-TP | Micro-Coax |
| R1, R2 | 10 Ω , 1/4 W Chip Resistors | CRCW120610R0FKEA | Vishay |
| R3 | 1 k Ω , 1/4 W Chip Resistor | CRCW12061001FKEA | Vishay |

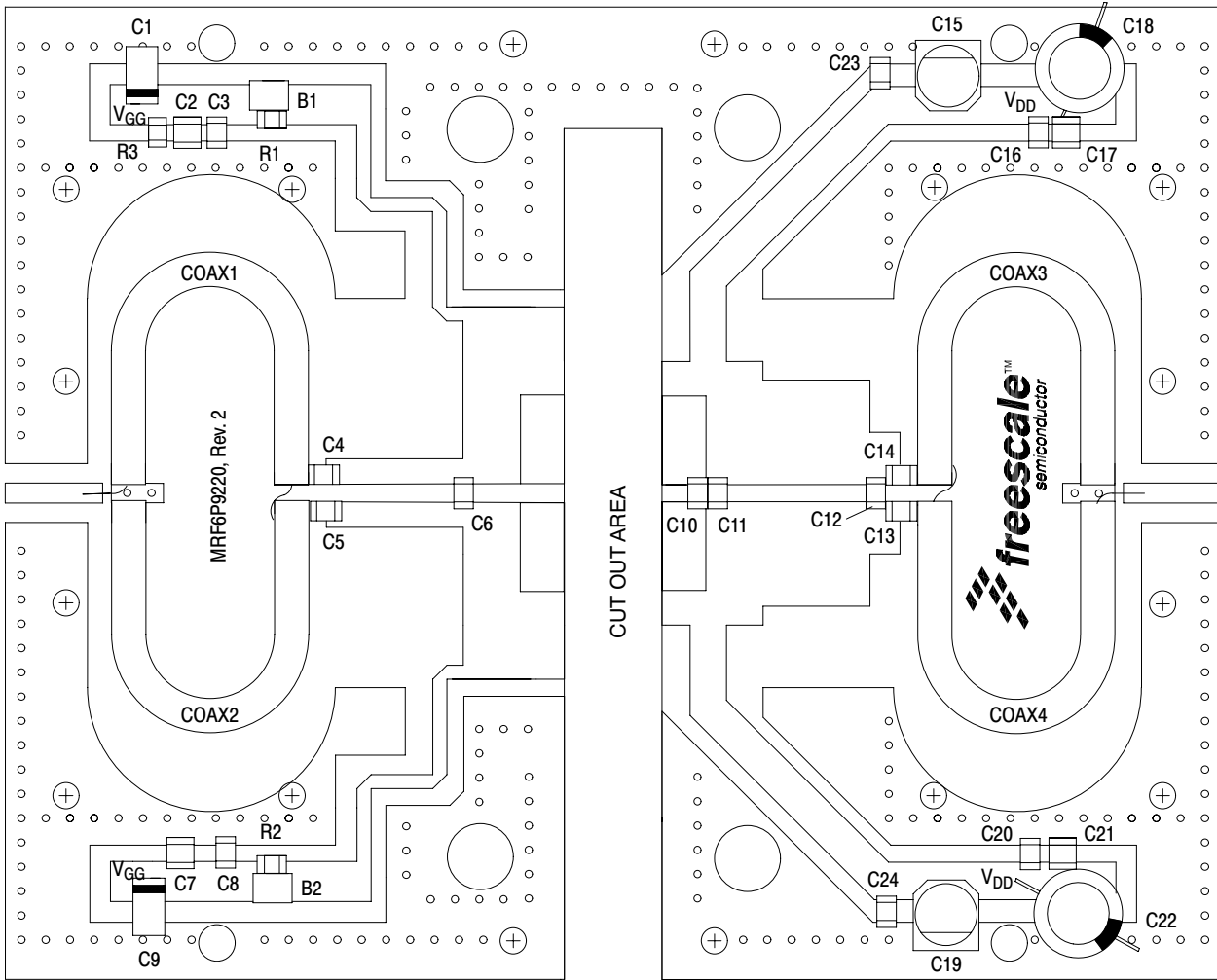


Figure 2. 820-900 MHz Narrowband Test Circuit Component Layout

TYPICAL NARROWBAND CHARACTERISTICS

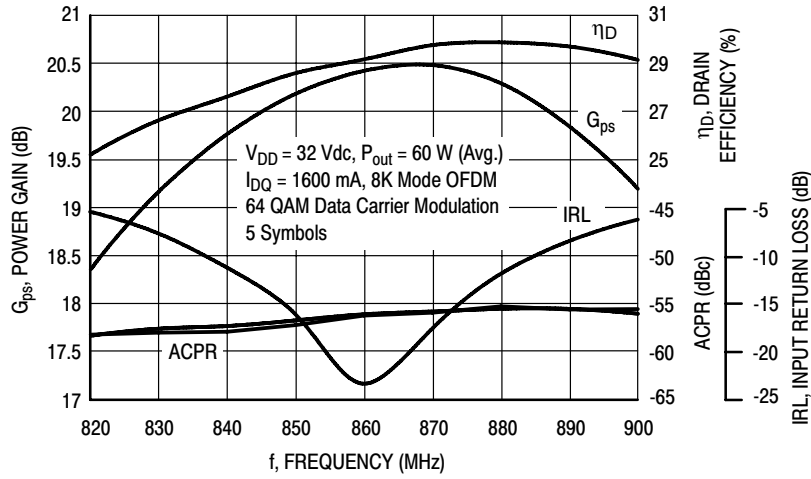


Figure 3. Single-Carrier OFDM Broadband Performance @ 60 Watts Avg.

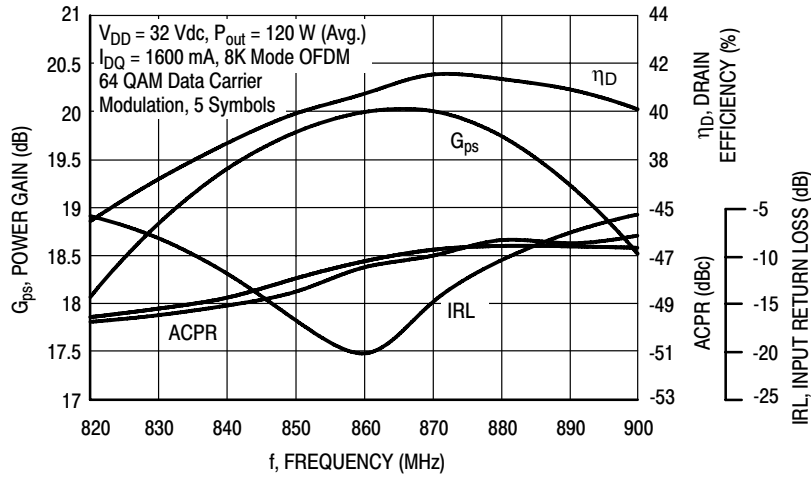


Figure 4. Single-Carrier OFDM Broadband Performance @ 120 Watts Avg.

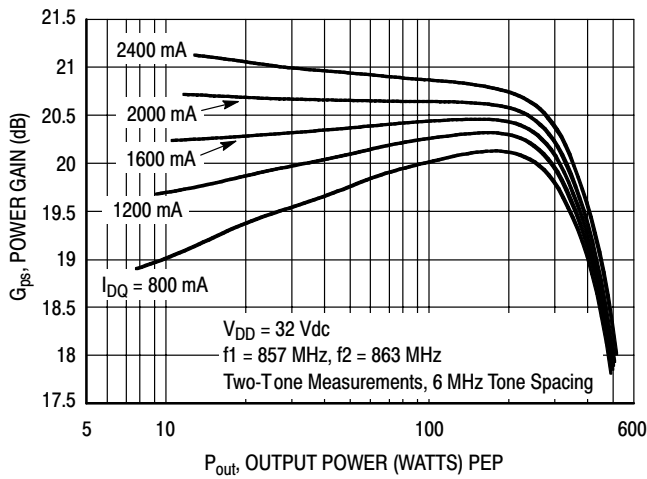


Figure 5. Two-Tone Power Gain versus Output Power

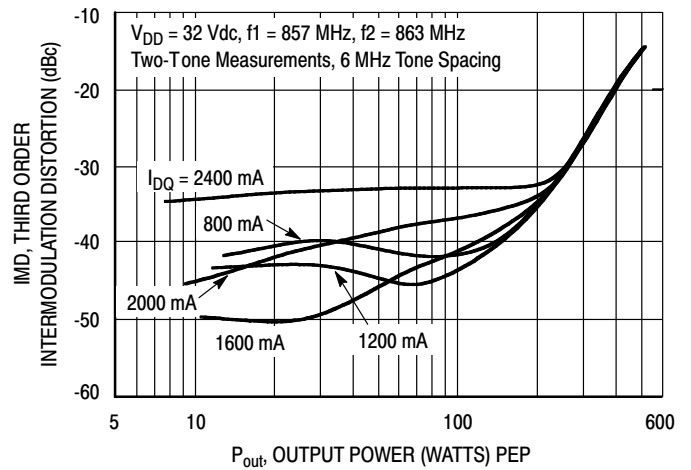


Figure 6. Third Order Intermodulation Distortion versus Output Power

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TYPICAL NARROWBAND CHARACTERISTICS

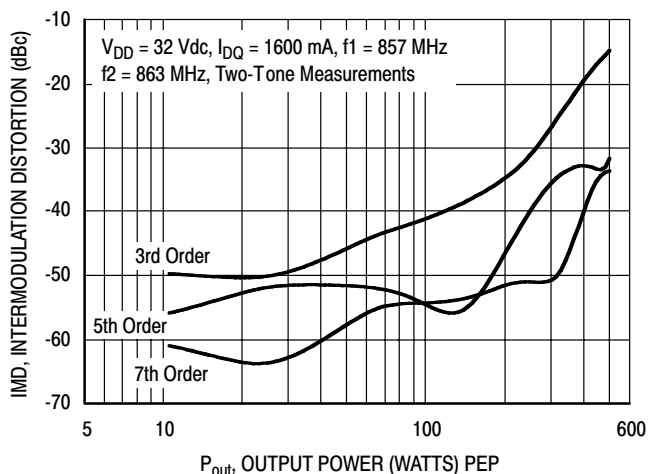


Figure 7. Intermodulation Distortion Products versus Output Power

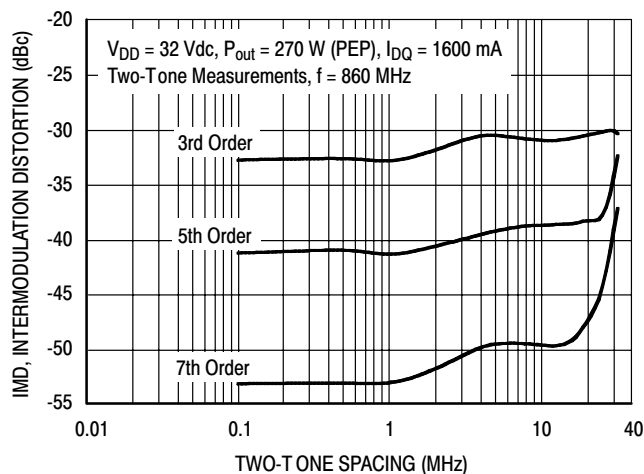


Figure 8. Intermodulation Distortion Products versus Tone Spacing @ 860 MHz

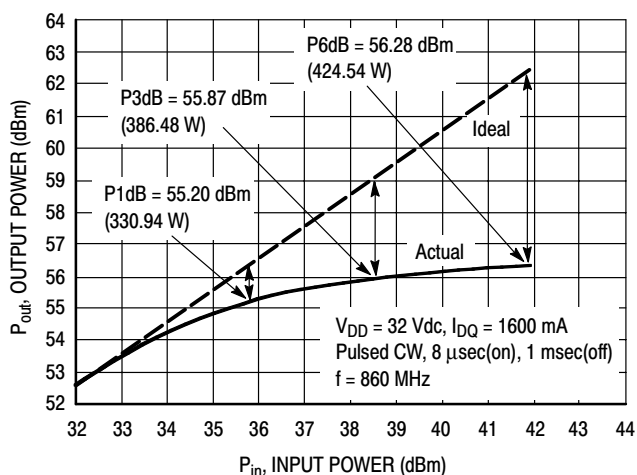


Figure 9. Pulsed CW Output Power versus Input Power

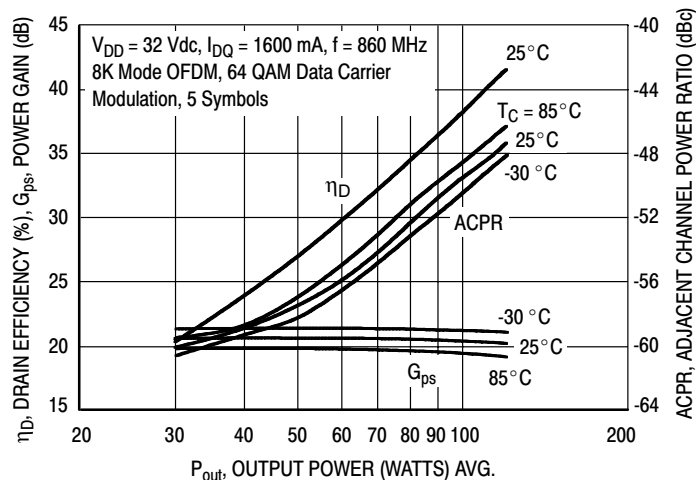


Figure 10. Single-Carrier DVB-T OFDM ACPR, Power Gain and Drain Efficiency versus Output Power

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TYPICAL NARROWBAND CHARACTERISTICS

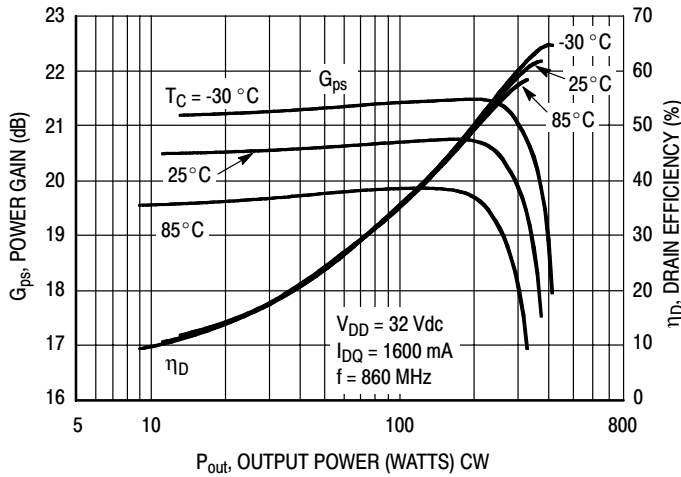


Figure 11. Power Gain and Drain Efficiency versus CW Output Power

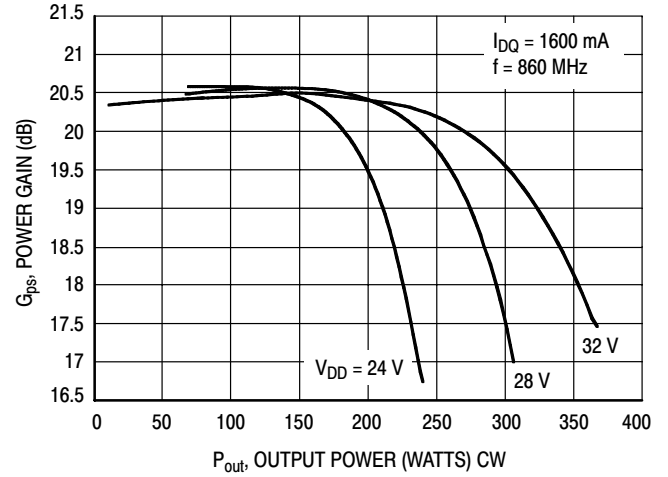
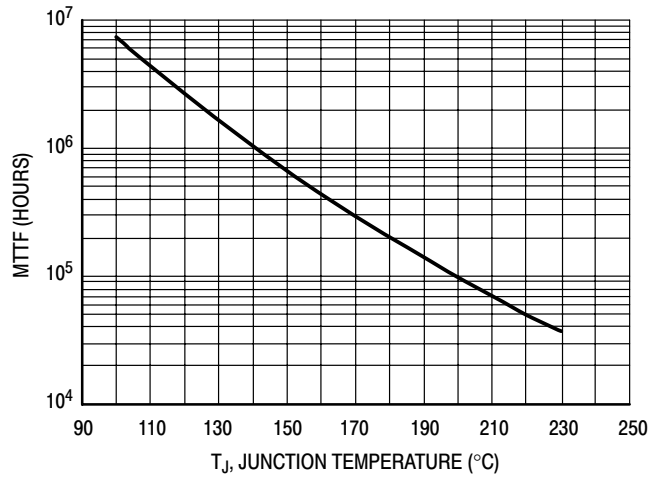


Figure 12. Power Gain versus Output Power



This above graph displays calculated MTTF in hours when the device is operated at $V_{DD} = 32$ Vdc, $P_{out} = 270$ W PEP, and $\eta_D = 44.1\%$.
 MTTF calculator available at <http://www.freescale.com/rf>. Select Software & Tools/Development Tools/Calculators to access MTTF calculators by product.

Figure 13. MTTF versus Junction Temperature

DIGITAL TEST SIGNALS

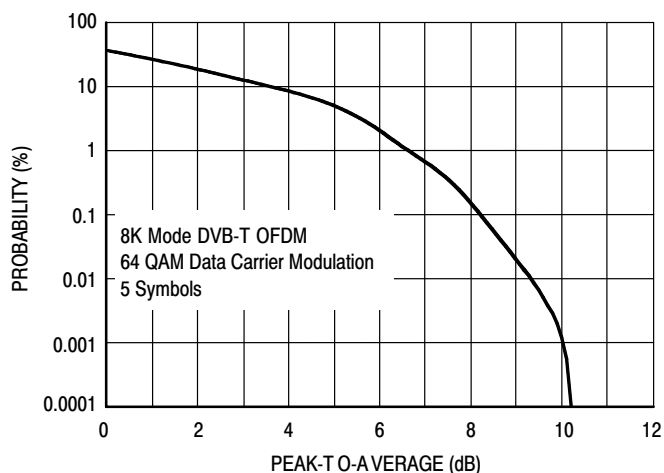


Figure 14. Single-Carrier DVB-T OFDM

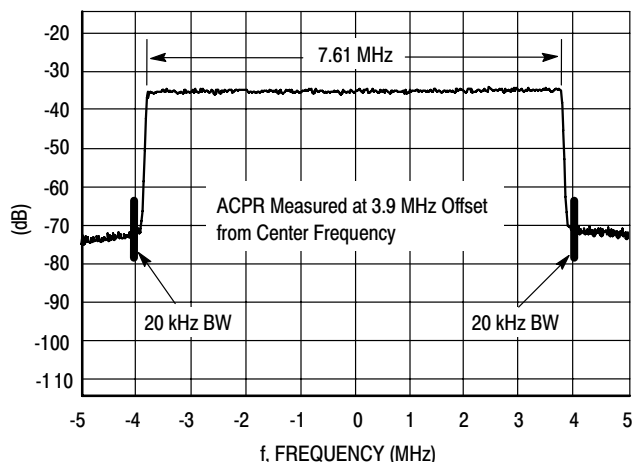


Figure 15. 8K Mode DVB-T OFDM Spectrum

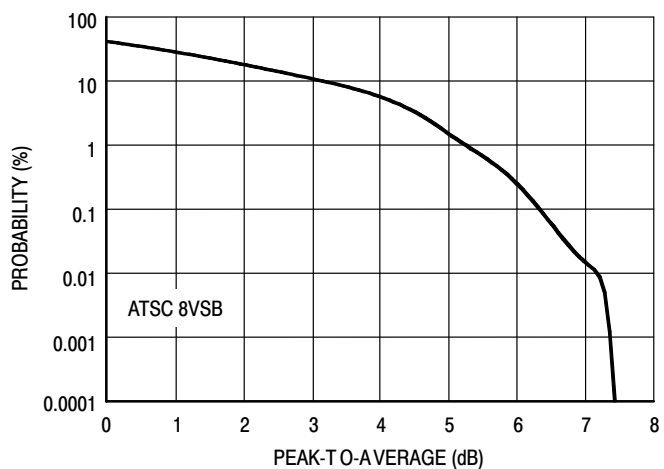


Figure 16. Single-Carrier ATSC 8VSB

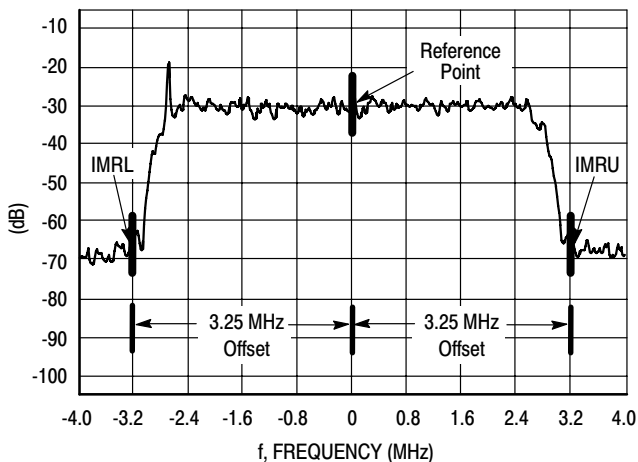
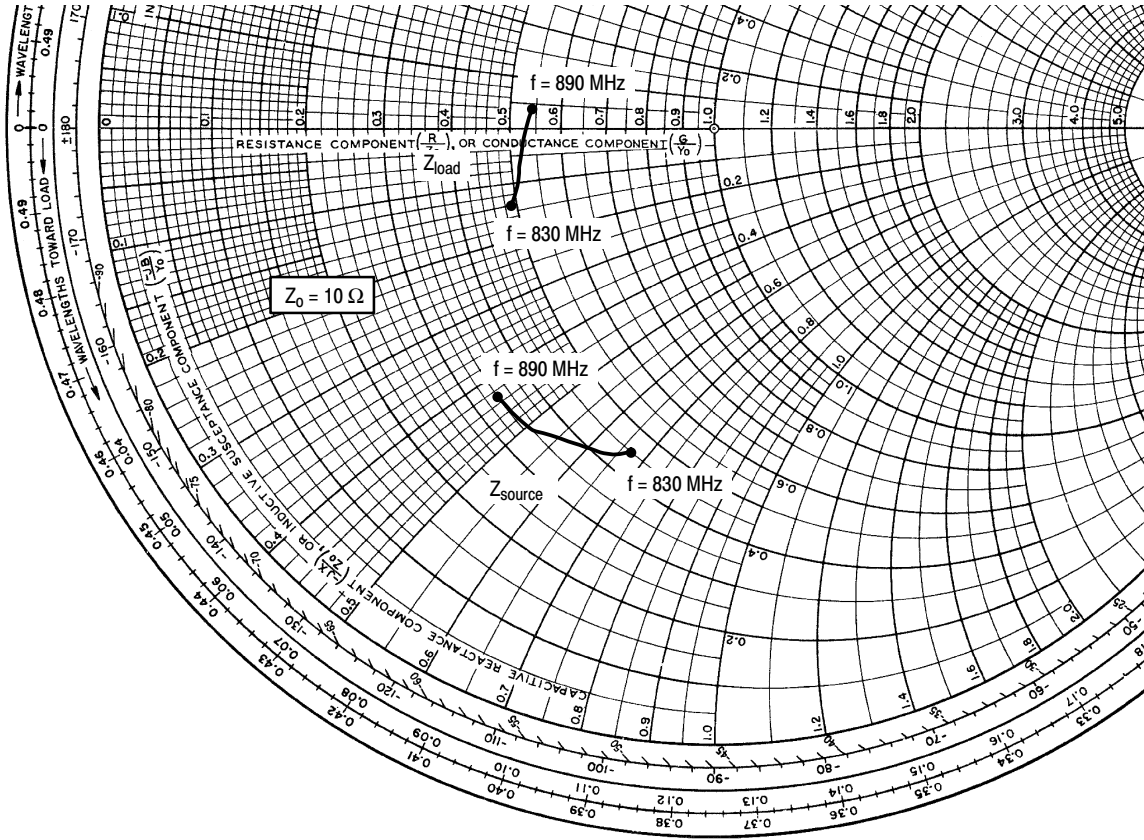


Figure 17. ATSC 8VSB Spectrum

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$V_{DD} = 32 \text{ Vdc}$, $I_{DQ} = 1600 \text{ mA}$, $P_{out} = 270 \text{ W PEP}$

| f MHz | Z_{source} Ω | Z_{load} Ω |
|----------|--------------------------|------------------------|
| 830 | $4.52 - j6.73$ | $4.89 - j1.35$ |
| 845 | $4.22 - j6.38$ | $5.06 - j1.01$ |
| 860 | $3.89 - j5.81$ | $5.18 - j0.58$ |
| 875 | $3.54 - j5.10$ | $5.27 - j0.11$ |
| 890 | $3.39 - j4.32$ | $5.36 + j0.43$ |

Z_{source} = Test circuit impedance as measured from gate to gate, balanced configuration.

Z_{load} = Test circuit impedance as measured from drain to drain, balanced configuration.

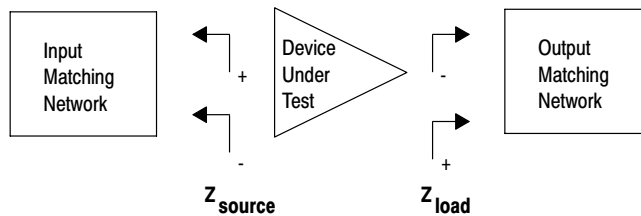
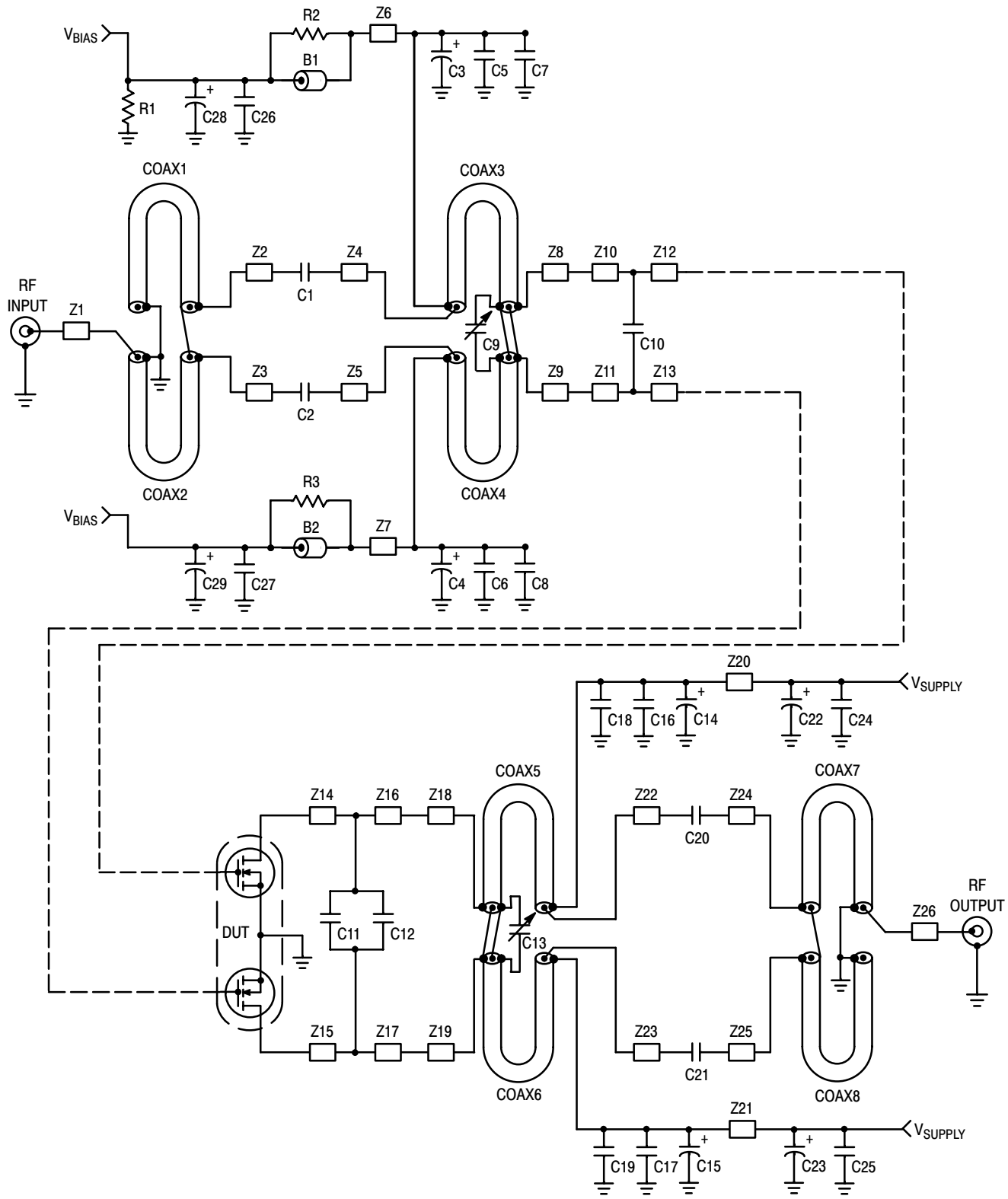


Figure 18. 820-900 MHz Narrowband Series Equivalent Source and Load Impedance



| | | | |
|----------|----------------------------|----------|---|
| Z1 | 0.351" x 0.081" Microstrip | Z16, Z17 | 0.072" x 0.420" Microstrip |
| Z2, Z3 | 0.139" x 0.214" Microstrip | Z18, Z19 | 0.072" x 0.031" Microstrip |
| Z4, Z5 | 0.364" x 0.214" Microstrip | Z20, Z21 | 1.404" x 0.141" Microstrip |
| Z6, Z7 | 1.154" x 0.051" Microstrip | Z22, Z23 | 0.363" x 0.214" Microstrip |
| Z8, Z9 | 0.086" x 0.100" Microstrip | Z24, Z25 | 0.139" x 0.214" Microstrip |
| Z10, Z11 | 0.184" x 0.802" Microstrip | Z26 | 0.351" x 0.081" Microstrip |
| Z12, Z13 | 0.164" x 0.802" Microstrip | PCB | Arlon CuClad 250GX-0300-55-22, 0.030", $\epsilon_r = 2.5$ |
| Z14, Z15 | 0.276" x 0.420" Microstrip | | |

Figure 19. 470-860 MHz Broadband Test Circuit Schematic

Table 6. 470-860 MHz Broadband Test Circuit Component Designations and Values

| Part | Description | Part Number | Manufacturer |
|--------------------|---|--------------------|------------------|
| B1, B2 | Ferrite Beads, Short | 2743019447 | Fair-Rite |
| C1, C2, C20, C21 | 43 pF Chip Capacitors | ATC700B430FT500XT | ATC |
| C3, C4, C14, C15 | 100 μ F, 50 V Electrolytic Capacitors | 515D107M050BB6AE3 | Vishay |
| C5, C6, C16, C17 | 220 nF, 100 V Chip Capacitors | C1812C224K5RAC | Kemet |
| C7, C8, C18, C19 | 0.01 μ F, 100 V Chip Capacitors | C1210C103J1RAC | Kemet |
| C9, C13 | 0.8-8.0 pF Variable Capacitors, Gigatrim | 27291SL | Johanson |
| C10 | 15 pF 600B Chip Capacitor | ATC600S150FT250XT | ATC |
| C11 | 16 pF 600B Chip Capacitor | ATC600B160FT250XT | ATC |
| C12 | 4.3 pF 600B Chip Capacitor | ATC600B4R3BT250XT | ATC |
| C22, C23 | 470 μ F, 63 V Electrolytic Capacitors | EMVY630GTR471MLN0S | Nippon |
| C24, C25, C26, C27 | 0.1 μ F, 50 V Chip Capacitors | CDR33BX104AKYS | Kemet |
| C28, C29 | 10 μ F, 50 V Electrolytic Capacitors | ECE-V1HA100SP | Nippon Chemi-Con |
| Coax1, 2, 7, 8 | 50 Ω , Semi Rigid Coax, 3.00" Long | UT-141C-50-SP | Micro-Coax |
| Coax3, 4, 5, 6 | 25 Ω , Semi Rigid Coax, 3.00" Long | UT-141C-25 | Micro-Coax |
| R1 | 1 k Ω , 1/8 W Resistor | CRCW12061001FKEA | Vishay |
| R2, R3 | 10 Ω , 1/8 W Resistors | CRCW120610R0FKEA | Vishay |

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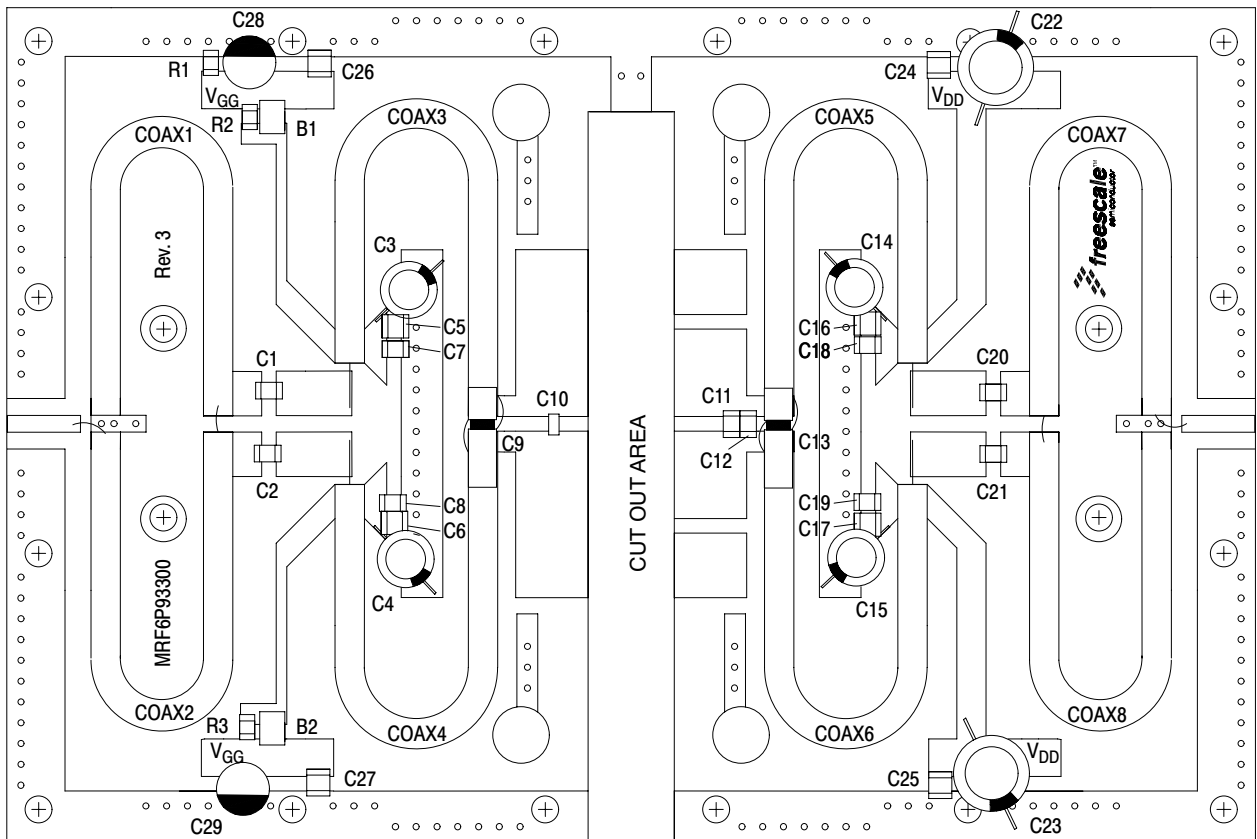


Figure 20. 470-860 MHz Broadband Test Circuit Component Layout

TYPICAL TWO-TONE BROADBAND CHARACTERISTICS

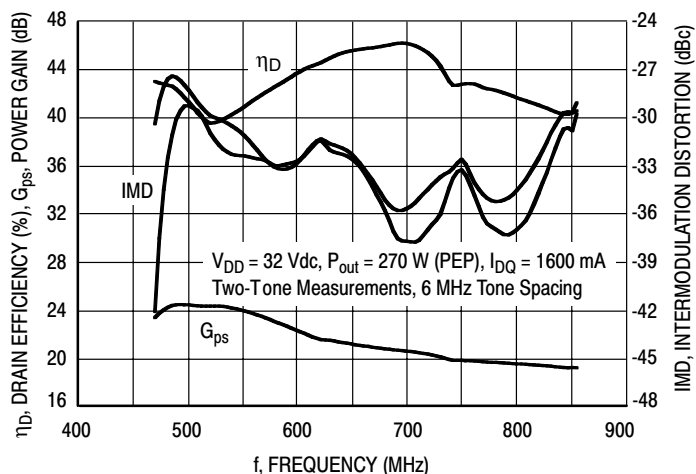


Figure 21. Two-Tone Broadband Performance @ $P_{out} = 270$ Watts PEP

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TYPICAL TWO-TONE BROADBAND CHARACTERISTICS

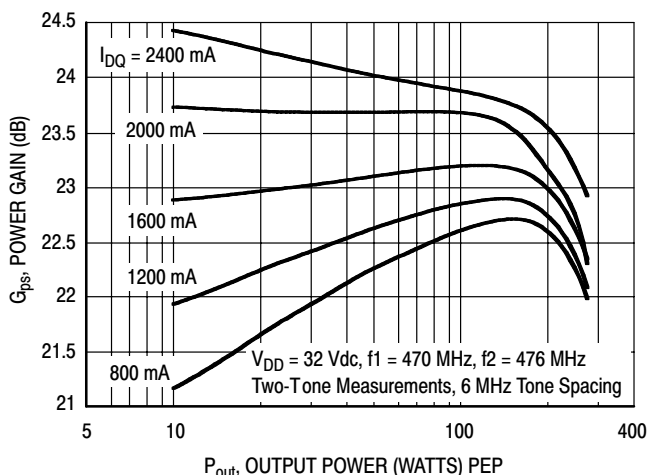


Figure 22. Two-Tone Power Gain versus Output Power @ 473 MHz

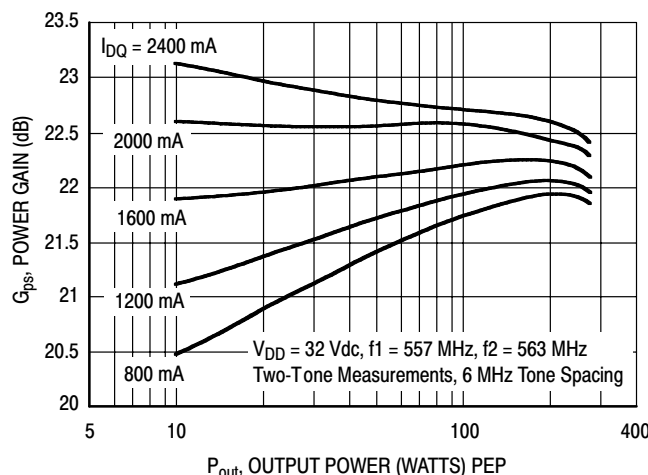


Figure 23. Two-Tone Power Gain versus Output Power @ 560 MHz

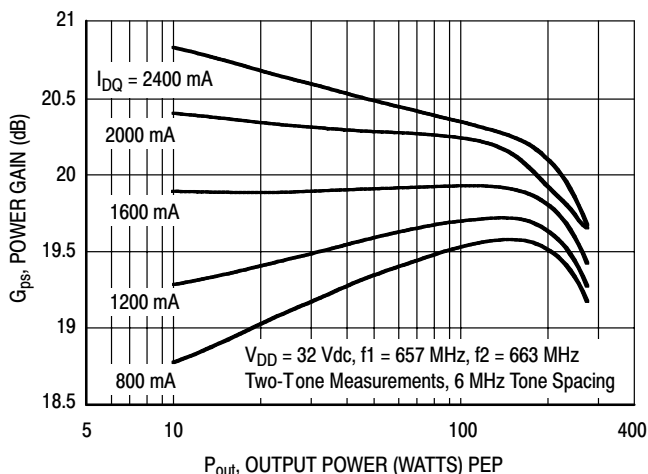


Figure 24. Two-Tone Power Gain versus Output Power @ 660 MHz

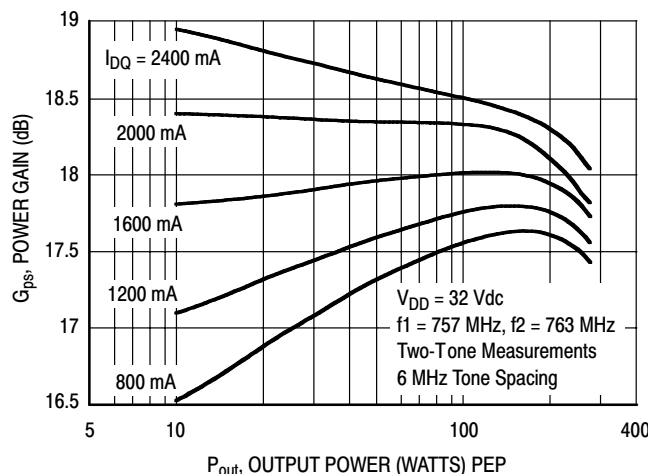


Figure 25. Two-Tone Power Gain versus Output Power @ 760 MHz

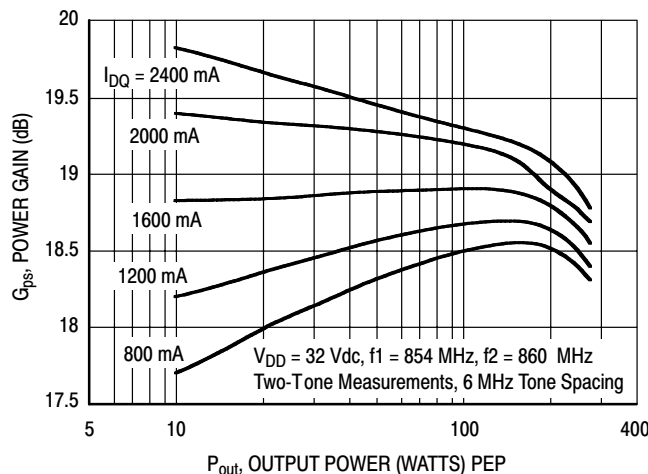


Figure 26. Two-Tone Power Gain versus Output Power @ 857 MHz

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TYPICAL TWO-TONE BROADBAND CHARACTERISTICS

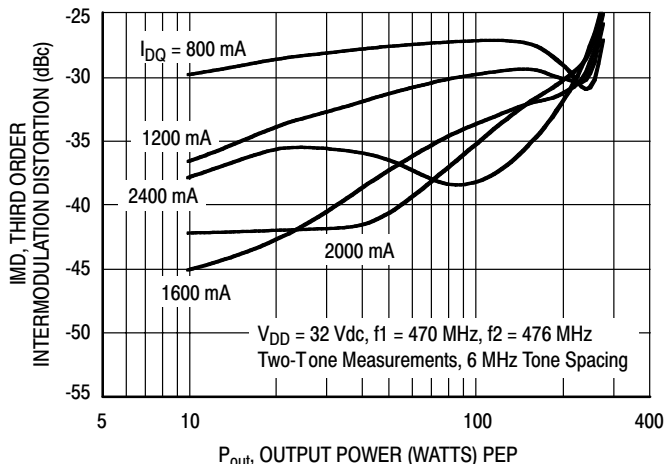


Figure 27. Third Order Intermodulation Distortion versus Output Power @ 473 MHz

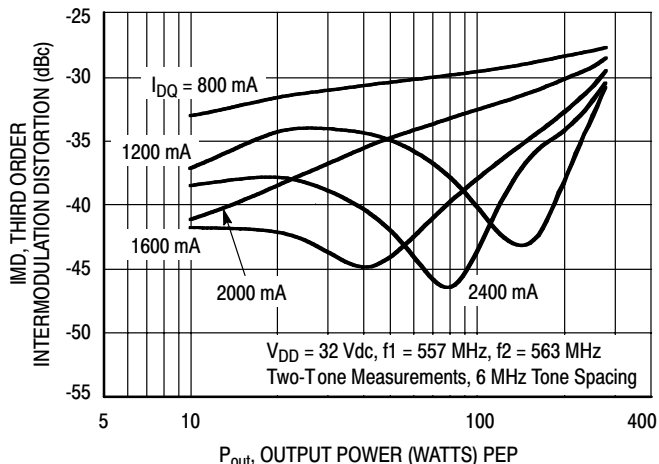


Figure 28. Third Order Intermodulation Distortion versus Output Power @ 560 MHz

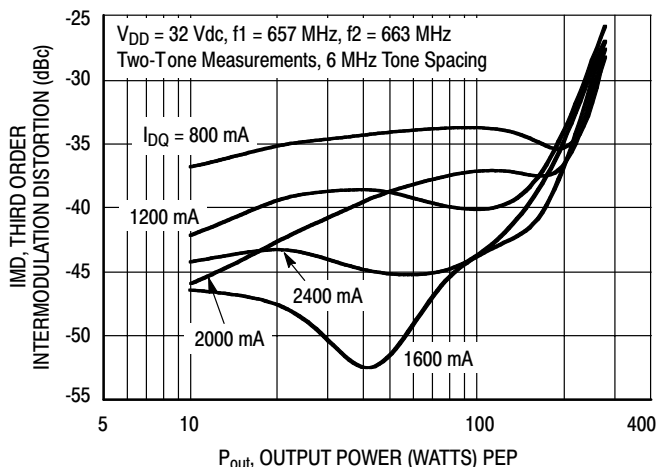


Figure 29. Third Order Intermodulation Distortion versus Output Power @ 660 MHz

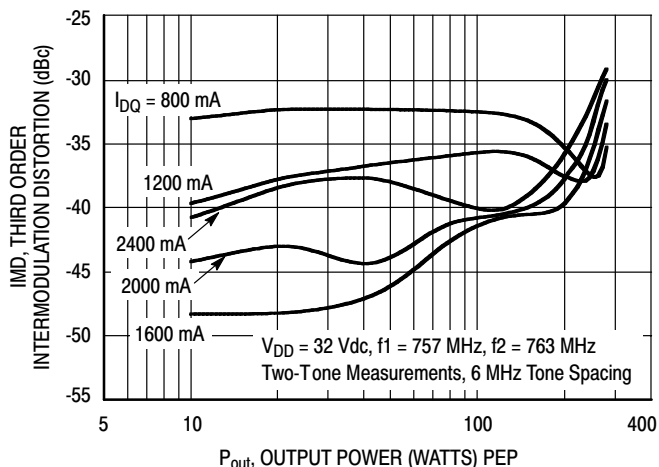


Figure 30. Third Order Intermodulation Distortion versus Output Power @ 760 MHz

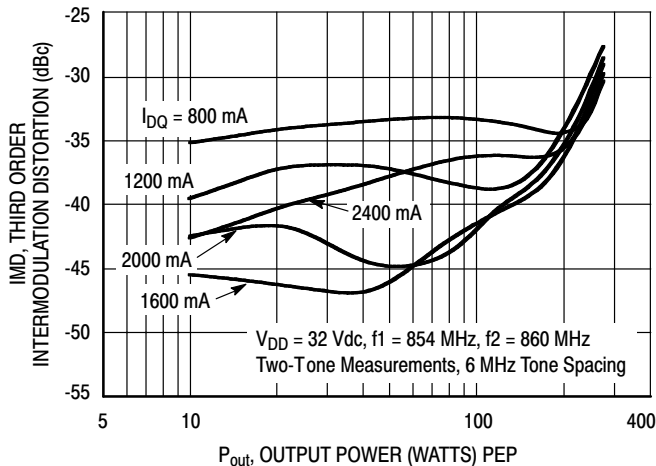


Figure 31. Third Order Intermodulation Distortion versus Output Power @ 857 MHz

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TYPICAL TWO-TONE BROADBAND CHARACTERISTICS

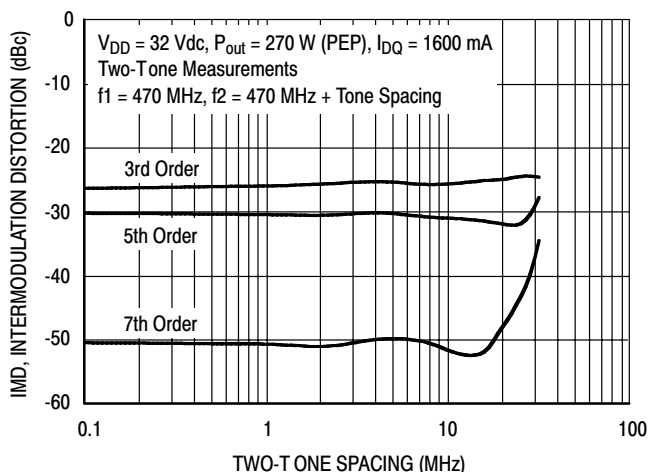


Figure 32. Intermodulation Distortion Products versus Tone Spacing @ 470 MHz

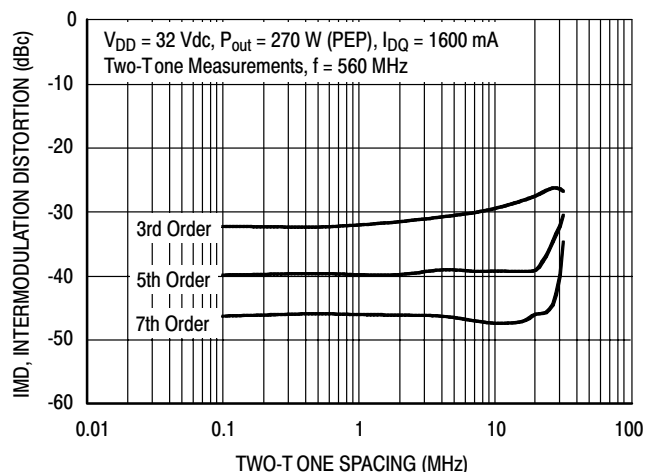


Figure 33. Intermodulation Distortion Products versus Tone Spacing @ 560 MHz

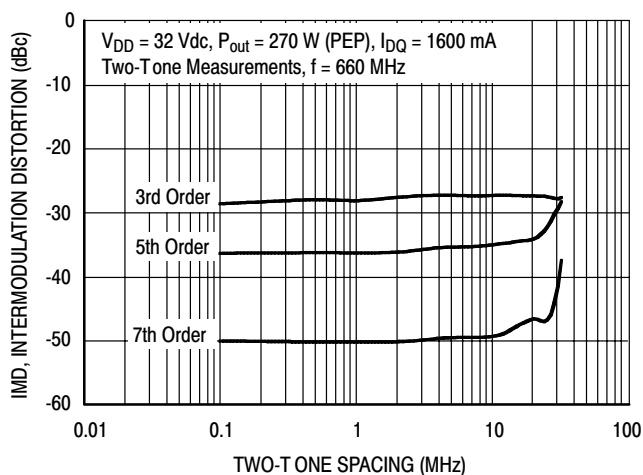


Figure 34. Intermodulation Distortion Products versus Tone Spacing @ 660 MHz

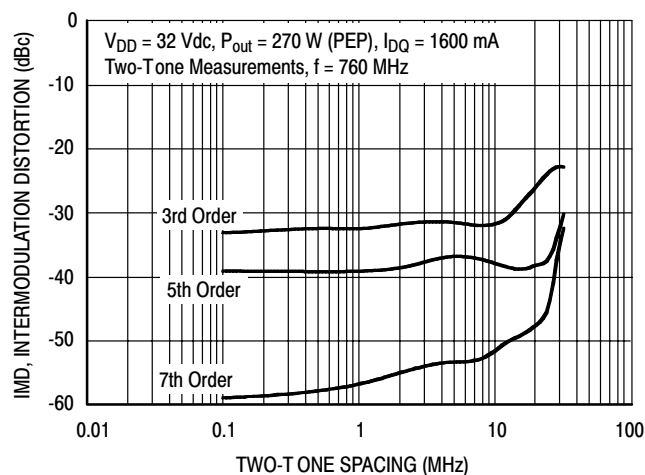


Figure 35. Intermodulation Distortion Products versus Tone Spacing @ 760 MHz

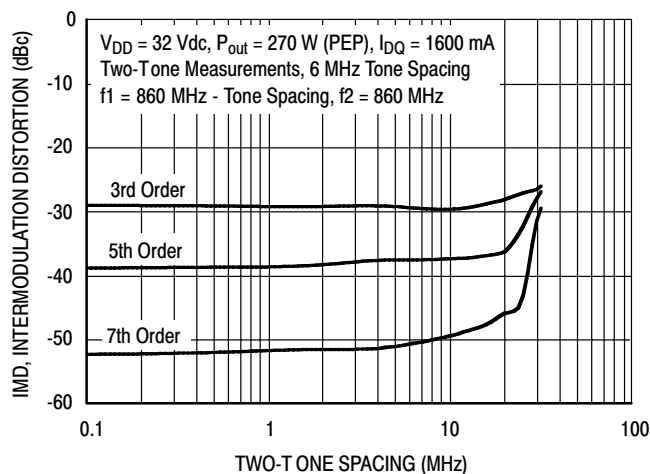


Figure 36. Intermodulation Distortion Products versus Tone Spacing @ 860 MHz

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TYPICAL DVB-T OFDM BROADBAND CHARACTERISTICS

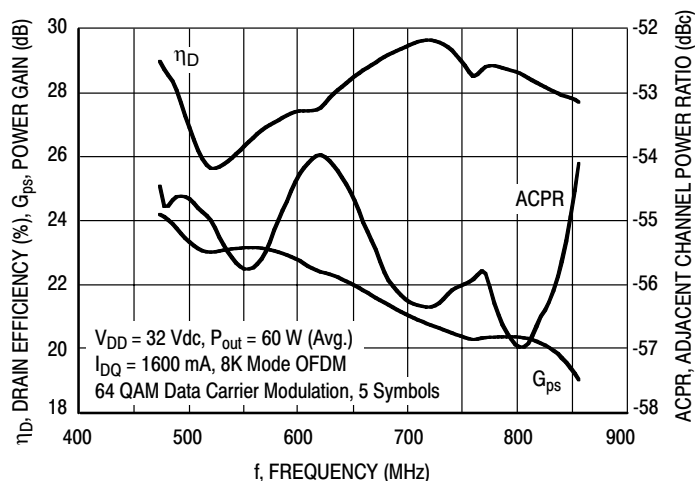


Figure 37. Single-Carrier OFDM Broadband Performance @ 60 Watts Avg.

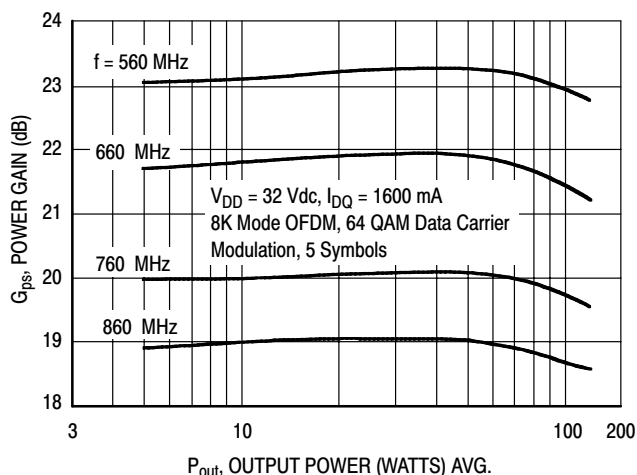


Figure 38. Single-Carrier DVB-T OFDM Power Gain versus Output Power

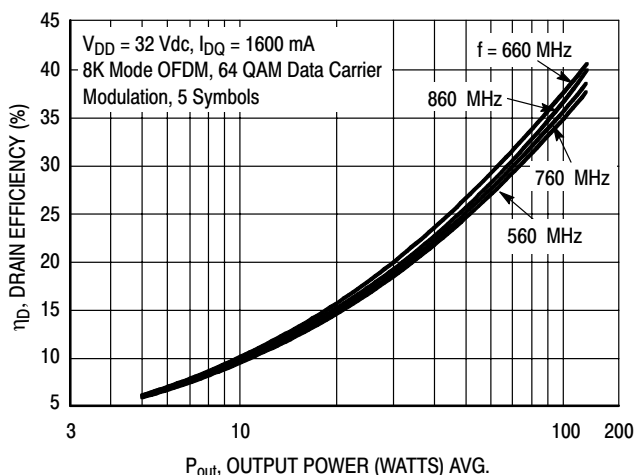


Figure 39. Single-Carrier DVB-T OFDM Drain Efficiency versus Output Power

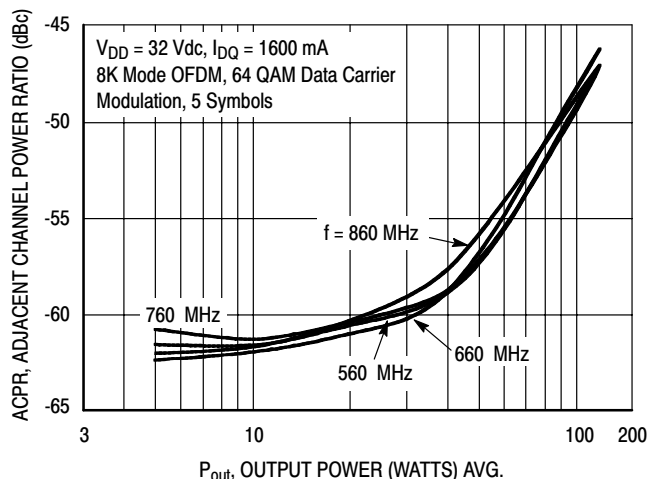


Figure 40. Single-Carrier DVB-T OFDM ACPR versus Output Power

TYPICAL CW BROADBAND CHARACTERISTICS

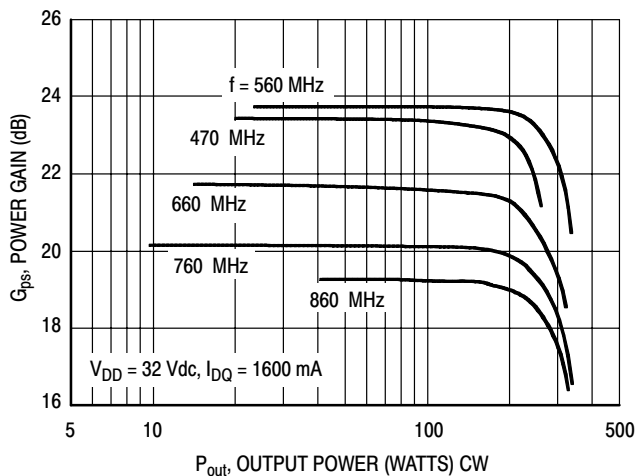


Figure 41. CW Power Gain versus Output Power

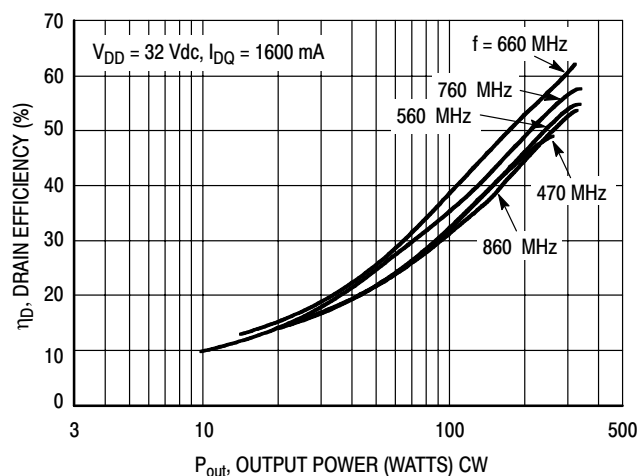


Figure 42. CW Drain Efficiency versus Output Power

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TYPICAL CW BROADBAND CHARACTERISTICS

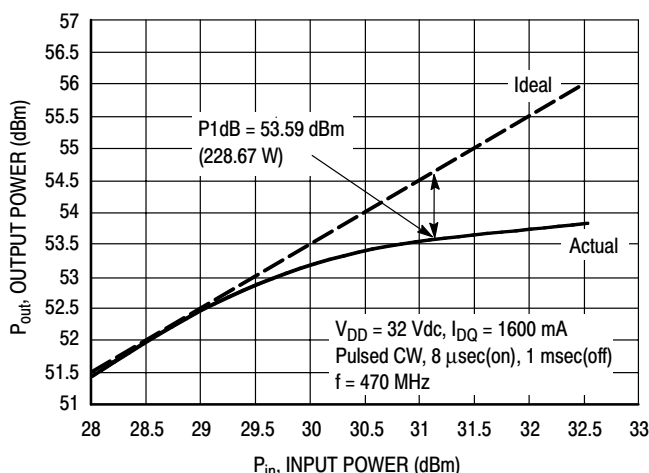


Figure 43. Pulsed CW Output Power versus Input Power @ 470 MHz

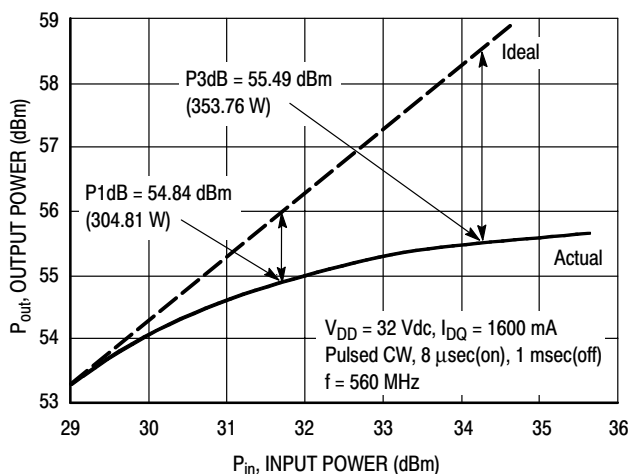


Figure 44. Pulsed CW Output Power versus Input Power @ 560 MHz

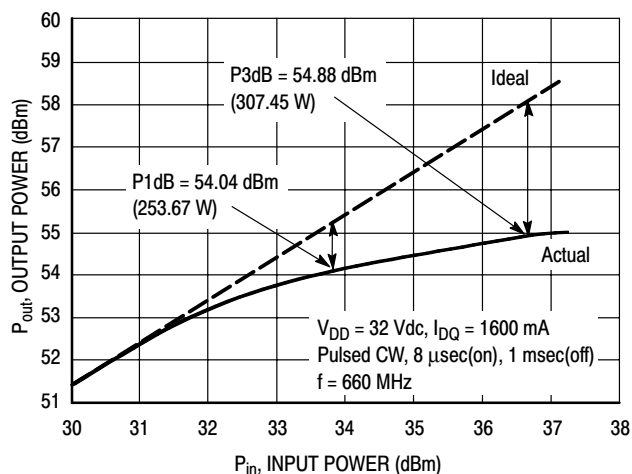


Figure 45. Pulsed CW Output Power versus Input Power @ 660 MHz

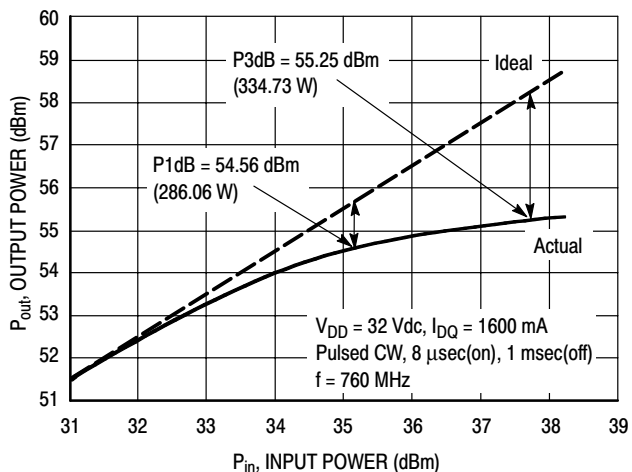


Figure 46. Pulsed CW Output Power versus Input Power @ 760 MHz

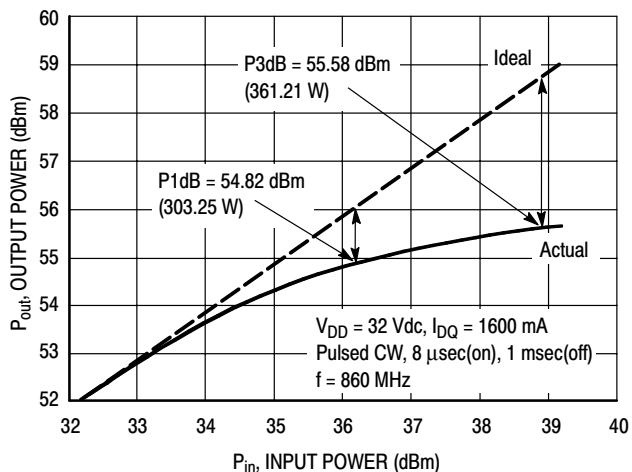


Figure 47. Pulsed CW Output Power versus Input Power @ 860 MHz

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TYPICAL ATSC 8VSB BROADBAND CHARACTERISTICS

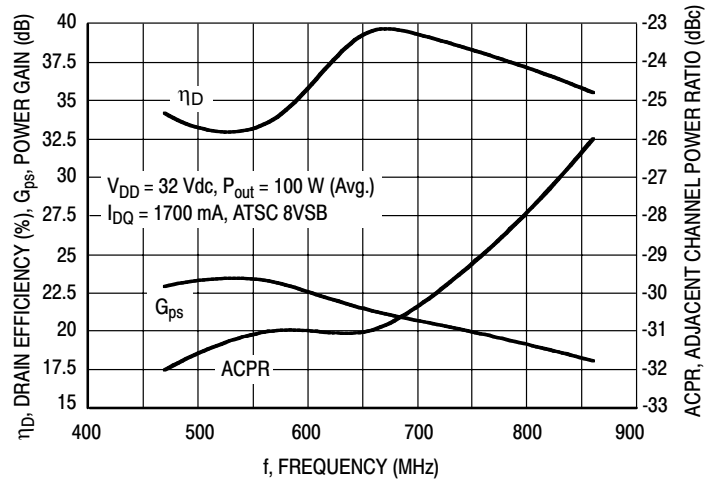


Figure 48. Single-Carrier ATSC 8VSB Broadband Performance @ 100 Watts Avg.

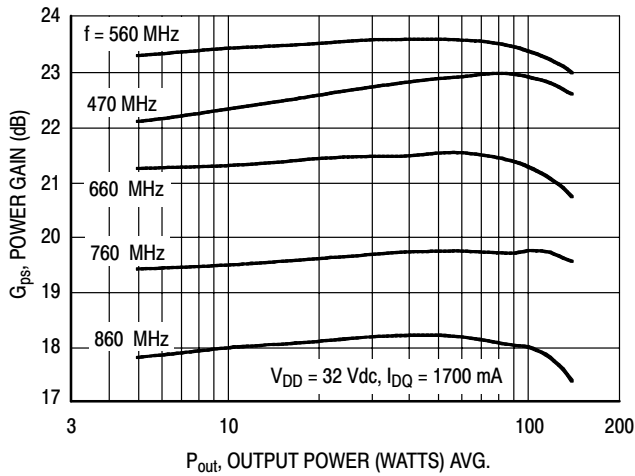


Figure 49. Single-Carrier ATSC 8VSB Power Gain versus Output Power

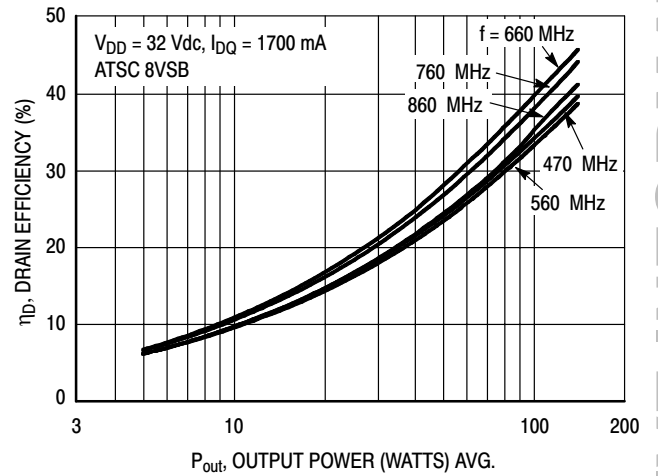


Figure 50. Single-Carrier ATSC 8VSB Drain Efficiency versus Output Power

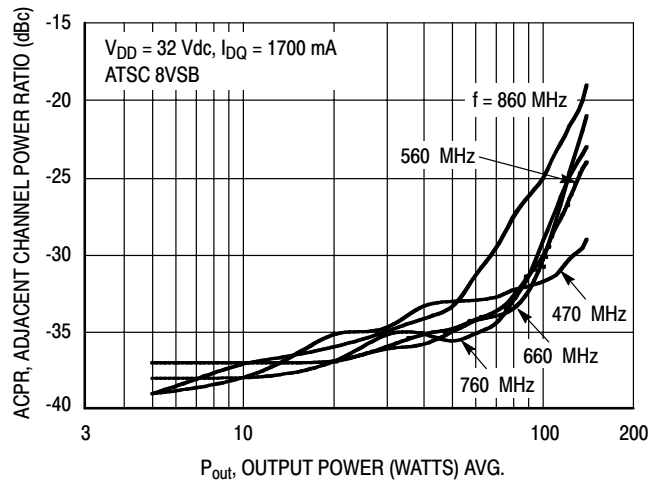


Figure 51. Single-Carrier ATSC 8VSB ACPR versus Output Power

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TYPICAL PAL B/G BROADBAND CHARACTERISTICS

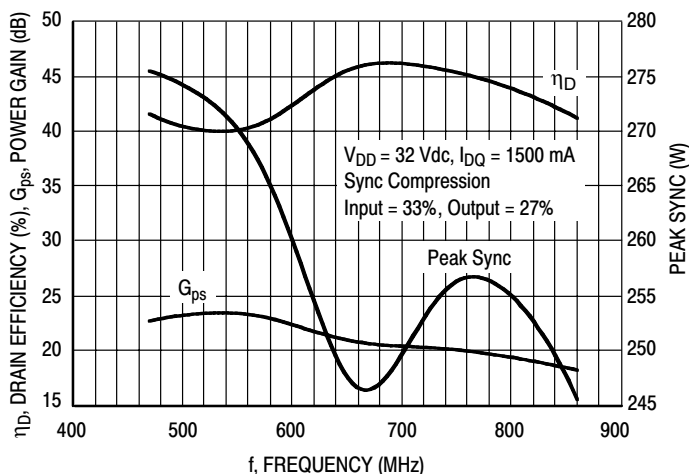
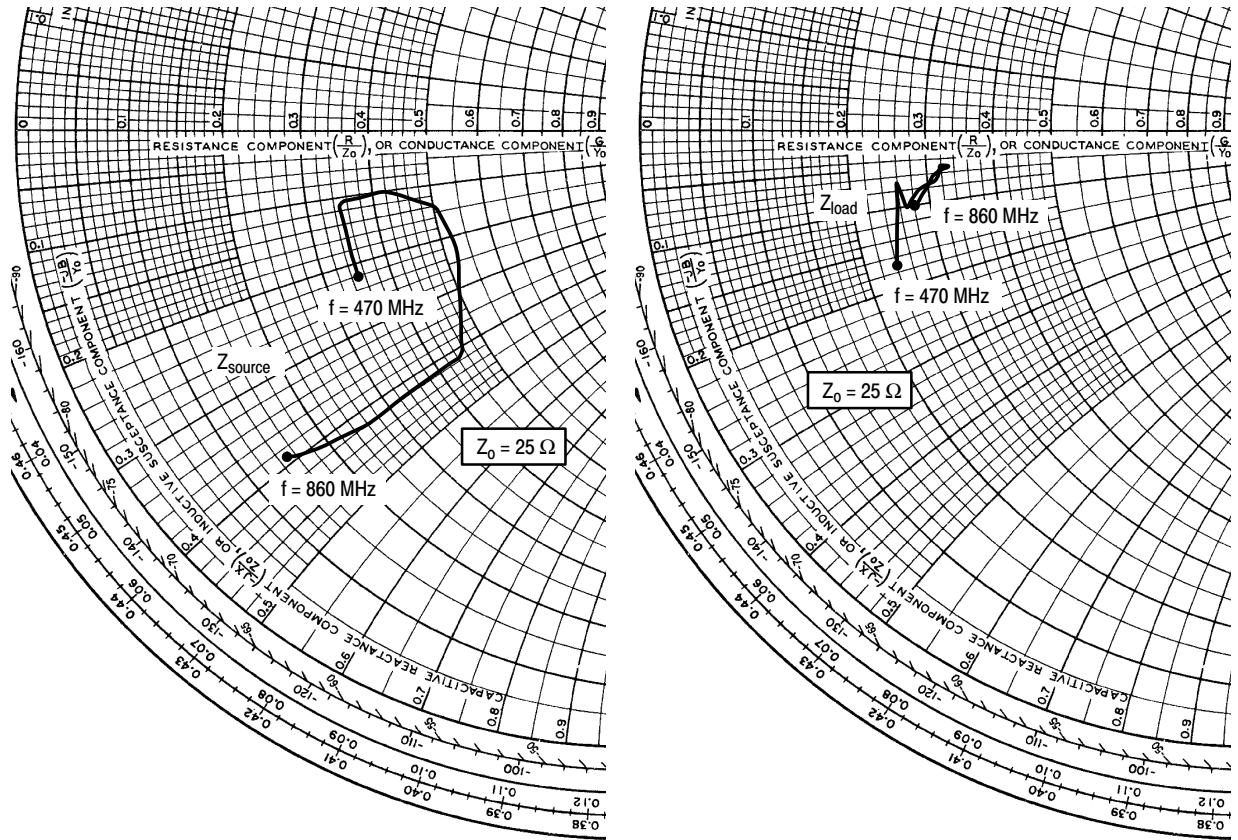


Figure 52. Peak Sync, Power Gain and Drain Efficiency versus Frequency



$V_{DD} = 32 \text{ Vdc}$, $I_{DQ} = 1600 \text{ mA}$, $P_{out} = 270 \text{ W PEP}$

| f MHz | Z_{source} Ω | Z_{load} Ω |
|----------|--------------------------|------------------------|
| 470 | 8.77 - j5.43 | 6.09 - j4.37 |
| 510 | 8.74 - j4.17 | 6.39 - j1.65 |
| 560 | 8.86 - j2.87 | 6.69 - j2.45 |
| 610 | 10.55 - j2.45 | 7.36 - j1.95 |
| 660 | 12.41 - j3.53 | 7.73 - j1.75 |
| 710 | 13.11 - j6.04 | 7.95 - j1.20 |
| 760 | 11.29 - j10.15 | 8.18 - j1.36 |
| 810 | 6.81 - j10.41 | 7.81 - j1.60 |
| 860 | 3.73 - j9.66 | 6.94 - j2.49 |

Z_{source} = Test circuit impedance as measured from gate to gate, balanced configuration.

Z_{load} = Test circuit impedance as measured from drain to drain, balanced configuration.

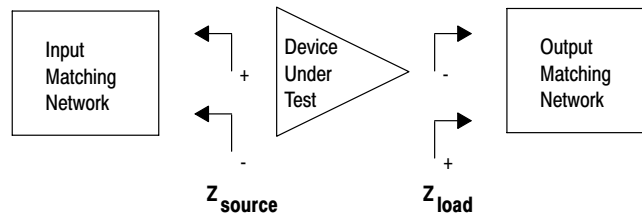
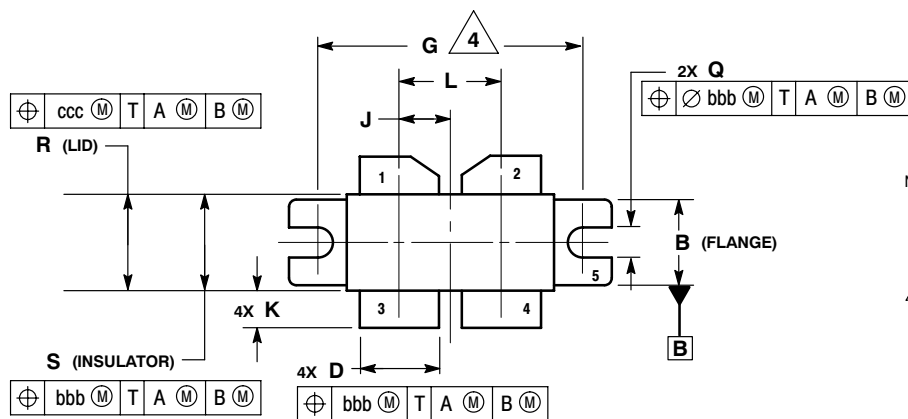


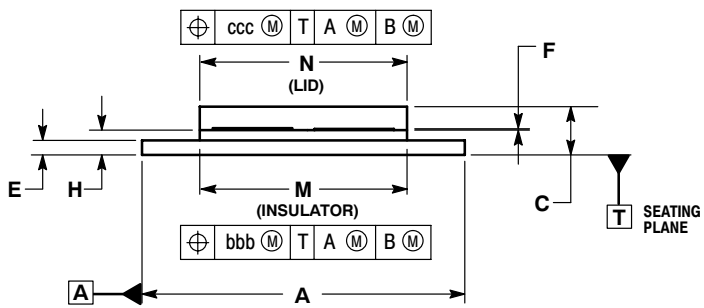
Figure 53. 470-860 MHz Broadband Series Equivalent Source and Load Impedance

PACKAGE DIMENSIONS



- NOTES:
1. CONTROLLING DIMENSION: INCH.
 2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994.
 3. DIMENSION H TO BE MEASURED 0.030 (0.762) AWAY FROM PACKAGE BODY.
 4. RECOMMENDED BOLT CENTER DIMENSION OF 1.140 (28.96) BASED ON 3M SCREW.

| DIM | INCHES | | MILLIMETERS | |
|-----|------------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 1.335 | 1.345 | 33.91 | 34.16 |
| B | 0.380 | 0.390 | 9.65 | 9.91 |
| C | 0.180 | 0.224 | 4.57 | 5.69 |
| D | 0.325 | 0.335 | 8.26 | 8.51 |
| E | 0.060 | 0.070 | 1.52 | 1.78 |
| F | 0.004 | 0.006 | 0.10 | 0.15 |
| G | 1.100 BSC | | 27.94 BSC | |
| H | 0.097 | 0.107 | 2.46 | 2.72 |
| J | 0.2125 BSC | | 5.397 BSC | |
| K | 0.135 | 0.165 | 3.43 | 4.19 |
| L | 0.425 BSC | | 10.8 BSC | |
| M | 0.852 | 0.868 | 21.64 | 22.05 |
| N | 0.851 | 0.869 | 21.62 | 22.07 |
| Q | 0.118 | 0.138 | 3.00 | 3.30 |
| R | 0.395 | 0.405 | 10.03 | 10.29 |
| S | 0.394 | 0.406 | 10.01 | 10.31 |
| bbb | 0.010 REF | | 0.25 REF | |
| ccc | 0.015 REF | | 0.38 REF | |



- STYLE 1:
- PIN 1. DRAIN
 - DRAIN
 - GATE
 - GATE
 - SOURCE

CASE 375G-04
ISSUE G
NI-860C3

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PRODUCT DOCUMENTATION

Refer to the following documents to aid your design process.

Application Notes

- AN1955: Thermal Measurement Methodology of RF Power Amplifiers

Engineering Bulletins

- EB212: Using Data Sheet Impedances for RF LDMOS Devices

REVISION HISTORY

The following table summarizes revisions to this document.

| Revision | Date | Description |
|----------|-----------|---|
| 2 | Oct. 2008 | <ul style="list-style-type: none"> • Listed replacement part and Device Migration notification reference number, p. 1 • Removed Lower Thermal Resistance and Low Gold Plating bullets from Features section as functionality is standard, p. 1 • Removed Total Device Dissipation from Max Ratings table as data was redundant (information already provided in Thermal Characteristics table), p. 1 • Operating Junction Temperature increased from 200°C to 225°C in Maximum Ratings table and related “Continuous use at maximum temperature will affect MTTF” footnote added, p. 1 • Corrected V_{DS} to V_{DD} in the RF test condition voltage callout for $V_{GS(Q)}$, On Characteristics table, p. 2 • Removed Forward Transconductance from On Characteristics table as it no longer provided usable information, p. 2 • Corrected Z list in Figs. 1, 19, Test Circuit Schematic, p. 3, 10 • Updated PCB information to show more specific material details, Figs. 1, 19, Test Circuit Schematic, p. 3, 10 • Updated Part Numbers in Tables 5, 6, Component Designations and Values, to latest RoHS compliant part numbers, p. 3, 11 • Removed lower voltage tests from Fig. 12, Power Gain versus Output Power, due to fixed tuned fixture limitations, p. 7 • Replaced Fig. 13, MTTF versus Junction Temperature with updated graph. Removed Amps² and listed operating characteristics and location of MTTF calculator for device, p. 7 • Adjusted scale for Figs. 22-26, Two-Tone Power Gain versus Output Power, and Figs. 27-31, Third Order Intermodulation Distortion versus Output Power, to show wider dynamic range, p. 13, 14 • Added Product Documentation and Revision History, p. 23 |

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