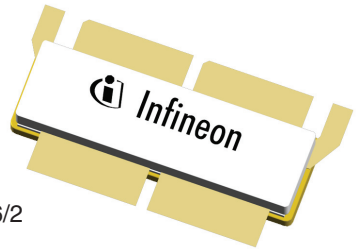
green Product

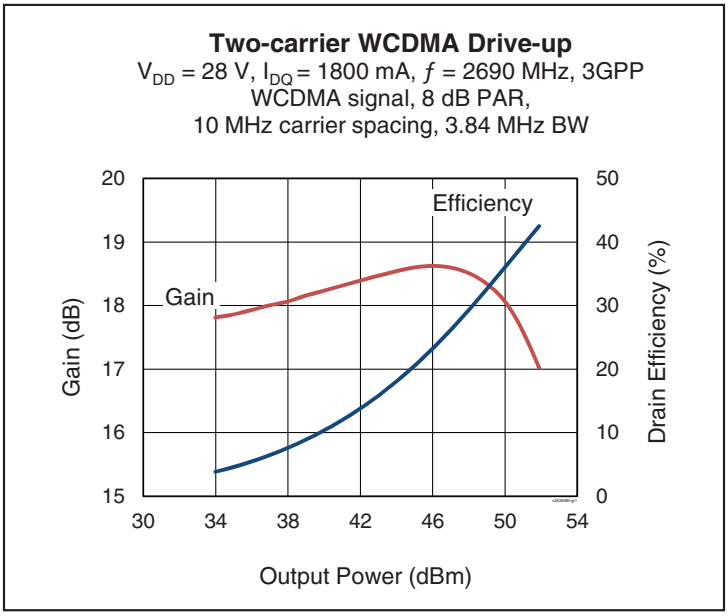
Thermally-Enhanced High Power RF LDMOS FET
280 W, 28 V, 2620 – 2690 MHz

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 W avg.
  - Efficiency = 24%
  - Gain = 18 dB
  - ACPR = –33 dBc @ 3.84 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) ouput power

RF Characteristics

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

V_{DD} = 28 V, I_{DQ} = 1800 mA, P_{OUT} = 56 W average, f = 2655 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°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 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
	V_{DS} = 63 V, V_{GS} = 0 V	I_{DSS}	—	—	10.0	µA
Gate Leakage Current	V_{GS} = 10 V, V_{DS} = 0 V	I_{GSS}	—	—	1	µA
On-State Resistance	V_{GS} = 10 V, V_{DS} = 0.1 V	$R_{DS(on)}$	—	0.05	—	Ω
Operating Gate Voltage	V_{DS} = 28 V, I_{DQ} = 1800 mA	V_{GS}	—	2.6	—	V

Maximum Ratings

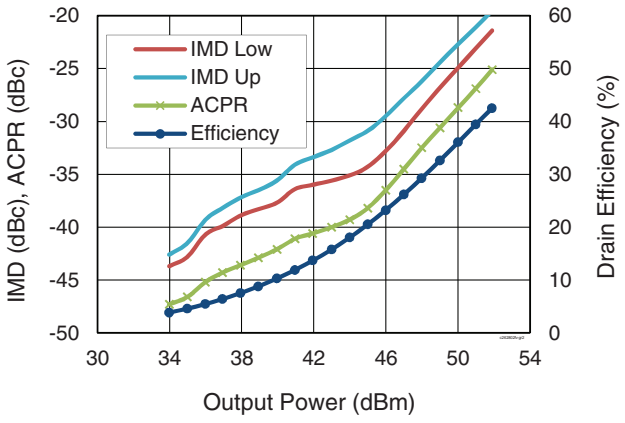
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	65	V
Gate-Source Voltage	V_{GS}	–6 to +10	V
Operating Voltage	V_{DD}	0 to +32	V
Junction Temperature	T_J	225	°C
Storage Temperature Range	T_{STG}	–65 to +150	°C
Thermal Resistance (T_{CASE} = 70°C, 200 W CW)	$R_{\theta JC}$	0.20	°C/W

Ordering Information

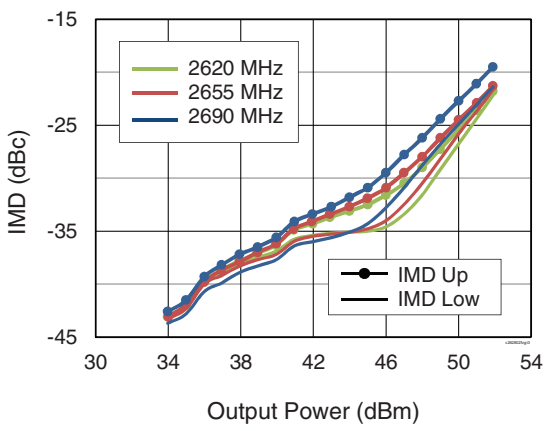
Type and Version	Order Code	Package and Description	Shipping
PTFC262808FV V1 R0	PTFC262808FVV1R0XTMA1	H-37275G-6/2, ceramic open-cavity, earless	Tape & Reel, 50 pcs
PTFC262808FV V1 R250	PTFC262808FVV1R250XTMA1	H-37275G-6/2, ceramic open-cavity, earless	Tape & Reel, 250 pcs

Typical Performance (data taken in Infineon production test fixture)

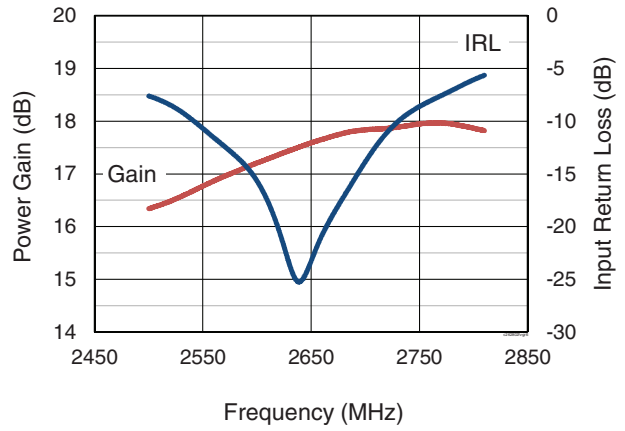
Two-carrier WCDMA Drive-up
V_{DD} = 28 V, I_{DQ} = 1800 mA, f = 2690 MHz, 3GPP WCDMA signal, 8 dB PAR, 10 MHz carrier spacing, 3.84 MHz BW



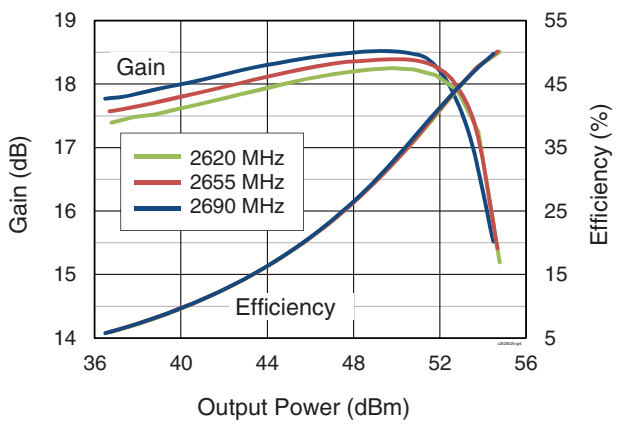
Two-carrier WCDMA Drive-up
V_{DD} = 28 V, I_{DQ} = 1800 mA, 3GPP WCDMA signal, 8 dB PAR, 10 MHz carrier spacing, 3.84 MHz BW



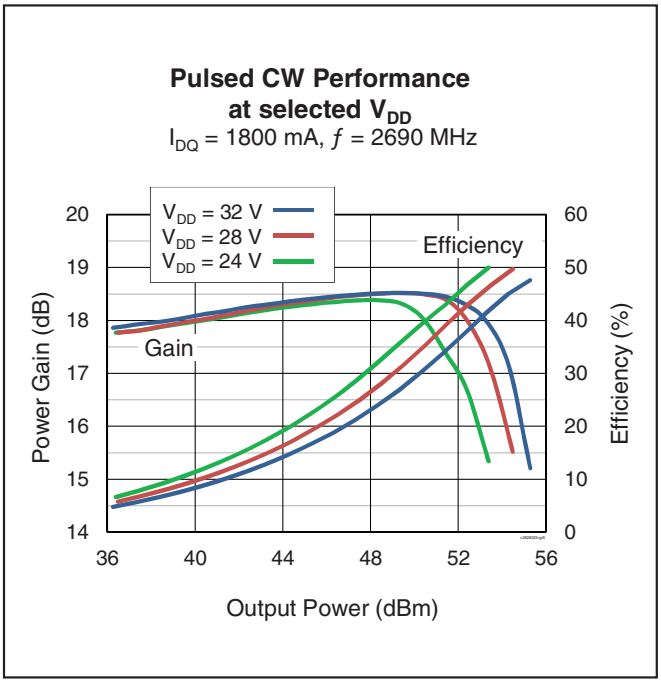
Pulsed CW Performance
Gain & Input Return Loss, single side
V_{DD} = 28 V, I_{DQ} = 650 mA



Pulsed CW Performance
V_{DD} = 28 V, I_{DQ} = 1.8 A

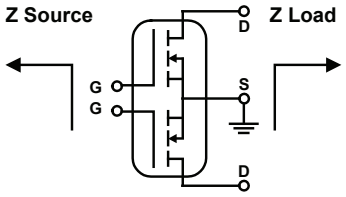


Typical Performance (cont.)



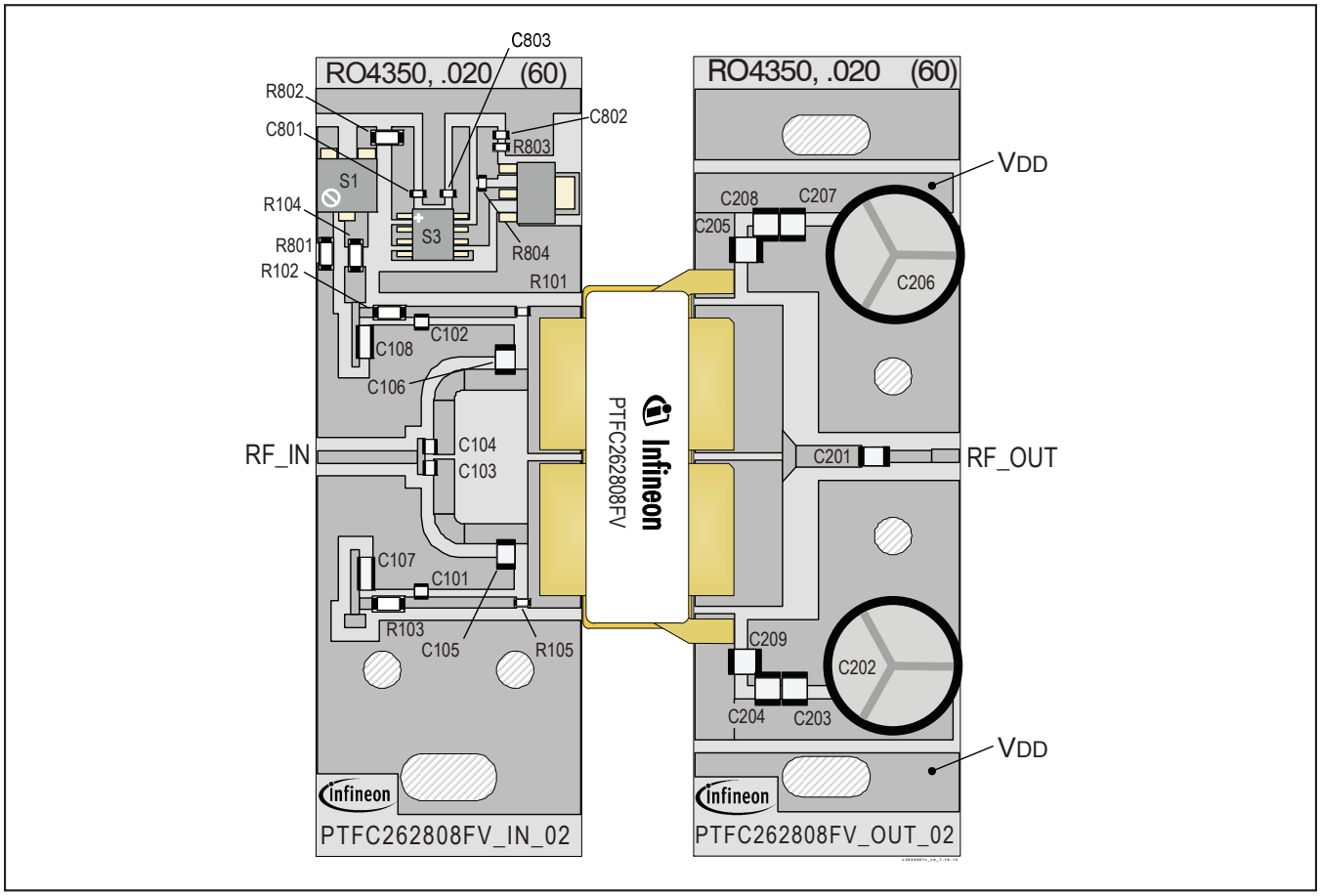
Broadband Circuit Impedance

Frequency	Z Source Ω		Z Load Ω	
MHz	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, ε_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	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 µF	Murata Electronics North America	LLL31BC70G106MA01L
C801, C802, C803	Chip capacitor, 1,000 pF	Panasonic	ECJ-1VB1H102K
R101, R102	Resistor, 10 Ω	Panasonic Electronic Components	ERJ-3GEYJ100V

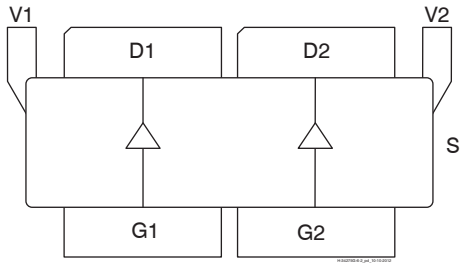
(table cont. next page)

Reference Circuit (cont.)

Component Information (cont.)

Component	Description	Suggested Manufacturer	P/N
Input (cont.)			
R102, R103, R104, R801, R802	Resistor, 10 Ω	Panasonic Electronic Components	ERJ-8GEYJ100V
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	Chip capacitor, 18 pF	ATC	ATC100B180KW500XB
C202, C206	Capacitor, 470 µF, 50 V	Cornell Dubilier Electronics (CDE)	SEK471M050ST
C203, C204, C205, C207, C208, C209	Capacitor, 10 µF	Taiyo Yuden	UMK325C7106MM-T

Pinout Diagram (top view)



Pin	Description
V1, V2	V_{DD}
G1, G2	Gate
D1, D2	Drain
S	Source (flange)

Lead connections for PTFC262808FV

Package Outline Specifications

Package H-37275G-6/2

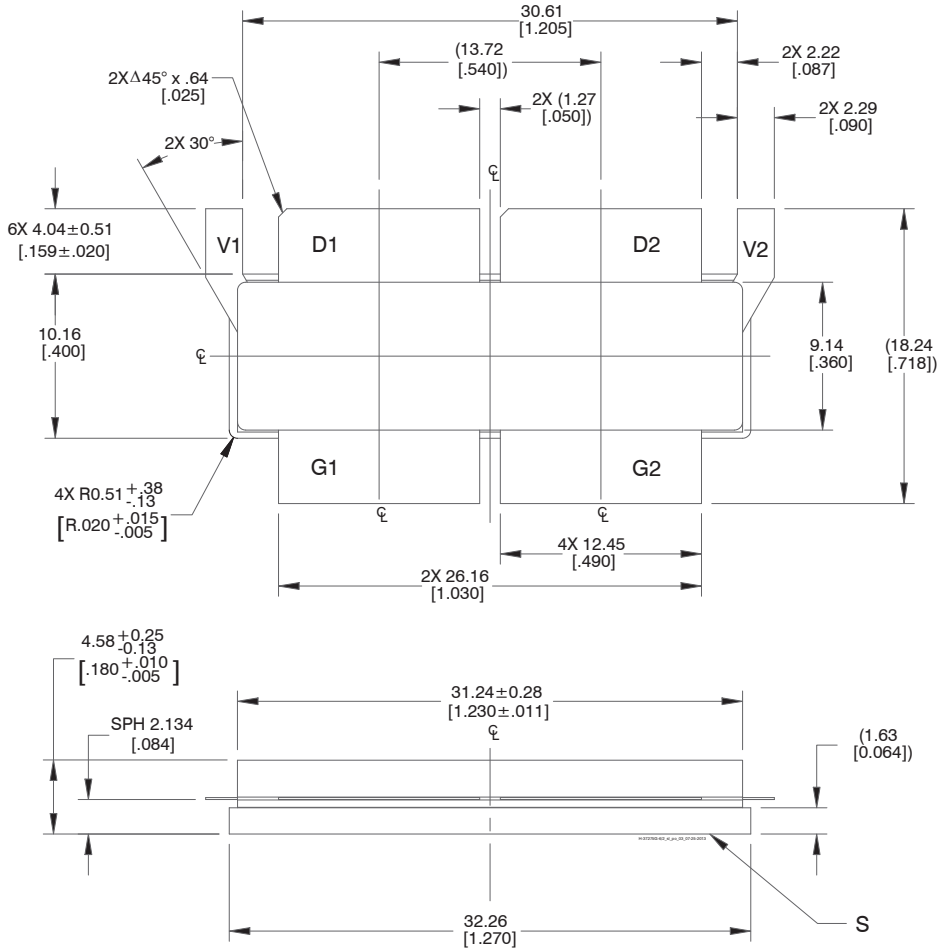


Diagram Notes—unless otherwise specified:

1. Interpret dimensions and tolerances per ASME Y14.5M-1994.
2. Primary dimensions are mm. Alternate dimensions are inches.
3. All tolerances ± 0.127 [0.005].
4. Pins: D1, D2 – drain; G1, G2 – gate; S – source; V1, V2 – V_{DD}.
5. Lead thickness: 0.13 +0.051/–0.025 [0.005 +0.002/–0.001].
6. Gold plating thickness: 1.14 ± 0.38 micron [45 ± 15 microinch] max.

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

Revision History

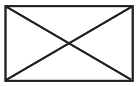
Revision	Date	Data Sheet	Page	Subjects (major changes since last revision)
01	2012-09-14	Advance	all	New product, proposed only.
02	2013-07-24	Data Sheet	all	Product released to production. All information updated.
02.1	2013-08-02	Data Sheet	2	Order Code for Tape and Reel corrected.
02.2	2013-08-06	Data 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

We Listen to Your Comments

Any information within this document that you feel is wrong, unclear or missing at all?
Your feedback will help us to continuously improve the quality of this document.
Please send your proposal (including a reference to this document) to:

(**highpowerRF@infineon.com**)

To request other information, contact us at:
+1 877 465 3667 (1-877-GO-LDMOS) USA
or +1 408 776 0600 International



Edition 2016-06-22

Published by
Infineon Technologies AG
85579 Neubiberg, Germany

Legal Disclaimer

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of intellectual property rights of any third party.

Information

For further information on technology, delivery terms and conditions and prices, please contact the nearest Infineon Technologies Office (**www.infineon.com/rfpower**).

Warnings

Due to technical requirements, components may contain dangerous substances. For information on the types in question, please contact the nearest Infineon Technologies Office.

Infineon Technologies components may be used in life-support devices or systems only with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Infineon:

PTFC262808FVV1XWSA1 PTFC262808FVV1R250XTMA1