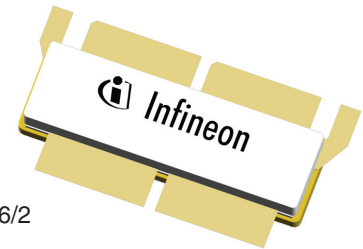


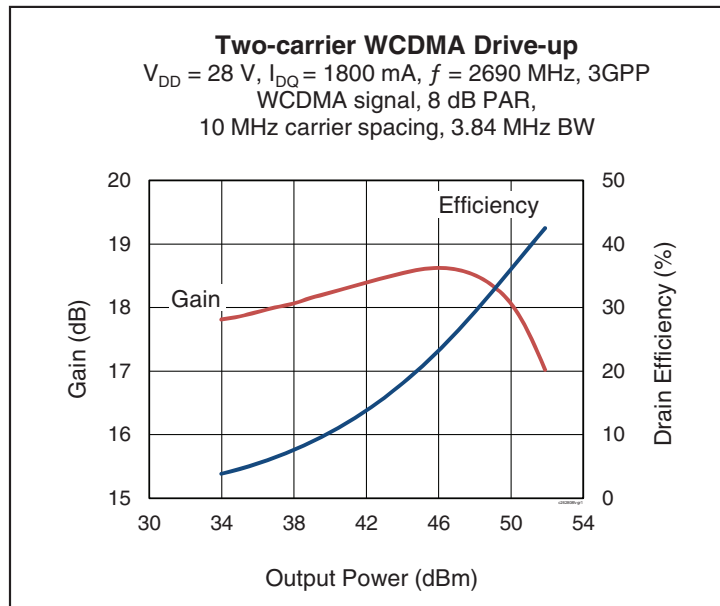
## Thermally-Enhanced High Power RF LDMOS FET 280 W, 28 V, 2620 – 2690 MHz

### Description

The PTFC262808FV 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.



PTFC262808FV  
Package H-37275G-6/2



### Features

- Broadband internal matching
- Typical 1-carrier WCDMA performance, 2655 MHz, 28 V, 10 dB PAR
  - Output power at  $P_{1dB} = 56\text{ W avg.}$
  - Efficiency = 24%
  - Gain = 18 dB
  - ACPR =  $-33\text{ dBc @ } 3.84\text{ MHz}$
- 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	$\eta_D$	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	$\mu\text{A}$
	$V_{DS} = 63\text{ V}$ , $V_{GS} = 0\text{ V}$	$I_{DSS}$	—	—	10.0	$\mu\text{A}$
Gate Leakage Current	$V_{GS} = 10\text{ V}$ , $V_{DS} = 0\text{ V}$	$I_{GSS}$	—	—	1	$\mu\text{A}$
On-State Resistance	$V_{GS} = 10\text{ V}$ , $V_{DS} = 0.1\text{ V}$	$R_{DS(on)}$	—	0.05	—	$\Omega$
Operating Gate Voltage	$V_{DS} = 28\text{ V}$ , $I_{DQ} = 1800\text{ mA}$	$V_{GS}$	—	2.6	—	V

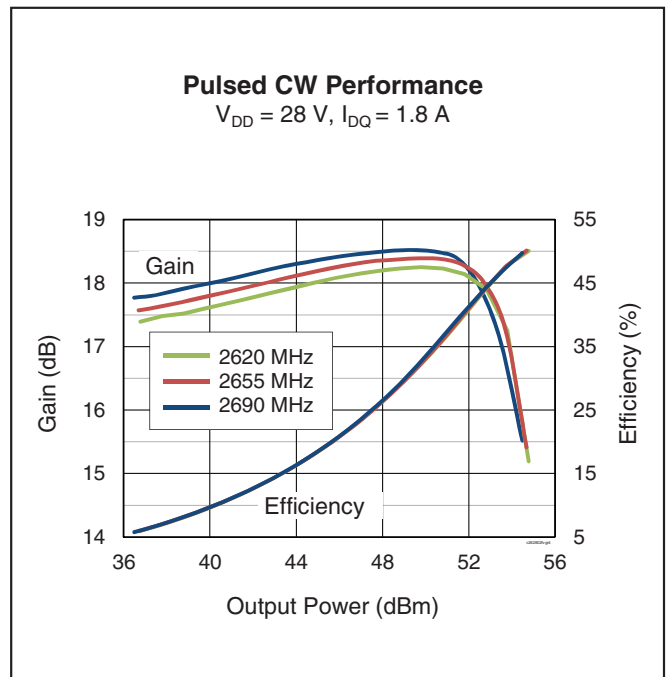
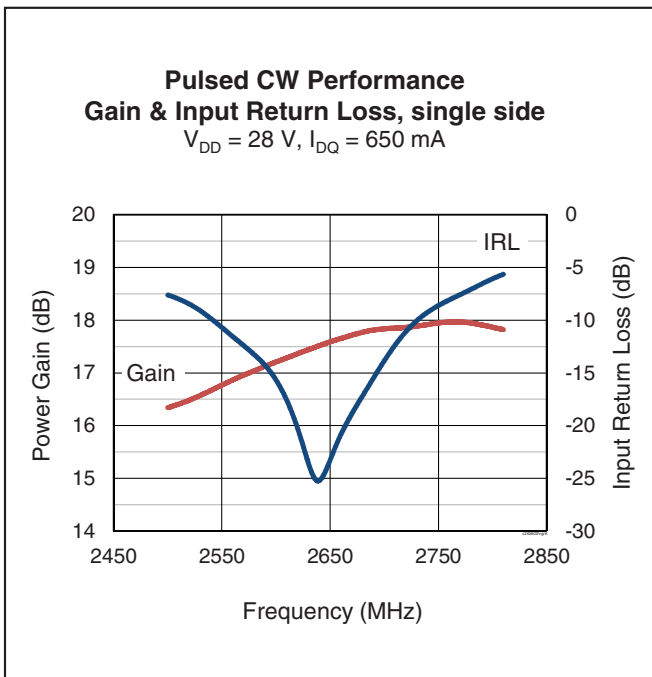
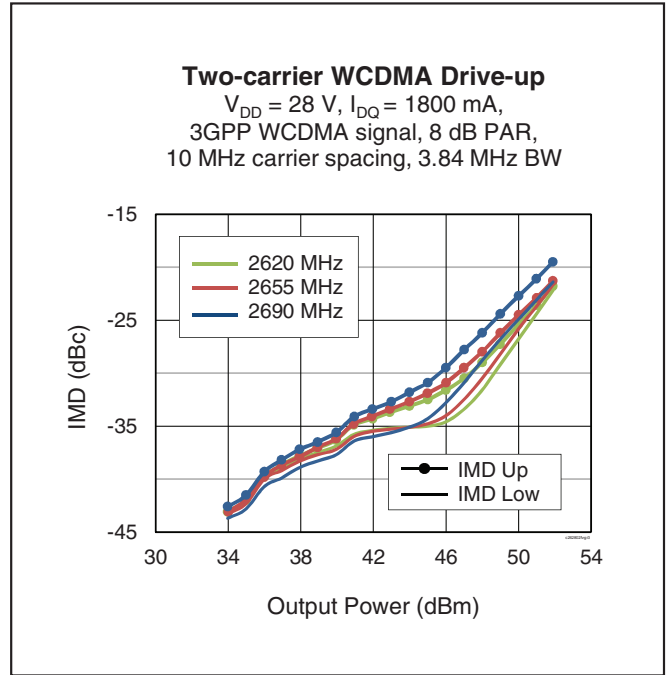
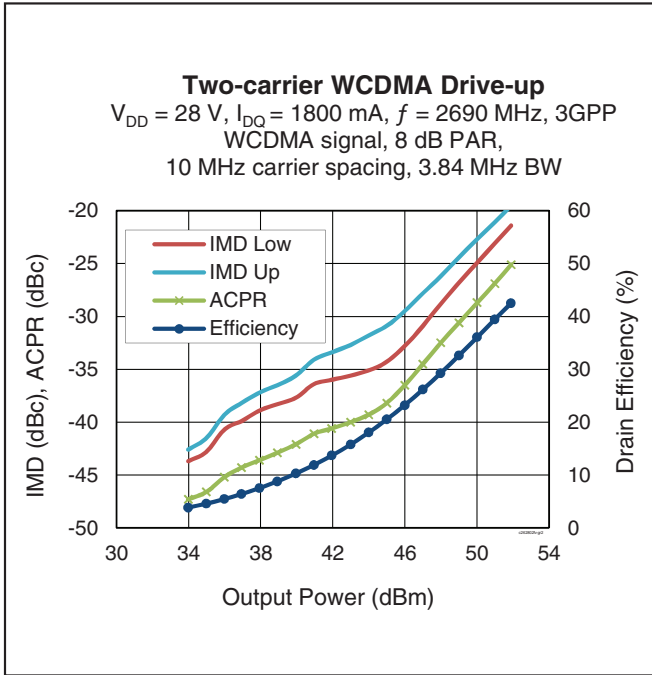
**Maximum Ratings**

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	$T_J$	225	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance ( $T_{CASE} = 70^{\circ}\text{C}$ , 200 W CW)	$R_{\theta JC}$	0.20	$^{\circ}\text{C/W}$

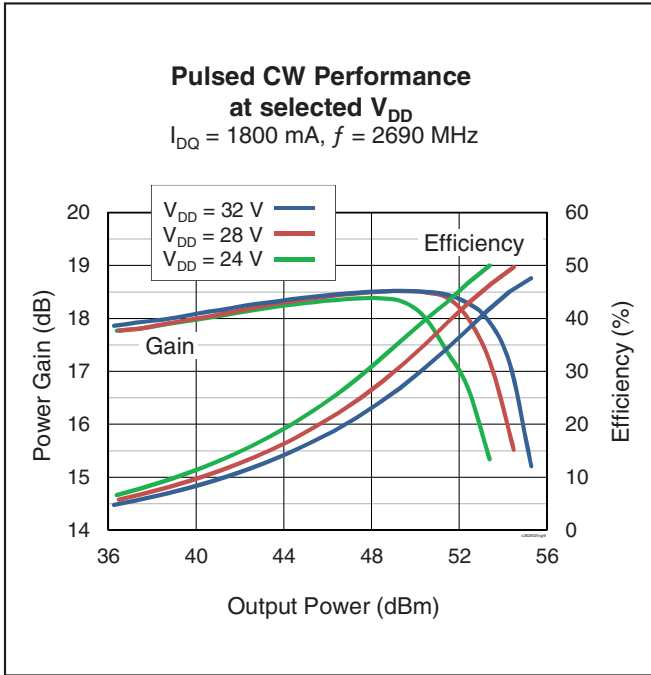
**Ordering Information**

Type and Version	Order Code	Package and Description	Shipping
PTFC262808FV V1 R0	PTFC262808FVV1R0XTMA1	H-37275G-6/2, ceramic open-cavity, earless	Tape & Reel, 50 pcs
PTFC262808FV V1 R250	PTFC262808FVV1R250XTMA1	H-37275G-6/2, ceramic open-cavity, earless	Tape & Reel, 250 pcs

**Typical Performance** (data taken in Infineon production test fixture)

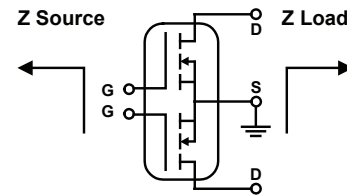


Typical Performance (cont.)



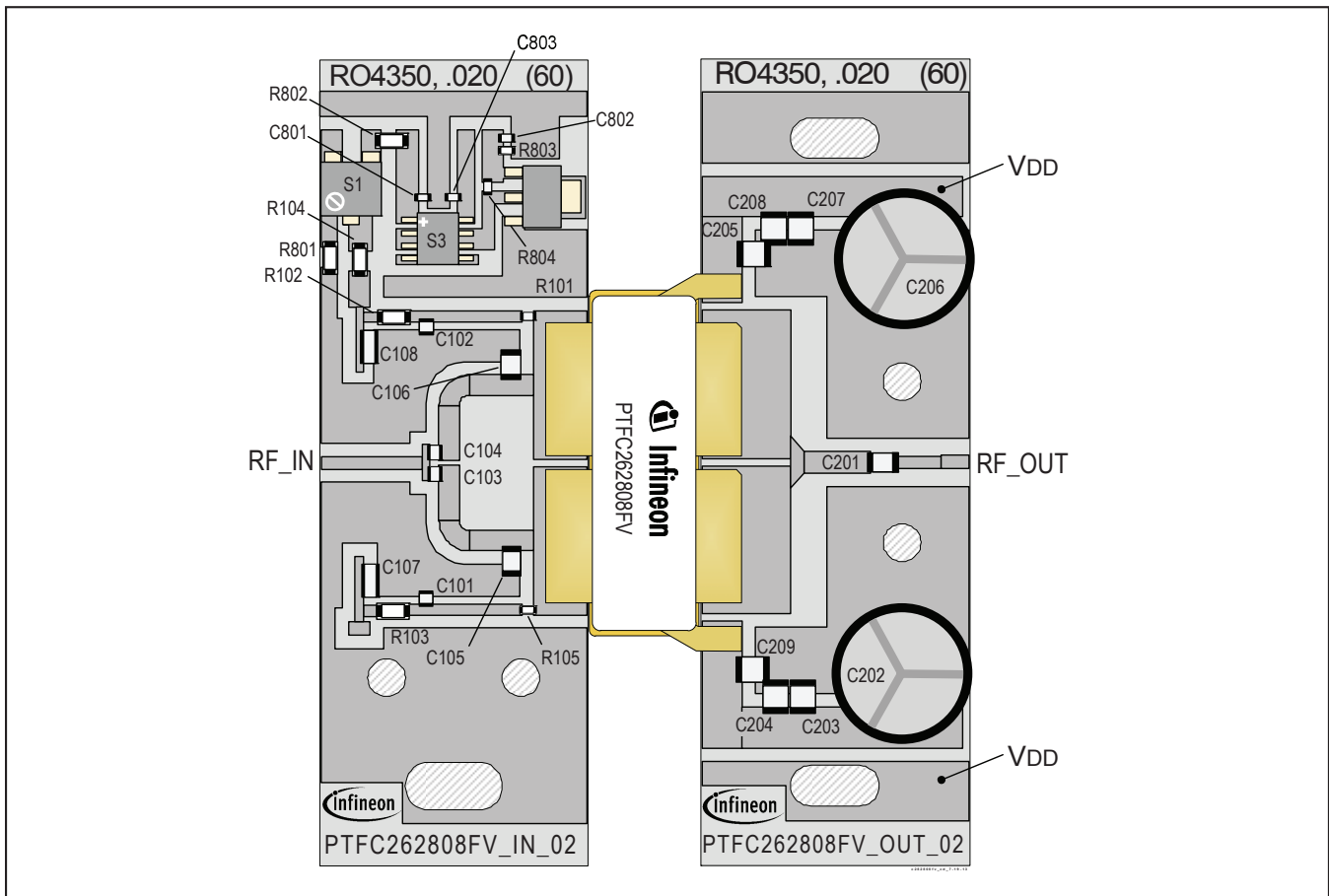
Broadband Circuit Impedance

Frequency MHz	Z Source $\Omega$		Z Load $\Omega$	
	R	jX	R	jX
2620	2.88	-1.58	0.55	-2.45
2655	2.99	-1.55	0.53	-2.39
2690	3.10	-1.52	0.52	-2.33



**Reference Circuit, tuned for 2620 – 2690 MHz**

DUT	PTFC262808FV
Test Fixture Part No.	LTN/PTFC262808FV 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 ( <a href="http://www.infineon.com/rfpower">http://www.infineon.com/rfpower</a> )	



Reference circuit assembly diagram (not to scale)

**Component Information**

Component	Description	Suggested Manufacturer	P/N
<b>Input</b>			
C101, C102	Chip capacitor, 10 pF	ATC	ATC100A100JW500XB
C103, C104	Chip capacitor, 18 pF	ATC	ATC100A180JW150XB
C105, C106	Chip capacitor, 0.4 pF	ATC	ATC100B0R4CW500XB
C107, C108	Capacitor, 10 $\mu$ F	Murata Electronics North America	LLL31BC70G106MA01L
C801, C802, C803	Chip capacitor, 1,000 pF	Panasonic	ECJ-1VB1H102K
R101, R102	Resistor, 10 $\Omega$	Panasonic Electronic Components	ERJ-3GEYJ100V

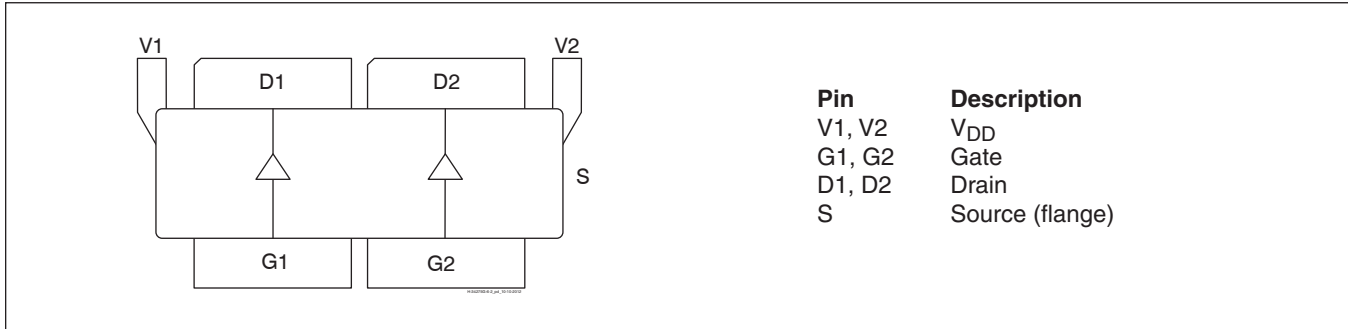
(table cont. next page)

**Reference Circuit** (cont.)

**Component Information** (cont.)

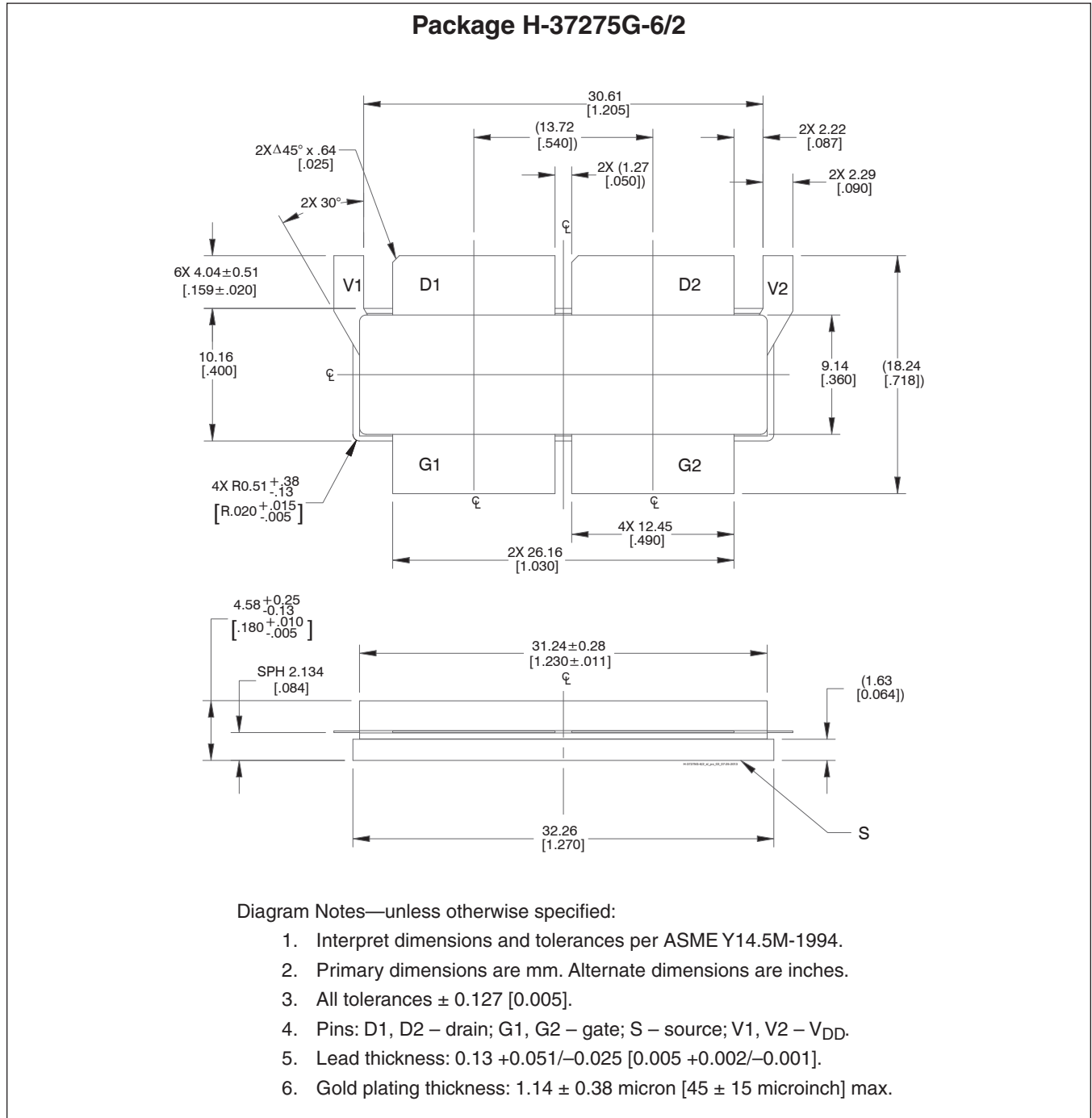
Component	Description	Suggested Manufacturer	P/N
<b>Input (cont.)</b>			
R102, R103, R104, R801, R802	Resistor, 10 $\Omega$	Panasonic Electronic Components	ERJ-8GEYJ100V
R803	Resistor, 1.3k $\Omega$	Panasonic Electronic Components	ERJ-3GEYJ132V
R804	Resistor, 1.2k $\Omega$	Panasonic Electronic Components	ERJ-3GEYJ122V
S1	Potentiometer, 2k $\Omega$	Bourns Inc.	3224W-1-202E
S2	Transistor	Infineon Technologies	BCP56-10
S3	Voltage regulator	Fairchild Semiconductor	LM7805
<b>Output</b>			
C201	Chip capacitor, 18 pF	ATC	ATC100B180KW500XB
C202, C206	Capacitor, 470 $\mu$ F, 50 V	Cornell Dubilier Electronics (CDE)	SEK471M050ST
C203, C204, C205, C207, C208, C209	Capacitor, 10 $\mu$ F	Taiyo Yuden	UMK325C7106MM-T

**Pinout Diagram** (top view)



Lead connections for PTFC262808FV

### 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

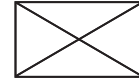
Revision	Date	Data Sheet	Page	Subjects (major changes since last revision)
01	2012-09-14	Advance	all	New product, proposed only.
02	2013-07-24	Data Sheet	all	Product released to production. All information updated.
02.1	2013-08-02	Data Sheet	2	Order Code for Tape and Reel corrected.
02.2	2013-08-06	Data Sheet	2	Order Code for Tray corrected.
03	2016-06-22	Data Sheet	2	Operating Gate Voltage conditions corrected, maximum junction temperature raised to 225 °C, update ordering information

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