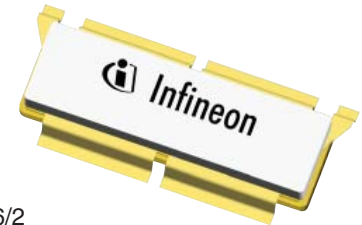


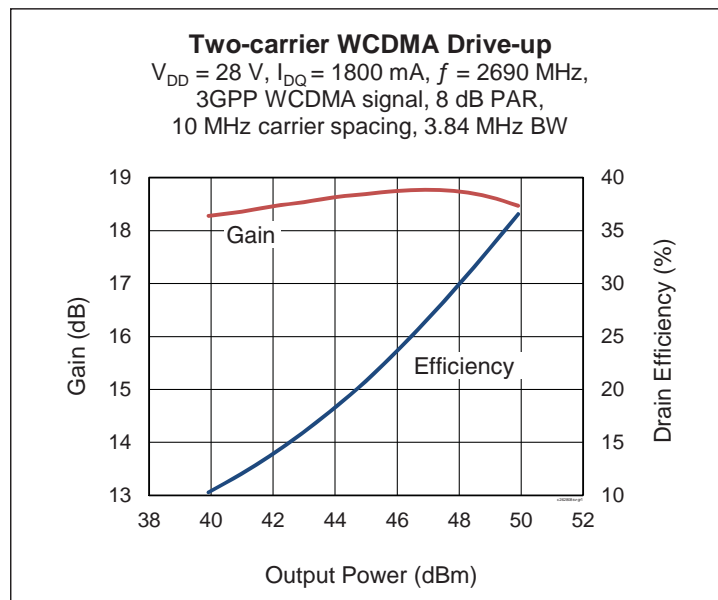
Thermally-Enhanced High Power RF LDMOS FET 280 W, 28 V, 2620 – 2690 MHz

Description

The PTFC262808SV is a 280-watt LDMOS FET intended for use in multi-standard cellular power amplifier applications in the 2620 to 2690 MHz frequency band. Features include input and output matching, high gain and thermally-enhanced package. Manufactured with Infineon's advanced LDMOS process, this device provides excellent thermal performance and superior reliability.



PTFC262808SV
Package H-37275G-6/2
with formed leads



Features

- Broadband internal matching
- Typical CW pulsed performance, 2620 MHz, 28 V
 - Output power at $P_{1dB} = 280\text{ W}$
 - Efficiency = 52%
 - Gain = 18 dB
- Typical 1-carrier WCDMA performance, 2655 MHz, 28 V
 - Output power at $P_{1dB} = 56\text{ W avg.}$
 - Efficiency = 24%
 - Gain = 18.0 dB
- Integrated ESD protection: Human Body Model, Class 1C (per JESD22-A114)
- Low thermal resistance
- RoHS-compliant
- Capable of handling 10:1 VSWR at 28 V, 280 W (CW) output power

RF Characteristics

Single-carrier WCDMA Specifications (tested in Infineon production test fixture)

$V_{DD} = 28\text{ V}$, $I_{DQ} = 1800\text{ mA}$, $P_{OUT} = 56\text{ W}$ average, $f = 2655\text{ MHz}$, 3GPP WCDMA signal, channel bandwidth = 3.84 MHz, peak/average = 10 dB @ 0.01% CCDF

| Characteristic | Symbol | Min | Typ | Max | Unit |
|------------------------------|----------|------|------|-----|------|
| Gain | G_{ps} | 16.5 | 18.0 | — | dB |
| Drain Efficiency | η_D | 22 | 24 | — | % |
| Adjacent Channel Power Ratio | ACPR | — | -33 | -30 | dBc |

All published data at $T_{CASE} = 25^\circ\text{C}$ unless otherwise indicated

ESD: Electrostatic discharge sensitive device—observe handling precautions!

DC Characteristics (single side)

| Characteristic | Conditions | Symbol | Min | Typ | Max | Unit |
|--------------------------------|--|---------------|-----|------|------|---------------|
| Drain-Source Breakdown Voltage | $V_{GS} = 0\text{ V}, I_{DS} = 10\text{ mA}$ | $V_{(BR)DSS}$ | 65 | — | — | V |
| Drain Leakage Current | $V_{DS} = 28\text{ V}, V_{GS} = 0\text{ V}$ | I_{DSS} | — | — | 1.0 | μA |
| | $V_{DS} = 63\text{ V}, V_{GS} = 0\text{ V}$ | I_{DSS} | — | — | 10.0 | μA |
| On-State Resistance | $V_{GS} = 10\text{ V}, V_{DS} = 0.1\text{ V}$ | $R_{DS(on)}$ | — | 0.05 | — | Ω |
| Operating Gate Voltage | $V_{DS} = 28\text{ V}, I_{DQ} = 1.45\text{ A}$ | V_{GS} | — | 2.65 | — | V |
| Gate Leakage Current | $V_{GS} = 10\text{ V}, V_{DS} = 0\text{ V}$ | I_{GSS} | — | — | 1 | μA |

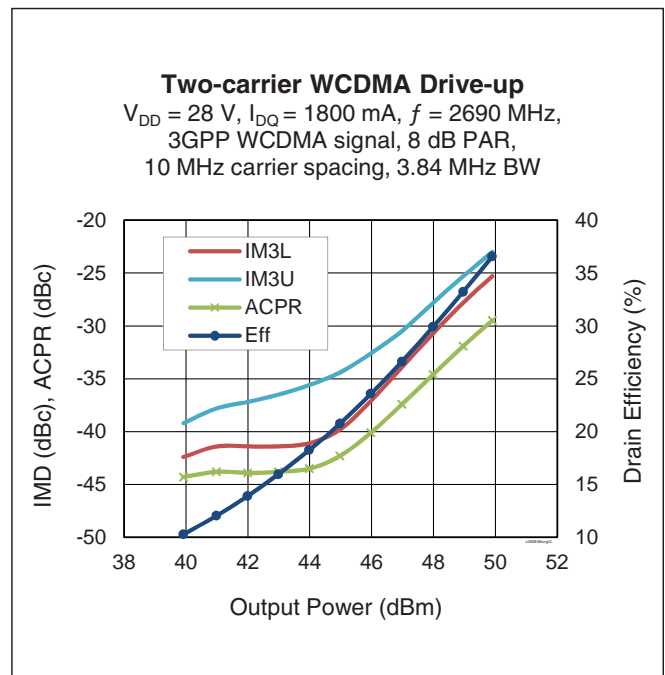
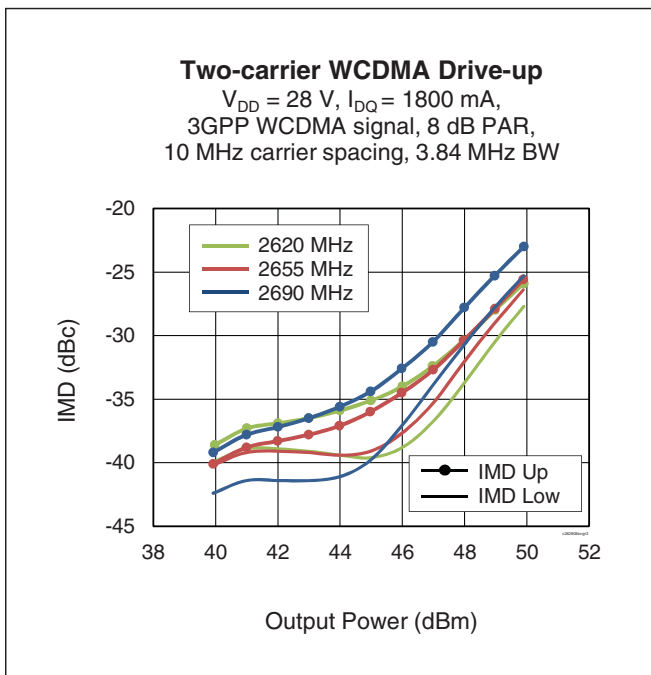
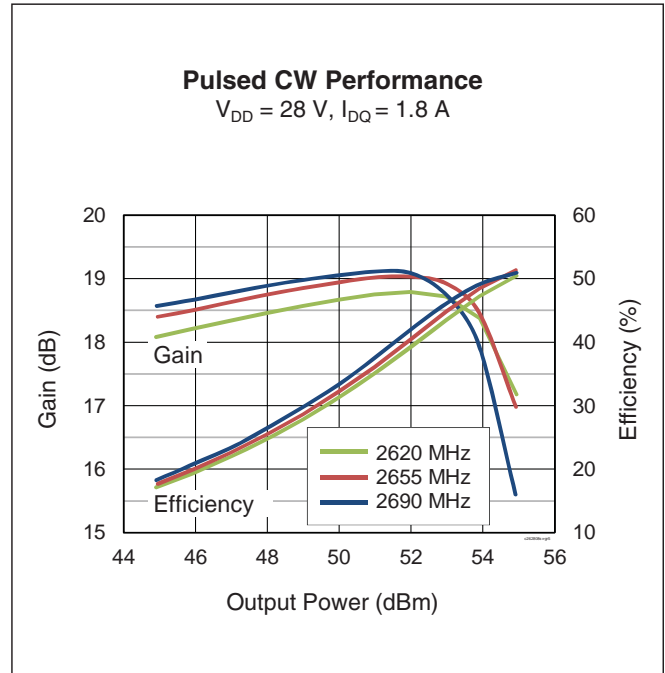
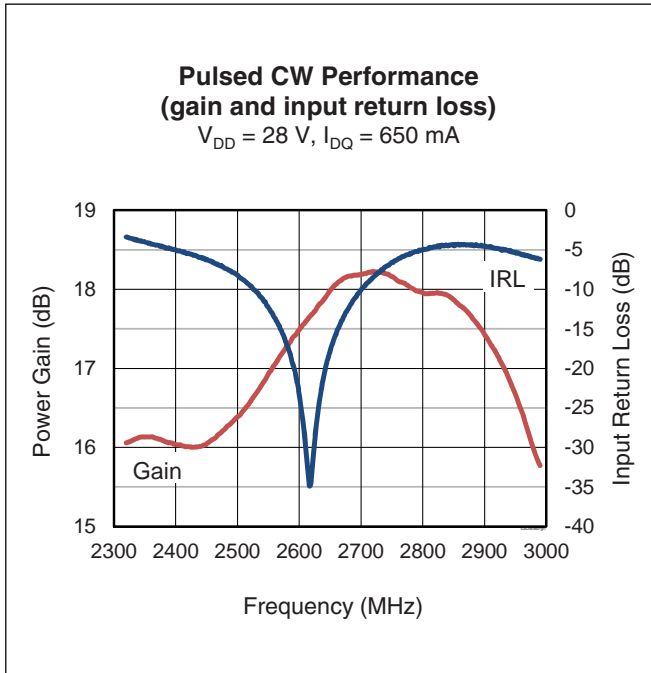
Maximum Ratings

| Parameter | Symbol | Value | Unit |
|---|-----------------|-------------|----------------------|
| Drain-Source Voltage | V_{DSS} | 65 | V |
| Gate-Source Voltage | V_{GS} | -6 to +10 | V |
| Operating Voltage | V_{DD} | 0 to +32 | V |
| Junction Temperature | T_J | 200 | $^{\circ}\text{C}$ |
| Storage Temperature Range | T_{STG} | -65 to +150 | $^{\circ}\text{C}$ |
| Thermal Resistance ($T_{CASE} = 70^{\circ}\text{C}, 200\text{ W CW}$) | $R_{\theta JC}$ | 0.20 | $^{\circ}\text{C/W}$ |

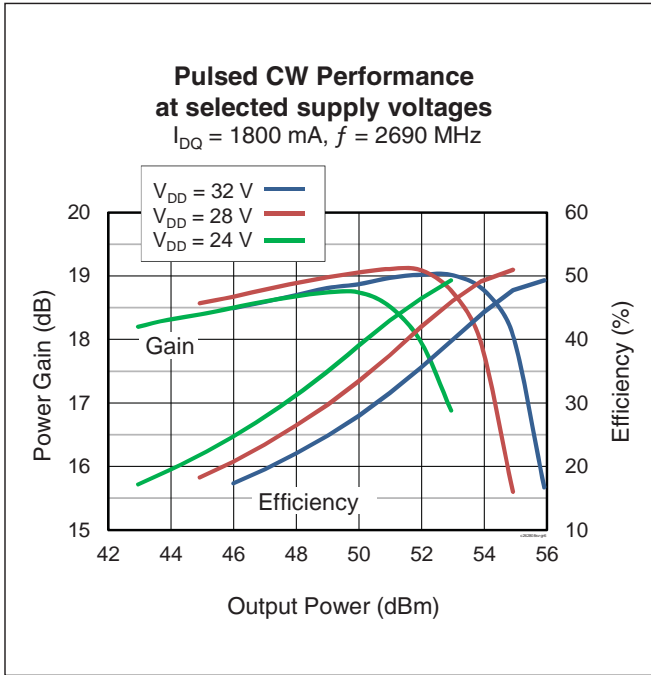
Ordering Information

| Type and Version | Order Code | Package and Description | Shipping |
|-----------------------|-------------------------|--|----------------------|
| PTFC 262808SV V1 R250 | PTFC262808SVV1R250XTMA1 | H-37275G-6/2, ceramic open-cavity, formed leads, earless | Tape & Reel, 250 pcs |

Typical Performance (data taken in a reference design fixture)

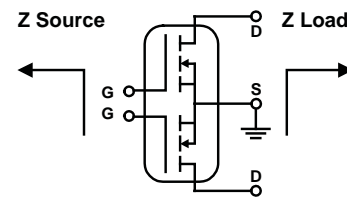


Typical Performance (cont.)



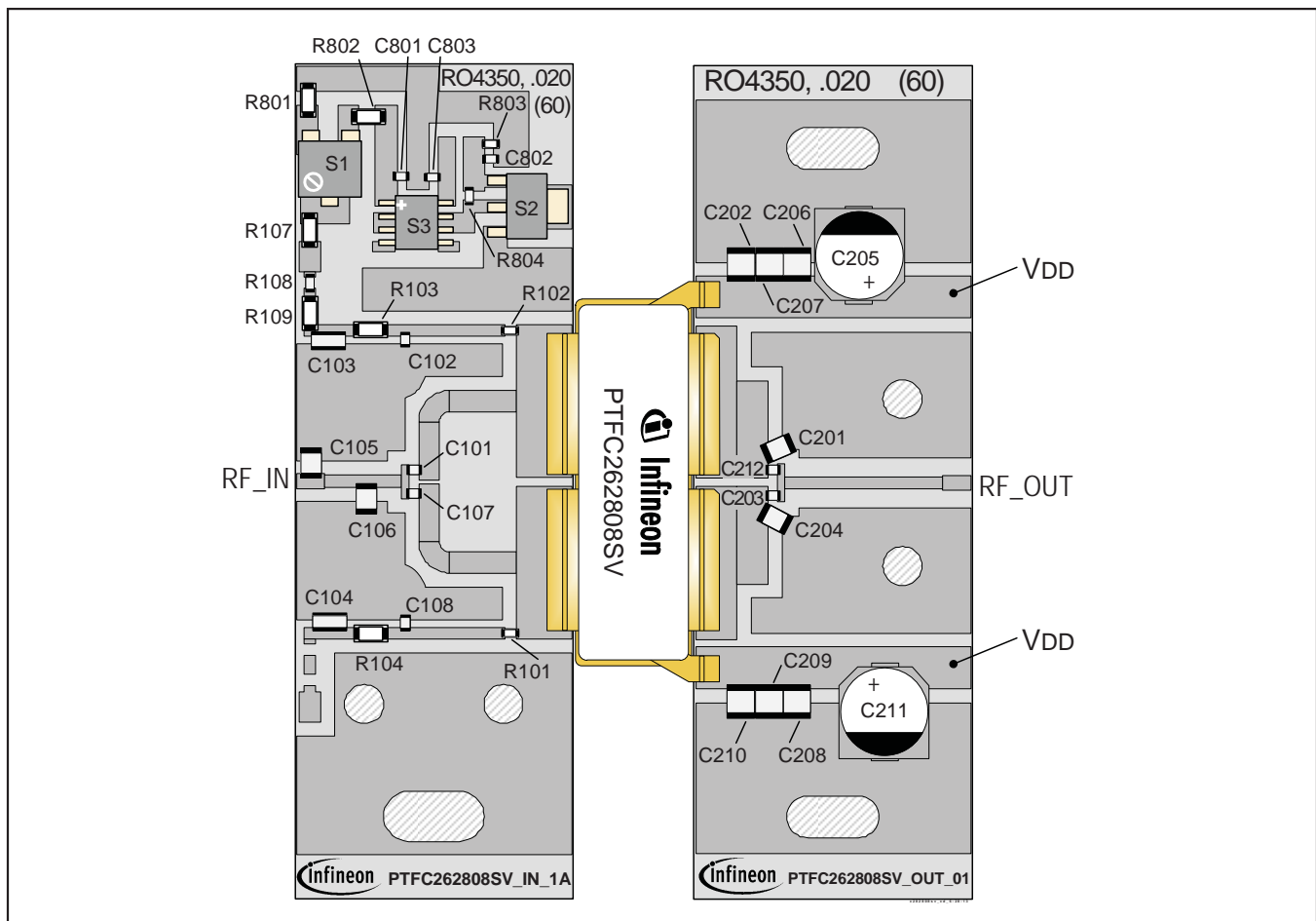
Broadband Circuit Impedance

| Frequency MHz | Z Source Ω | | Z Load Ω | |
|------------------|-------------------|-------|-----------------|-------|
| | R | jX | R | jX |
| 2620 | 2.07 | -2.45 | 0.69 | -4.22 |
| 2655 | 1.98 | -2.39 | 0.68 | -4.19 |
| 2690 | 1.91 | -2.33 | 0.66 | -4.08 |



Reference Circuit, tuned for 2620 – 2690 MHz

| | |
|---|--|
| DUT | PTFC262808SV |
| Test Fixture Part No. | LTN/PTFC262808SV V1 |
| PCB | Rogers 4350, 0.508 mm [.020"] thick, 2 oz. copper, $\epsilon_r = 3.66$ |
| Find Gerber files for this test fixture on the Infineon Web site at (http://www.infineon.com/rfpower) | |



Reference circuit assembly diagram (not to scale)

Component Information

| Component | Description | Suggested Manufacturer | P/N |
|------------------------|--------------------------|----------------------------------|--------------------|
| Input | | | |
| C101, C102, C107, C108 | Chip capacitor, 18 pF | ATC | ATC800A180JW250X |
| C103, C104 | Capacitor, 10 μ F | Murata Electronics North America | LLL31BC70G106MA01L |
| C105 | Chip capacitor, 0.4 pF | ATC | ATC100B0R4CW150X |
| C106 | Chip capacitor, 0.7 pF | ATC | ATC100B0R7CW150X |
| C801, C802, C803 | Chip capacitor, 1,000 pF | Panasonic Electronic Components | ECJ-1VB1H102K |
| R101, R102 | Resistor, 10 Ω | Panasonic Electronic Components | ERJ-3GEYJ100V |

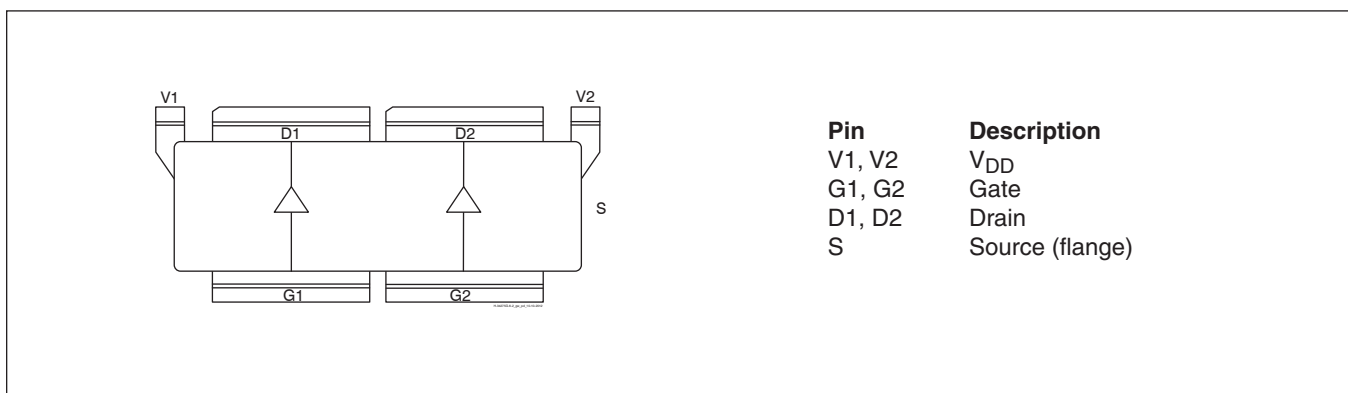
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Reference Circuit (cont.)

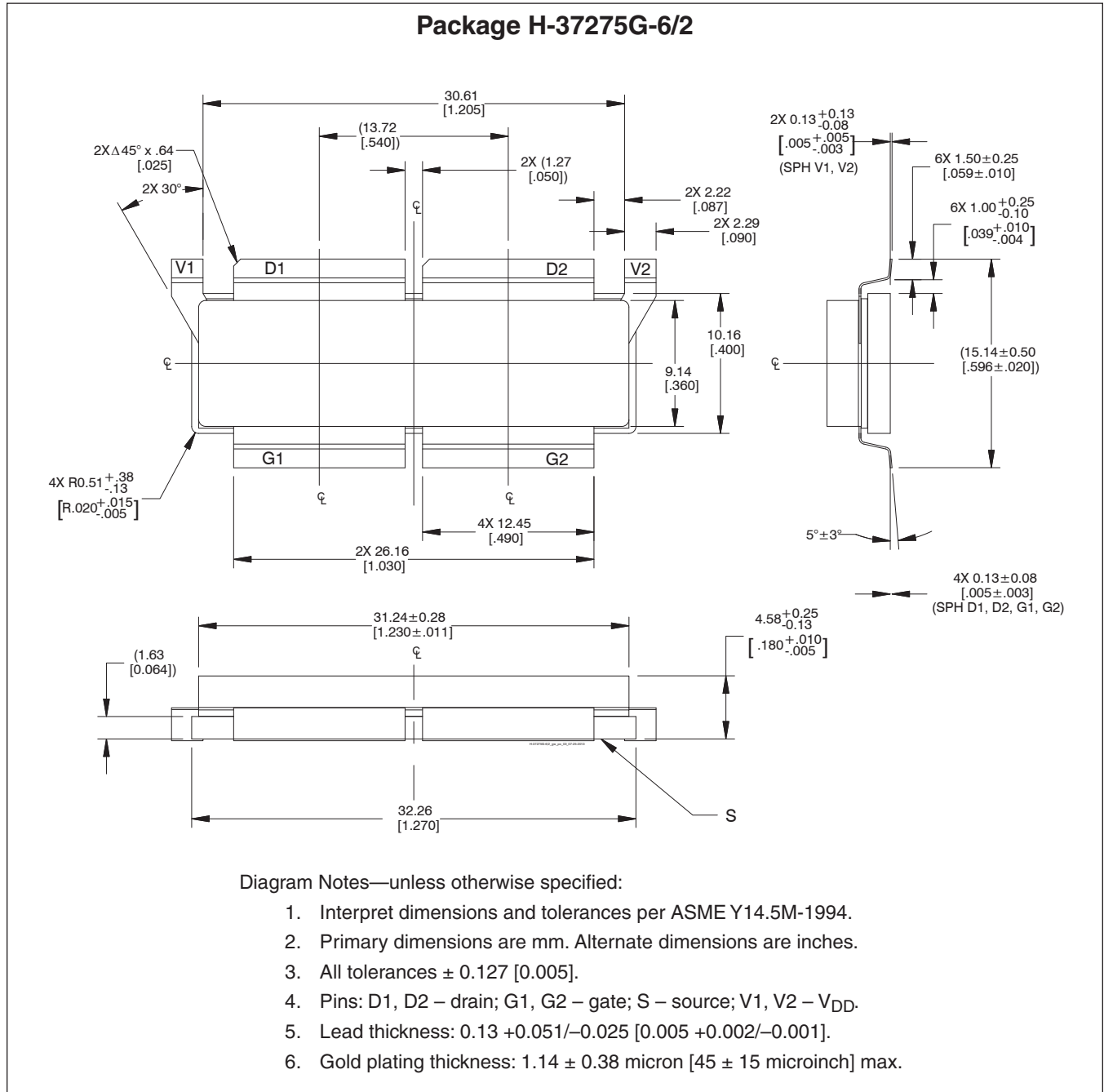
Component Information (cont.)

| Component | Description | Suggested Manufacturer | P/N |
|------------------------------------|------------------------------|---------------------------------|------------------|
| Input (cont.) | | | |
| R103, R104 | Resistor, 10 Ω | Panasonic Electronic Components | ERJ-8GEYJ100V |
| R107, R109 | Resistor, 0.0 Ω | Panasonic Electronic Components | ERJ-8GEY0R00V |
| R108 | Resistor, 0.0 Ω | Panasonic Electronic Components | ERJ-3GEY0R00V |
| R801 | Resistor, 1 Ω | Panasonic Electronic Components | ERJ-8GEYJ1R0V |
| R802 | Resistor, 1k Ω | Panasonic Electronic Components | ERJ-8GEYJ102V |
| R803 | Resistor, 1.3k Ω | Panasonic Electronic Components | ERJ-3GEYJ132V |
| R804 | Resistor, 1.2k Ω | Panasonic Electronic Components | ERJ-3GEYJ122V |
| S1 | Potentiometer, 2k Ω | Bourns Inc. | 3224W-1-202E |
| S2 | Transistor | Infineon Technologies | BCP56-10 |
| S3 | Voltage regulator | Fairchild Semiconductor | LM7805 |
| Output | | | |
| C201, C204 | Chip capacitor, 0.2 pF | ATC | ATC100B0R2BW150X |
| C202, C206, C207, C208, C209, C210 | Capacitor, 10 μ F | Taiyo Yuden | UMK325C7106MM-T |
| C203, C212 | Chip capacitor, 18 pF | ATC | ATC800A180JW250X |
| C205, C211 | Capacitor, 220 μ F, 35 V | Panasonic Electronic Components | EEE-FP1V221AP |

Pinout Diagram



Package Outline Specifications



Find the latest and most complete information about products and packaging at the Infineon Internet page (<http://www.infineon.com/rfpower>)

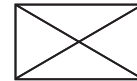
| | | |
|---|---|------------|
| Revision History: 2013-08-02 | | Data Sheet |
| Previous Version: 2013-07-24, Data Sheet; 2012-08-09, Advance Specification | | |
| Page | Subjects (major changes since last revision) | |
| all | Product released to production, information complete and current. | |
| 1, 2, 6 | Typos corrected. | |
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| | | |

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Edition 2013-08-02

Published by
Infineon Technologies AG
85579 Neubiberg, Germany

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