# PTFB183404F

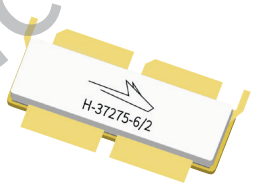
## High Power RF LDMOS Field Effect Transistors
## 340 W, 1805 – 1880 MHz

### Description

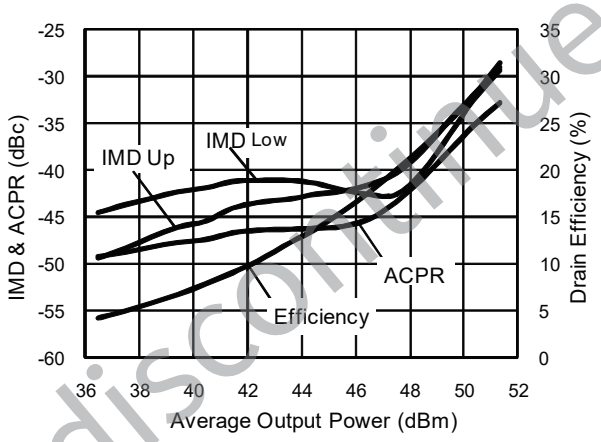
The PTFB183404F is a 340-watt LDMOS FET intended for use in multi-standard cellular power amplifier applications in the 1805 to 1880 MHz frequency band. Features include input and output matching, high gain and thermally-enhanced package with earless flanges. Manufactured with Wolfspeed's advanced LDMOS process, this device provides excellent thermal performance and superior reliability.



PTFB183404F
Package H-37275-6/2




**Two-carrier WCDMA 3GPP Drive-up**
$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6A, $f$ = 1880 MHz, 3GPP WCDMA, PAR = 8:1, 10 MHz carrier spacing, BW = 3.84 MHz




### Features

- Broadband internal input and output matching
- Wide video bandwidth
- Typical single-carrier WCDMA performance, 1880 MHz, 30 V
  - Output power = 125 W
  - Efficiency = 31%
  - Gain = 17 dB
  - PAR = 5.5 dB @ 0.01% CCDF probability
  - ACPR @ 5 MHz = –37 dBc
- Increased negative gate-source voltage range for improved performance in Doherty amplifiers
- Capable of handling 10:1 VSWR @ 30 V, 340 W (CW) output power
- Integrated ESD protection
- Excellent thermal stability
- Pb-free and RoHS compliant

### RF Characteristics

**Two-carrier WCDMA Measurements** (tested in Wolfspeed test fixture)
$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A, $P_{OUT}$ = 80 W average, $f_1$ = 1870 MHz, $f_2$ = 1880 MHz, 3GPP signal, channel bandwidth = 3.84 MHz, peak/average = 8 dB @ 0.01% CCDF

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Gain | $G_{ps}$ | 16 | 17 | — | dB |
| Drain Efficiency | ηD | 24 | 25.5 | — | % |
| Intermodulation Distortion | IMD | — | –35 | –32 | dBc |

*All published data at $T_{CASE}$ = 25°C unless otherwise indicated*

ESD: Electrostatic discharge sensitive device—observe handling precautions!

## RF Characteristics (cont.)

**Single-carrier WCDMA Performance** (not subject to production test – verified by design / characterization in Wolfspeed test fixture)
$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A, IQ clipping, channel bandwidth = 3.84 MHz, Input signal PAR = 7.5 dB @ 0.01% CCDF probability

| Characteristic | Conditions | Symbol | 1805 MHz (Typ) | 1842 MHz (Typ) | 1880 MHz (Typ) |
|---|---|---|---|---|---|
| Gain | $P_{OUT}$ (AVG) = 49 dBm | $G_{ps}$ | 17.1 | 17.3 | 17.5 |
| | $P_{OUT}$ (AVG) = 51 dBm | | 17.0 | 17.15 | 17.4 |
| Drain Efficiency | $P_{OUT}$ (AVG) = 49 dBm | ηD | 25 | 24.5 | 24 |
| | $P_{OUT}$ (AVG) = 51 dBm | | 31 | 30 | 30 |
| Output PAR at 0.01% | $P_{OUT}$ (AVG) = 49 dBm | dB | 6.5 | 6.5 | 6.5 |
| | $P_{OUT}$ (AVG) = 51 dBm | | 5.5 | 5.5 | 5.5 |
| Adjacent Channel Power Ratio | $P_{OUT}$ (AVG) = 49 dBm | ACPR | –43 | –42.5 | –41 |
| | $P_{OUT}$ (AVG) = 51 dBm | | –36 | –35 | –34 |

**Two-tone Specifications** (not subject to production test – verified by design / characterization in Wolfspeed test fixture)
$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A, $P_{OUT}$ = 310 W PEP, $f$ = 1880 MHz, tone spacing = 1 MHz

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Gain | $G_{ps}$ | — | 17.5 | — | dB |
| Drain Efficiency | ηD | — | 35 | — | % |
| Intermodulation Distortion | IMD | — | 30 | — | dBc |

## DC Characteristics

| Characteristic | Conditions | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $V_{GS}$ = 0 V, $I_{DS}$ = 10 mA | $V_{(BR)DSS}$ | 65 | — | — | V |
| Drain Leakage Current | $V_{DS}$ = 28 V, $V_{GS}$ = 0 V | $I_{DSS}$ | — | — | 1.0 | µA |
| Drain Leakage Current | $V_{DS}$ = 63 V, $V_{GS}$ = 0 V | $I_{DSS}$ | — | — | 10.0 | µA |
| On-State Resistance | $V_{GS}$ = 10 V, $V_{DS}$ = 0.1 V | $R_{DS(on)}$ | — | 0.05 | — | Ω |
| Operating Gate Voltage | $V_{DS}$ = 30 V, $I_{DQ}$ = 2.6 A | $V_{GS}$ | 2.3 | 2.8 | 3.3 | V |
| Gate Leakage Current | $V_{GS}$ = 10 V, $V_{DS}$ = 0 V | $I_{GSS}$ | — | — | 1.0 | µA |

## Maximum Ratings

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DSS}$ | 65 | V |
| Gate-Source Voltage | $V_{GS}$ | –6 to +10 | V |
| Junction Temperature | $T_J$ | 200 | °C |
| Storage Temperature Range | $T_{STG}$ | –40 to +150 | °C |
| Thermal Resistance ($T_{CASE}$ = 70°C, 340 W CW) | $R_{\theta JC}$ | 0.2 | °C/W |

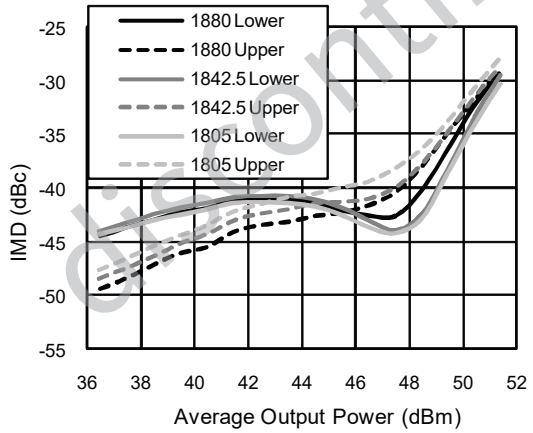
## Ordering Information

| Type and Version | Order Code | Package Description | Shipping |
|---|---|---|---|
| PTFB183404F V2 R0 | PTFB183404F-V2-R0 | Earless push-pull | Tape & Reel, 50pcs |
| PTFB183404F V2 R250 | PTFB183404F-V2-R250 | Earless push-pull | Tape & Reel, 250pcs |

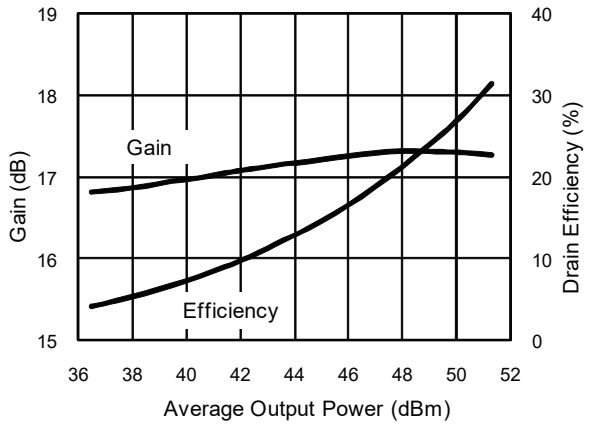


## Typical Performance (data taken in a production test fixture)

**Two-carrier WCDMA 3GPP Drive-up**
$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A, 3GPP WCDMA, PAR = 8:1, 10 MHz carrier spacing, BW = 3.84 MHz



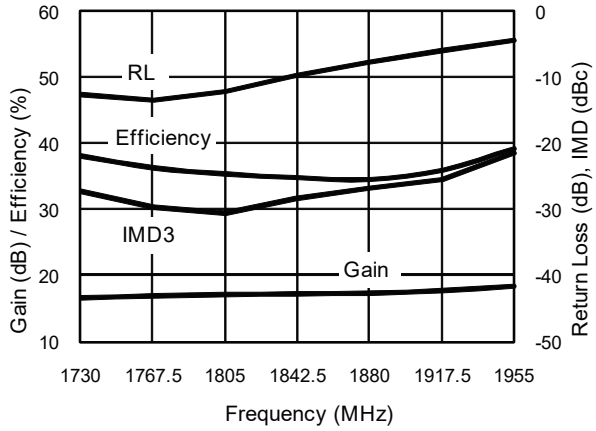

**Two-carrier WCDMA 3GPP**
$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A, $f$ = 1880 MHz, 3GPP WCDMA, PAR = 8:1, 10 MHz carrier spacing, BW = 3.84MHz



## Typical Performance (cont.)

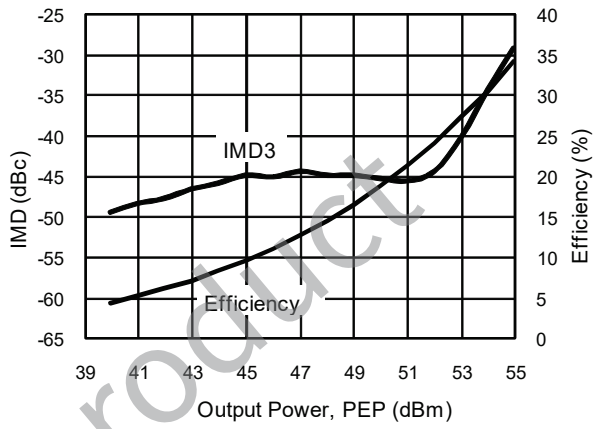
**Two-tone Broadband Gain, Efficiency & Return Loss vs. Frequency**

$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A, $P_{OUT}$ = 170 W



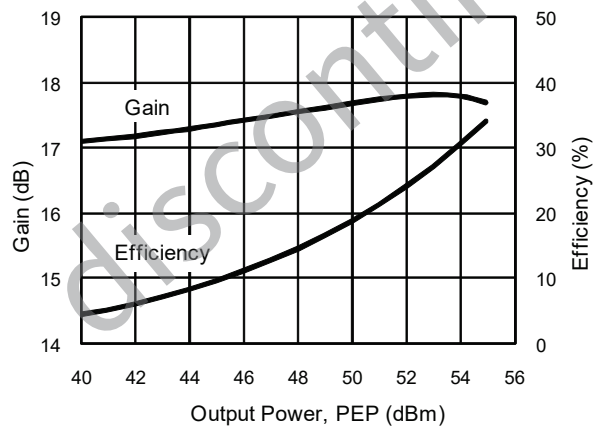

**Two-tone Drive-up**

$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A,
$f_1$ = 1880 MHz, $f_2$ = 1879 MHz



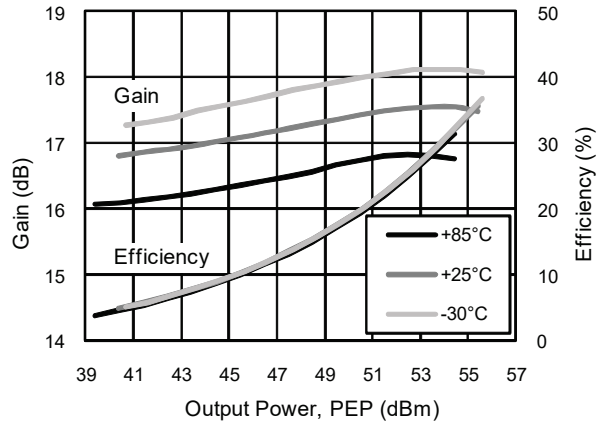

**Two-tone Drive-up**

$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A,
$f_1$ = 1880 MHz, $f_2$ = 1879 MHz



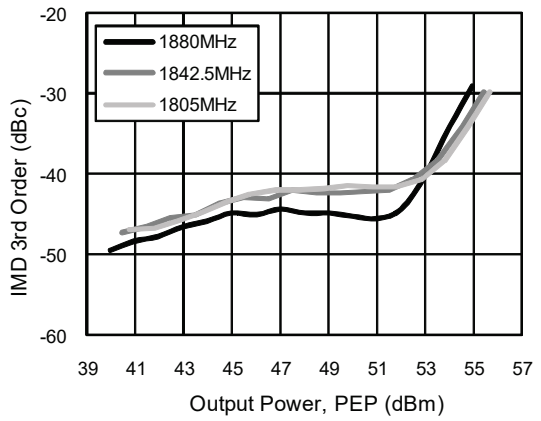

**Two-tone Drive-up (over temp)**

($P_{OUT}$-max 3rd order IMD @ -30dBc)
$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A,
$f_1$ = 1842.5 MHz, $f_2$ = 1841.5 MHz

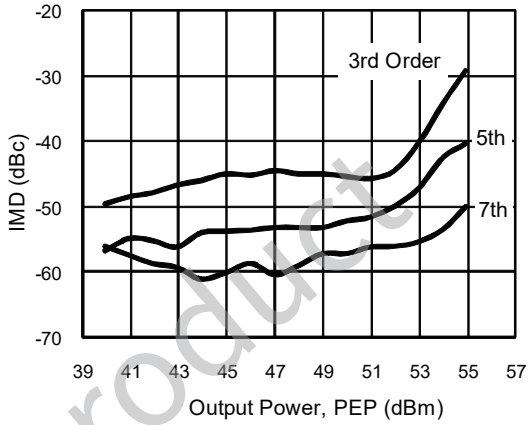


## Typical Performance (cont.)

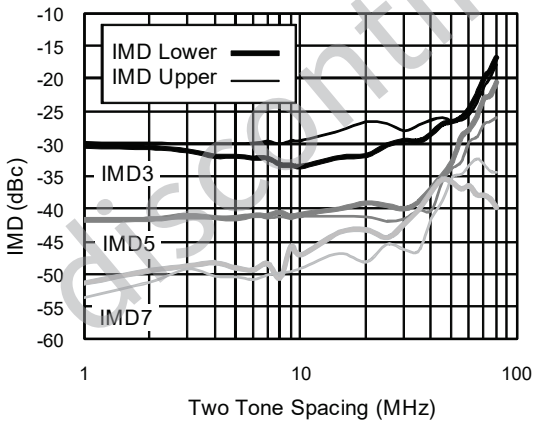
**Two-tone Drive-up at Selected Frequencies**
$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A, tone spacing = 1 MHz



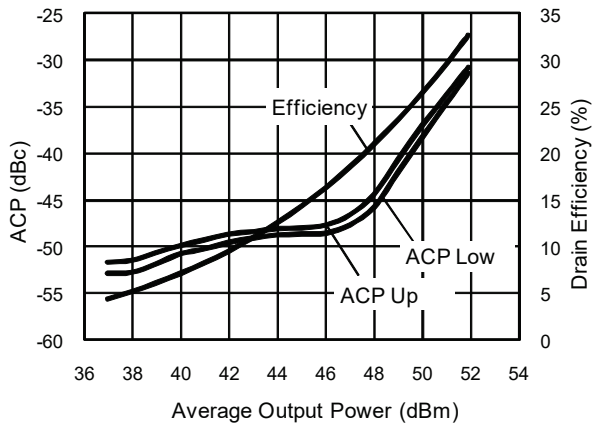

**Intermodulation Distortion vs. Output Power**
$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A,
$f_1$ = 1880 MHz, $f_2$ = 1879 MHz




**Intermodulation Distortion vs. Tone Spacing**
$f$ = 1842.5 MHz, $P_{OUT}$ = 330 W (PEP),
$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A

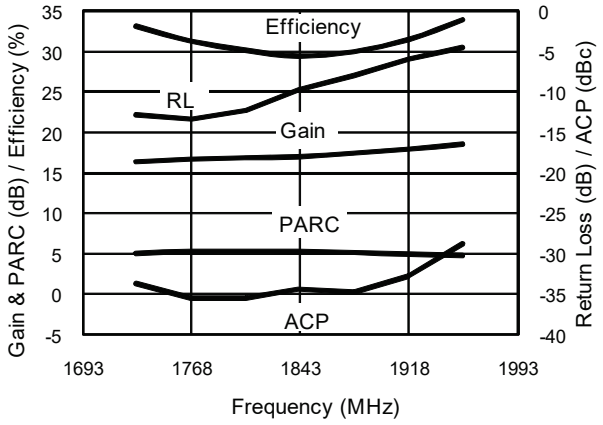



**Single-carrier Drive-up, 1880 MHz**
$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A, $f$ = 1880 MHz,
3GPP WCDMA signal, PAR = 7.5:1,
BW = 3.84 MHz

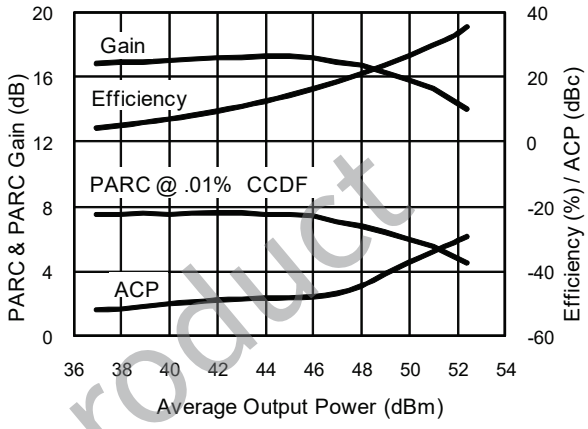


## Typical Performance (cont.)

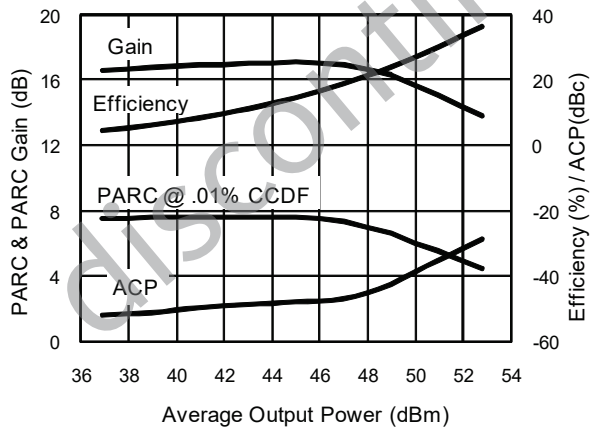
**Single-carrier Broadband Performance**
$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A, $P_{OUT}$ = 125 W



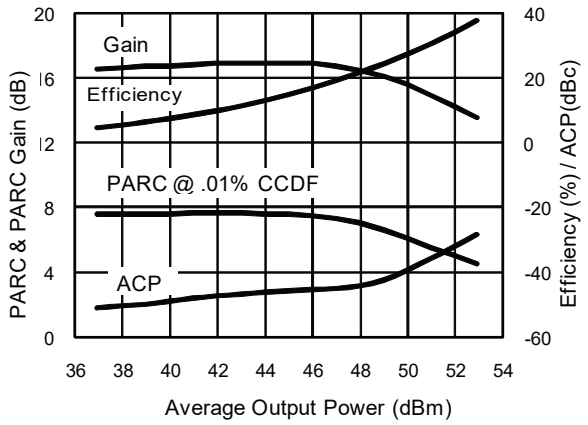

**Single-carrier Drive-up, 1880 MHz**
$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A, $f$ = 1880 MHz,
3GPP WCDMA signal, PAR = 7.5:1,
BW = 3.84 MHz



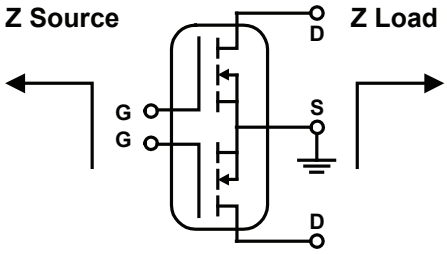

**Single-carrier Drive-up, 1842 MHz**
$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A, $f$ = 1842 MHz,
3GPP WCDMA signal, PAR = 7.5:1,
BW = 3.84 MHz



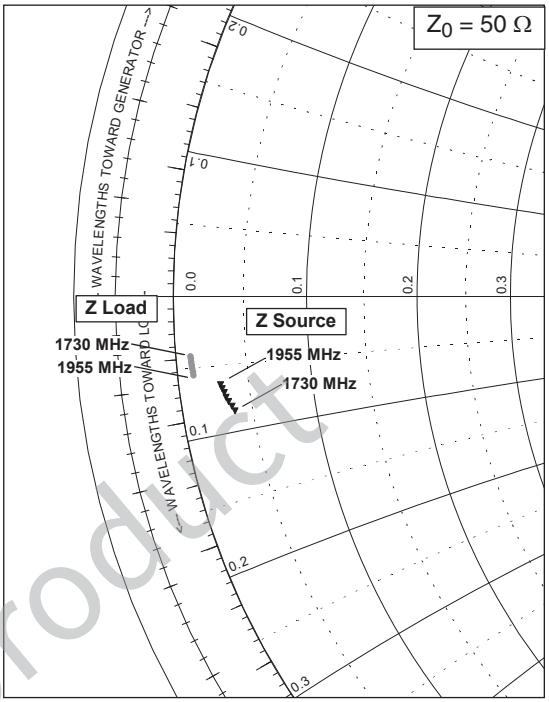

**Single-carrier Drive-up, 1805 MHz**
$V_{DD}$ = 30 V, $I_{DQ}$ = 2.6 A, $f$ = 1805 MHz,
3GPP WCDMA signal, PAR = 7.5:1,
BW = 3.84 MHz



## Broadband Circuit Impedance (combined leads)

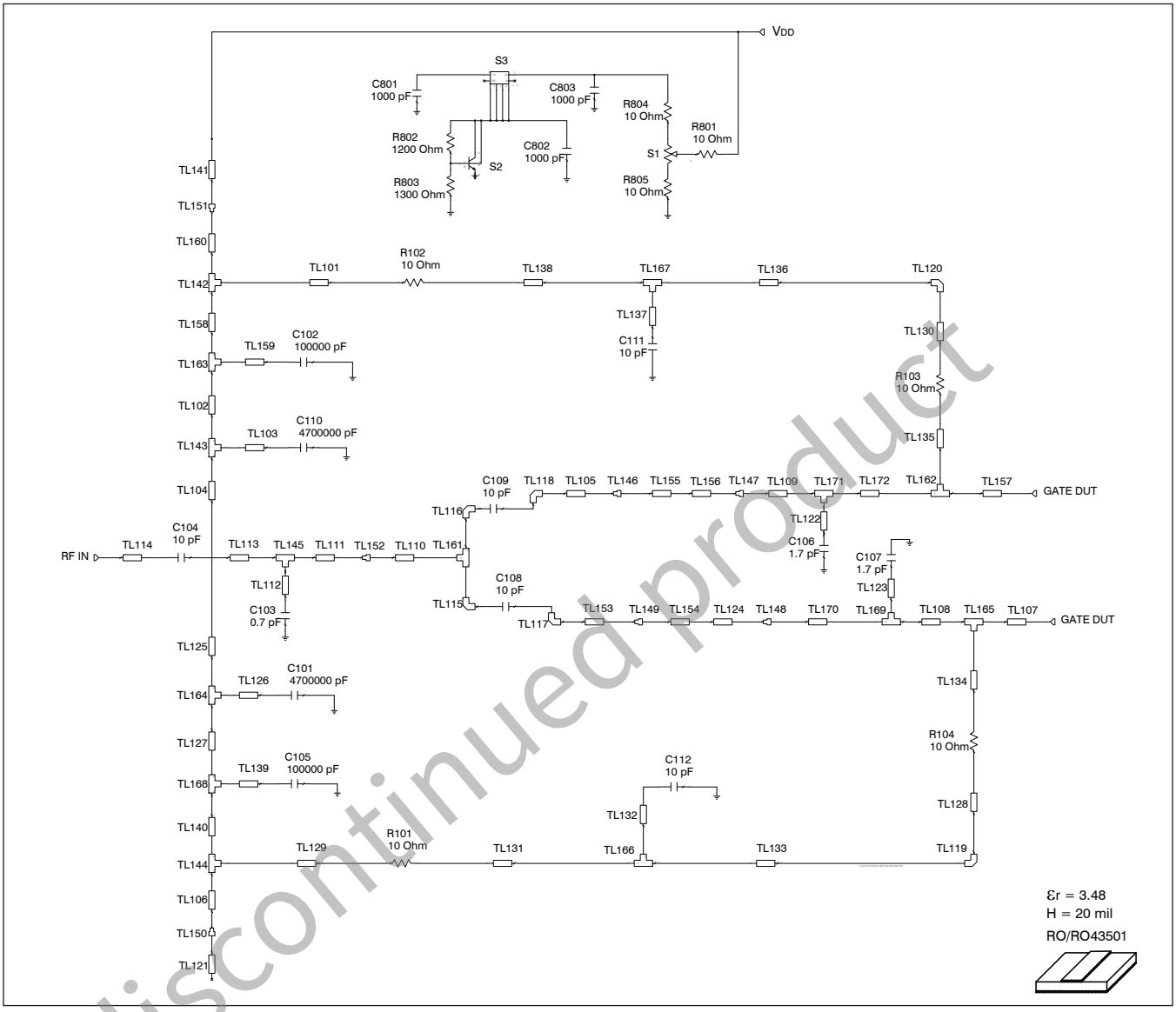



| Frequency | Z Source Ω | | Z Load Ω | |
|---|---|---|---|---|
| MHz | R | jX | R | jX |
| 1730 | 1.86 | –4.25 | 0.55 | –2.78 |
| 1768 | 1.77 | –4.06 | 0.54 | –2.66 |
| 1805 | 1.68 | –3.88 | 0.53 | –7.54 |
| 1843 | 1.61 | –3.70 | 0.52 | –2.43 |
| 1880 | 1.56 | –3.53 | 0.51 | –2.32 |
| 1918 | 1.51 | –3.37 | 0.51 | –2.21 |
| 1955 | 1.47 | –3.22 | 0.5 | –2.11 |



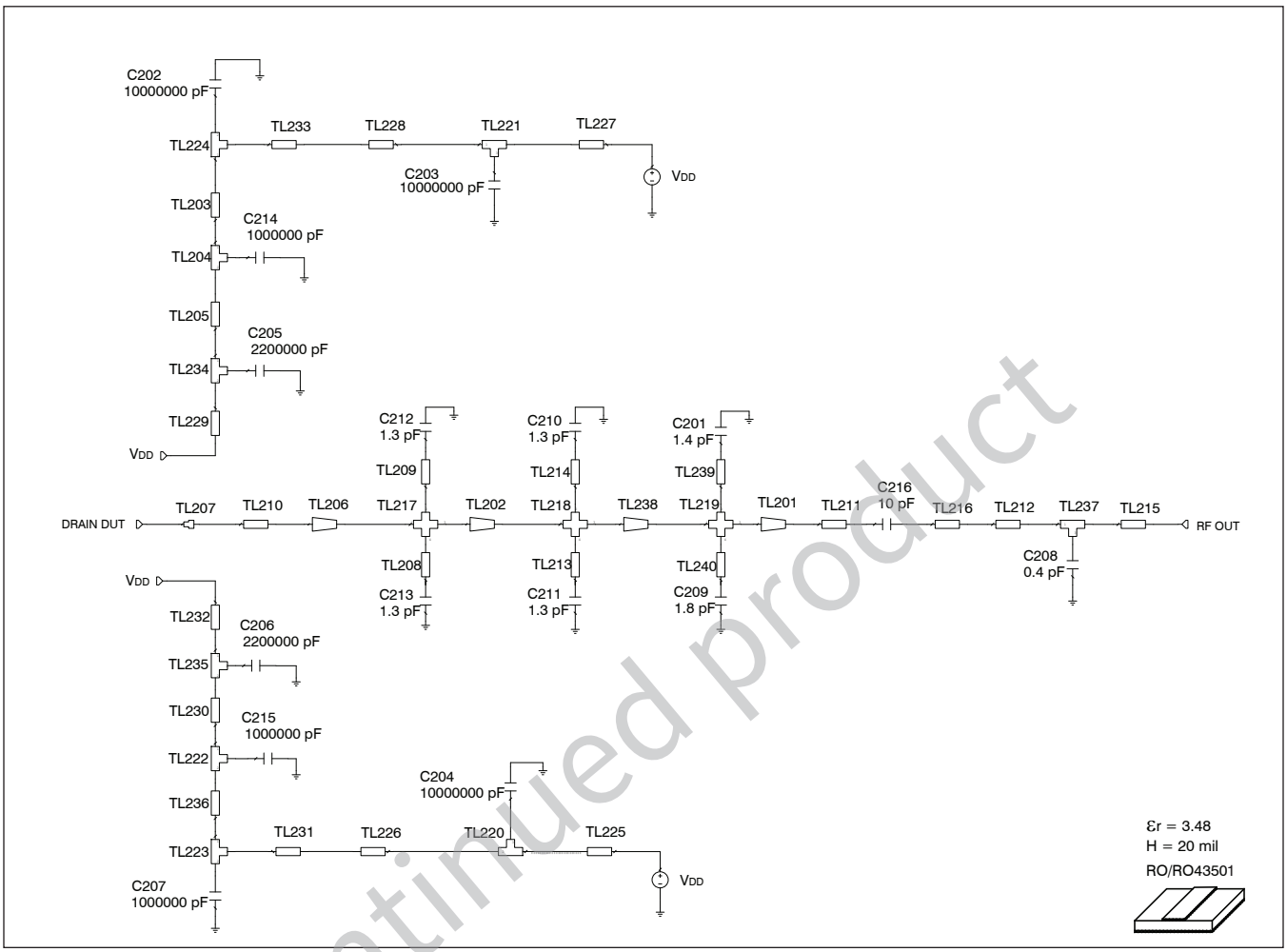

**See next page for reference circuit information**

## Reference Circuit




*Reference circuit input schematic for ƒ = 1880 MHz*

## Reference Circuit (cont.)




*Reference circuit output schematic for ƒ = 1880 MHz*

## Reference Circuit (cont.)

| Description | |
|---|---|
| DUT | PTFB183404F |
| PCB | 0.508 mm [.020"] thick, εr = 3.48, Rogers 4350, 1 oz. copper |

**Electrical Characteristics at 1880 MHz**

| Transmission Line | Electrical Characteristics | Dimensions: mm | Dimensions: mils |
|---|---|---|---|
| **Input** | | | |
| TL101, TL129 | 0.017 λ, 54.17 Ω | W = 1.016, L = 1.651 | W = 40, L = 65 |
| TL102 | 0.002 λ, 63.89 Ω | W = 0.762, L = 0.203 | W = 30, L = 8 |
| TL103, TL139 | 0.000 λ, 41.75 Ω | W = 1.524, L = 0.025 | W = 60, L = 1 |
| TL104 | 0.208 λ, 63.89 Ω | W = 0.762, L = 20.297 | W = 30, L = 799 |
| TL105 | 0.008 λ, 28.85 Ω | W = 2.540, L = 0.762 | W = 100, L = 30 |
| TL106 | 0.005 λ, 63.89 Ω | W = 0.762, L = 0.508 | W = 30, L = 20 |
| TL107, TL157 | 0.061 λ, 8.03 Ω | W = 11.430, L = 5.359 | W = 450, L = 211 |
| TL108, TL172 | 0.004 λ, 8.03 Ω | W = 11.430, L = 0.338 | W = 450, L = 13 |
| TL109, TL170 | 0.002 λ, 8.03 Ω | W = 11.430, L = 0.196 | W = 450, L = 8 |
| TL110 | 0.022 λ, 32.60 Ω | W = 2.159, L = 2.032 | W = 85, L = 80 |
| TL111 | 0.028 λ, 49.69 Ω | W = 1.168, L = 2.710 | W = 46, L = 107 |
| TL112 | 0.000 λ, 63.89 Ω | W = 0.762, L = 0.025 | W = 30, L = 1 |
| TL113 | 0.016 λ, 49.69 Ω | W = 1.168, L = 1.549 | W = 46, L = 61 |
| TL114 | 0.029 λ, 49.69 Ω | W = 1.168, L = 2.743 | W = 46, L = 108 |
| TL115, TL116, TL117, TL118 | | W = 2.540 | W = 100 |
| TL119, TL120 | | W = 1.016 | W = 40 |
| TL121, TL141 | 0.013 λ, 34.08 Ω | W = 2.032, L = 1.270 | W = 80, L = 50 |
| TL122, TL123 | 0.000 λ, 63.89 Ω | W = 0.762, L = 0.000 | W = 30, L = 0 |
| TL124, TL156 | 0.014 λ, 17.20 Ω | W = 4.826, L = 1.270 | W = 190, L = 50 |
| TL125 | 0.013 λ, 63.89 Ω | W = 0.762, L = 1.270 | W = 30, L = 50 |
| TL126, TL139, TL159 | 0.000 λ, 41.75 Ω | W = 1.524, L = 0.025 | W = 60, L = 1 |
| TL127 | 0.002 λ, 63.89 Ω | W = 0.762, L = 0.203 | W = 30, L = 8 |
| TL128, TL130 | 0.013 λ, 54.17 Ω | W = 1.016, L = 1.262 | W = 40, L = 50 |
| TL131, TL138 | 0.014 λ, 54.17 Ω | W = 1.016, L = 1.397 | W = 40, L = 55 |
| TL132, TL137 | 0.000 λ, 34.08 Ω | W = 2.032, L = 0.025 | W = 80, L = 1 |
| TL133, TL136 | 0.079 λ, 54.17 Ω | W = 1.016, L = 7.620 | W = 40, L = 300 |
| TL134, TL135 | 0.008 λ, 54.17 Ω | W = 1.016, L = 0.762 | W = 40, L = 30 |
| TL140 | 0.015 λ, 63.89 Ω | W = 0.762, L = 1.422 | W = 30, L = 56 |
| TL142, TL144 | 0.010 λ, 63.89 Ω | W1 = 0.762, W2 = 0.762, W3 = 1.016 | W1 = 30, W2 = 30, W3 = 40 |
| TL143, TL168 | 0.016 λ, 63.89 Ω | W1 = 0.762, W2 = 0.762, W3 = 1.524 | W1 = 30, W2 = 30, W3 = 60 |
| TL145 | 0.008 λ, 49.69 Ω | W1 = 1.168, W2 = 1.168, W3 = 0.762 | W1 = 46, W2 = 46, W3 = 30 |
| TL146 | | W1 = 0.003, W2 = 0.005, Offset = 0.000 | W1 = 3, W2 = 190, Offset = 10 |
| TL147 | | W1 = 0.005, W2 = 0.011, Offset = 0.003 | W1 = 5, W2 = 450, Offset = 130 |

*table continued on page 11*

## Reference Circuit (cont.)

**Electrical Characteristics at 1880 MHz**

| Transmission Line | Electrical Characteristics | Dimensions: mm | Dimensions: mils |
|---|---|---|---|
| **Input** | | | |
| TL148 | | W1 = 0.005, W2 = 0.011, Offset = –0.003 | W1 = 5, W2 = 450, Offset = –130 |
| TL149 | | W1 = 0.003, W2 = 0.005, Offset = 0.000 | W1 = 3, W2 = 190, Offset = –10 |
| TL150 | | W1 = 2.032, W2 = 0.762 | W1 = 80, W2 = 30 |
| TL151 | | W1 = 2.540, W2 = 0.762 | W1 = 100, W2 = 30 |
| TL152 | | W1 = 1.168, W2 = 2.159 | W1 = 46, W2 = 85 |
| TL153 | 0.008 λ, 28.85 Ω | W = 2.540, L = 0.762 | W = 100, L = 30 |
| TL154, TL155 | 0.006 λ, 17.20 Ω | W = 4.826, L = 0.508 | W = 190, L = 20 |
| TL158 | 0.015 λ, 63.89 Ω | W = 0.762, L = 1.422 | W = 30, L = 56 |
| TL160 | 0.004 λ, 63.89 Ω | W = 0.762, L = 0.404 | W = 30, L = 16 |
| TL161 | 0.023 λ, 28.85 Ω | W1 = 2.540, W2 = 2.540, W3 = 2.159 | W1 = 100, W2 = 100, W3 = 85 |
| TL162, TL165 | 0.011 λ, 8.03 Ω | W1 = 11.430, W2 = 11.430, W3 = 1.016 | W1 = 450, W2 = 450, W3 = 40 |
| TL163, TL164 | 0.016 λ, 63.89 Ω | W1 = 0.762, W2 = 0.762, W3 = 1.524 | W1 = 30, W2 = 30, W3 = 60 |
| TL166, TL167 | 0.021 λ, 54.17 Ω | W1 = 1.016, W2 = 1.016, W3 = 2.032 | W1 = 40, W2 = 40, W3 = 80 |
| TL169, TL171 | 0.009 λ, 8.03 Ω | W1 = 11.430, W2 = 11.430, W3 = 0.762 | W1 = 450, W2 = 450, W3 = 30 |

**See next page for more reference circuit information**

## Reference Circuit (cont.)

**Electrical Characteristics at 1880 MHz**

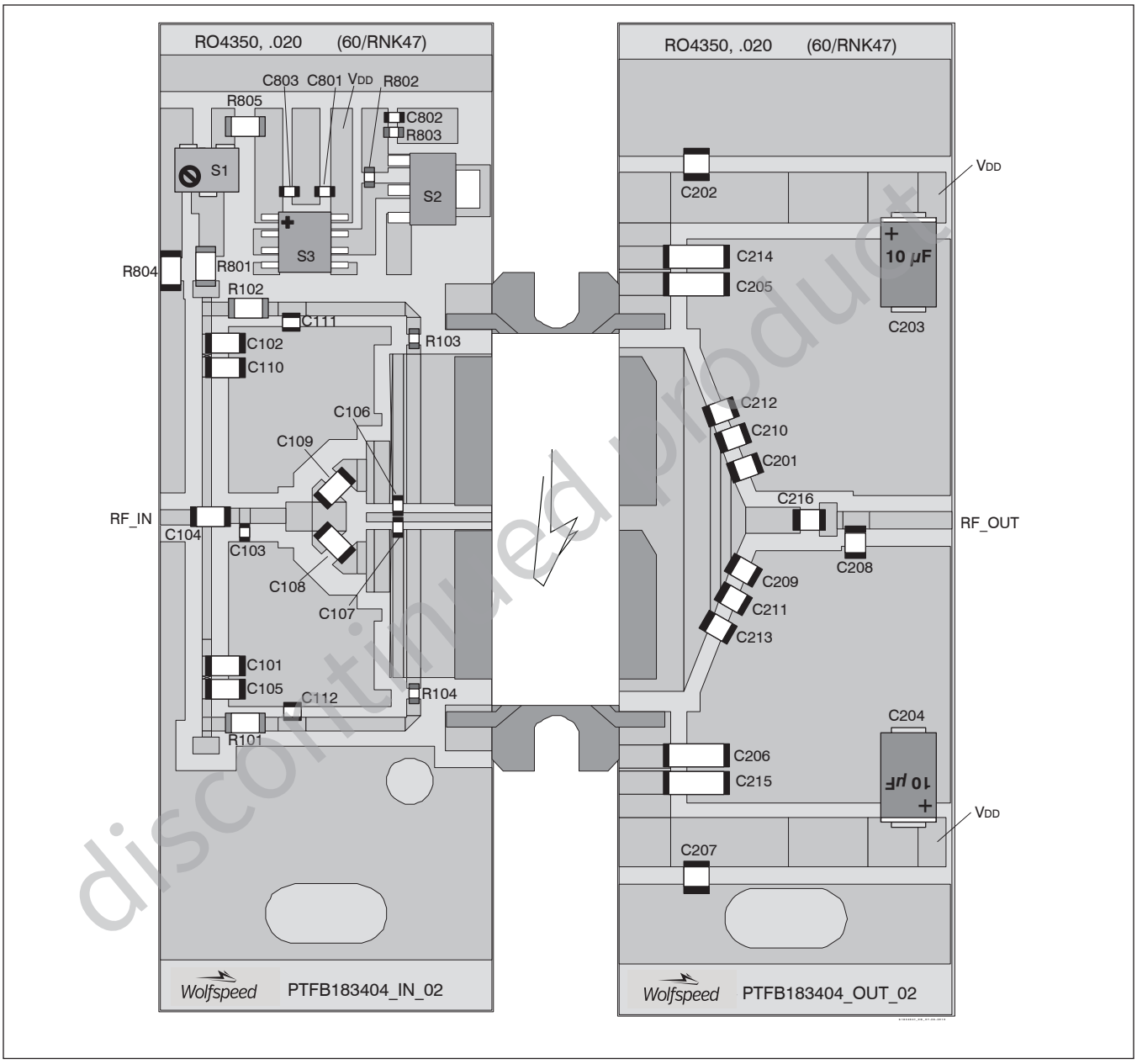
| Transmission Line | Electrical Characteristics | Dimensions: mm | Dimensions: mils |
|---|---|---|---|
| **Output** | | | |
| TL201 (taper) | 0.011 λ, 12.30 Ω / 34.72 Ω | W1 = 7.112, W2 = 1.981, L = 1.016 | W1 = 280, W2 = 78, L = 40 |
| TL202 (taper) | 0.009 λ, 5.88 Ω / 7.95 Ω | W1 = 16.002, W2 = 11.557, L = 0.762 | W1 = 630, W2 = 455, L = 30 |
| TL203 | 0.019 λ, 20.93 Ω | W = 3.810, L = 1.778 | W = 150, L = 70 |
| TL204 | 0.019 λ, 20.93 Ω | W1 = 3.810, W2 = 3.810, W3 = 1.778 | W1 = 150, W2 = 150, W3 = 70 |
| TL205, TL230 | 0.003 λ, 20.93 Ω | W = 3.810, L = 0.254 | W = 150, L = 10 |
| TL206 (taper) | 0.023 λ, 3.67 Ω / 5.88 Ω | W1 = 26.365, W2 = 16.002, L = 2.032 | W1 = 1038, W2 = 630, L = 80 |
| TL207 | | W1 = 25.400, W2 = 26.365 | W1 = 1000, W2 = 1038 |
| TL208, TL209 | 0.000 λ, 144.35 Ω | W = 0.025, L = 0.025 | W = 1, L = 1 |
| TL210 | 0.055 λ, 3.67 Ω | W = 26.365, L = 4.801 | W = 1038, L = 189 |
| TL211 | 0.044 λ, 34.72 Ω | W = 1.981, L = 4.115 | W = 78, L = 162 |
| TL212 | 0.005 λ, 47.12 Ω | W = 1.270, L = 0.432 | W = 50, L = 17 |
| TL213, TL214, TL239, TL240 | 0.000 λ, 144.35 Ω | W = 0.025, L = 0.025 | W = 1, L = 1 |
| TL215 | 0.066 λ, 47.12 Ω | W = 1.270, L = 6.299 | W = 50, L = 248 |
| TL216 | 0.014 λ, 28.85 Ω | W = 2.540, L = 1.270 | W = 100, L = 50 |
| TL217 | | W1 = 16.002, W2 = 0.025, W3 = 16.002 W4 = 0.025 | W1 = 630, W2 = 1, W3 = 630, W4 = 1 |
| TL218 | | W1 = 11.557, W2 = 0.025, W3 = 11.557 W4 = 0.025 | W1 = 455, W2 = 1, W3 = 455, W4 = 1 |
| TL219 | | W1 = 7.112, W2 = 0.025, W3 = 7.112 W4 = 0.025 | W1 = 280, W2 = 1, W3 = 280 W4 = 1 |
| TL220, TL221, TL223, TL224 | 0.042 λ, 20.93 Ω | W1 = 3.810, W2 = 3.810, W3 = 3.810 | W1 = 150, W2 = 150, W3 = 150 |
| TL222 | 0.019 λ, 20.93 Ω | W1 = 3.810, W2 = 3.810, W3 = 1.778 | W1 = 150, W2 = 150, W3 = 70 |
| TL225, TL227 | 0.023 λ, 20.93 Ω | W = 3.810, L = 2.078 | W = 150, L = 82 |
| TL226, TL228 | 0.066 λ, 20.93 Ω | W = 3.810, L = 6.020 | W = 150, L = 237 |
| TL229, TL232 | 0.028 λ, 20.93 Ω | W = 3.810, L = 2.540 | W = 150, L = 100 |
| TL231, TL233 | 0.097 λ, 20.93 Ω | W = 3.810, L = 8.915 | W = 150, L = 351 |
| TL234, TL235 | 0.019 λ, 20.93 Ω | W1 = 3.810, W2 = 3.810, W3 = 1.778 | W1 = 150, W2 = 150, W3 = 70, |
| TL236 | 0.019 λ, 20.93 Ω | W = 3.810, L = 1.778 | W = 150, L = 70 |
| TL237 | 0.021 λ, 47.12 Ω | W1 = 1.270, W2 = 1.270, W3 = 2.032 | W1 = 50, W2 = 50, W3 = 80 |
| TL238 (taper) | 0.009 λ, 7.95 Ω / 12.30 Ω | W1 = 11.557, W2 = 7.112, L = 0.787 | W1 = 455, W2 = 280, L = 31 |

## Reference Circuit (cont.)

### Circuit Assembly Information

| | |
|---|---|
| Test Fixture Part No. | LTN/PTFB183404EF |

Find Gerber files for this test fixture on the Wolfspeed Web site at *www.wolfspeed.com/RF*



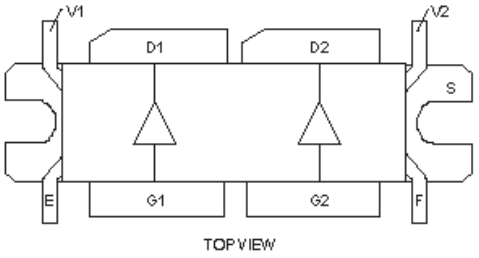

*Reference circuit assembly diagram (not to scale)*

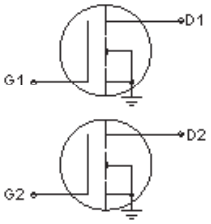
## Reference Circuit (cont.)

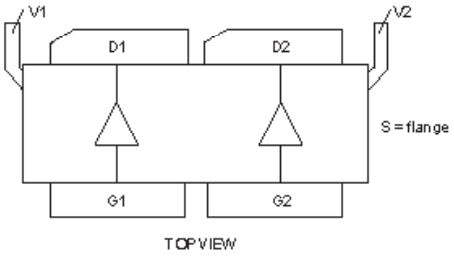
| Component | Description | Suggested Manufacturer | P/N |
|---|---|---|---|
| **Input** | | | |
| C101, C110 | Chip capacitor, 4.7 µF | Digi-Key | PCS3475CT-ND |
| C102, C105 | Chip capacitor, 0.1 µF | Digi-Key | PCC104BCT-ND |
| C103 | Chip capacitor, 0.7 pF | ATC | ATC100B0R7BW500XB |
| C104, C108, C109 | Chip capacitor, 10 pF | ATC | ATC100B100JW500XB |
| C106, C107 | Chip capacitor, 1.7 pF | ATC | ATC100A1R7BW150XB |
| C111, C112 | Chip capacitor, 10 pF | ATC | ATC100A100JW500XB |
| C801, C802, C803 | Chip capacitor, 1000 pF | Digi-Key | PCC1772CT-ND |
| R101, R102, R801, R804, R805 | Resistor, 10 Ω | Digi-Key | P10ECT-ND |
| R103, R104 | Resistor, 10 Ω | Digi-Key | P10GCT-ND |
| R802 | Resistor, 1200 Ω | Digi-Key | P1.2KGCT-ND |
| R803 | Resistor, 1300 Ω | Digi-Key | P1.3KGCT-ND |
| S1 | Potentiometer, 2k Ω | Digi-Key | 3224W-202ECT-ND |
| S2 | Transistor | Digi-Key | BCP5616TA-ND |
| S3 | Voltage Regulator | Digi-Key | LM7805 |

| | | | |
|---|---|---|---|
| **Output** | | | |
| C201 | Chip capacitor, 1.4 pF | ATC | ATC100B1R4BW500XB |
| C202, C207 | Chip capacitor, 10 µF | Digi-Key | 587-1818-2-ND |
| C203, C204 | Tantalum capacitor, 10 µF | Digi-Key | TPSE106K050R0400 |
| C205, C206 | Chip capacitor, 2.2 µF | Digi-Key | 445-1447-2-ND |
| C208 | Chip capacitor, 0.4 pF | ATC | ATC100B0R4BW500XB |
| C209 | Chip capacitor, 1.8 pF | ATC | ATC100B1R8BW500XB |
| C210, C211, C212, C213 | Chip capacitor, 1.3 pF | ATC | ATC100B1R3BW500XB |
| C214, C215 | Chip capacitor, 1 µF | Digi-Key | 445-1411-2-ND |
| C216 | Chip capacitor, 10 pF | ATC | ATC100B100JW500XB |

## Pinout Diagram




| Pin | Description |
|---|---|
| V1 | $V_{DD}$ Device 1 |
| V2 | $V_{DD}$ Device 2 |
| G1 | Gate Device 1 |
| G2 | Gate Device 2 |
| D1 | Drain Device 1 |
| D2 | Drain Device 2 |
| E | N.C. |
| F | N.C. |
| S | Source (flange) |

## Package Outline Specifications (cont.)

### Package H-37275-6/2

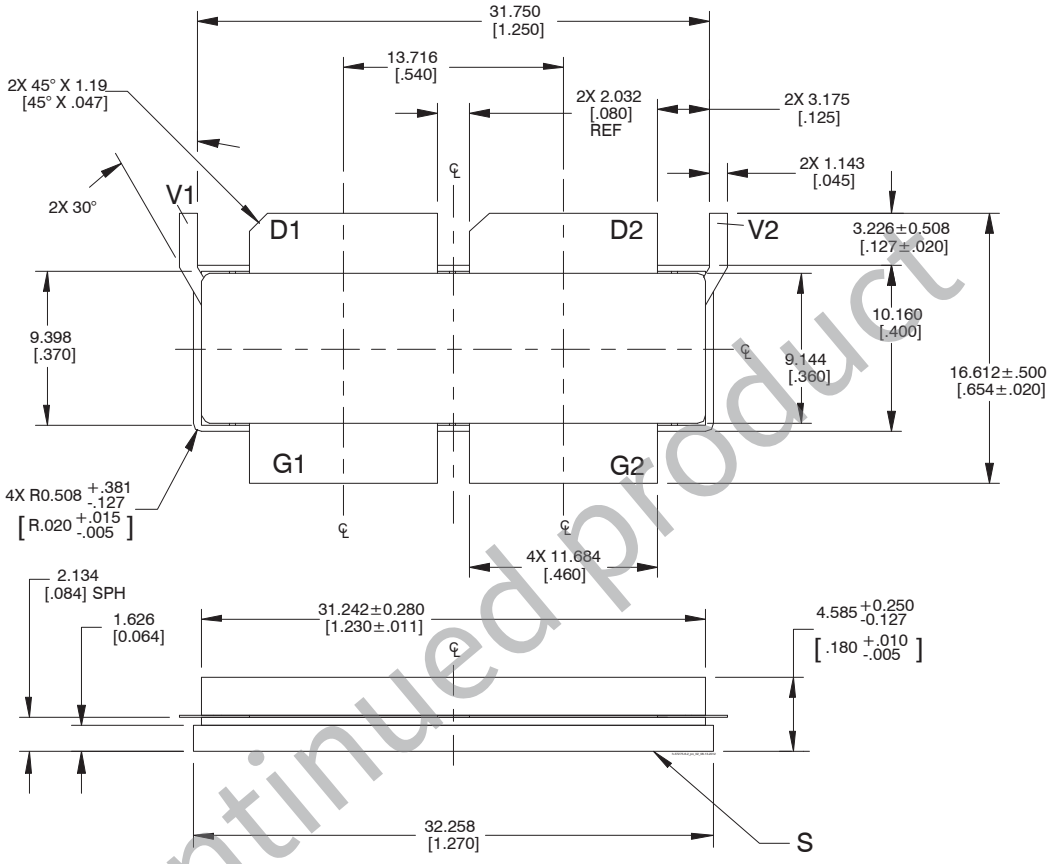





Diagram Notes—unless otherwise specified:

1. Interpret dimensions and tolerances per ASME Y14.5M-1994.
2. Primary dimensions are mm. Alternate dimensions are inches.
3. All tolerances ± 0.127 [.005] unless specified otherwise.
4. Pins: G1, G2 = gate; D1, D2 = drain; V1, V2 = $V_{DD}$; S = source.
5. Lead thickness: 0.127 ±.051 [.005 ±.002].
6. Gold plating thickness: 1.1 ±.38 micron [45 ± 15 microinch].

## Revision History

| Revision | Date | Data Sheet Type | Page | Subjects (major changes since last revision) |
|---|---|---|---|---|
| 4.1 | 2016-06-10 | Data Sheet | 3 | Updated ordering code |
| 05 | 2018-06-25 | Production | All | Converted to Wolfspeed Data Sheet |
| 06 | 2019-06-11 | Production | All | Removed E version. |
| 07 | 2020-02-27 | Production | All | Not recommended for new design |
| 08 | 2020-06-02 | End of life | All | Product discontinued |



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## Notes

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