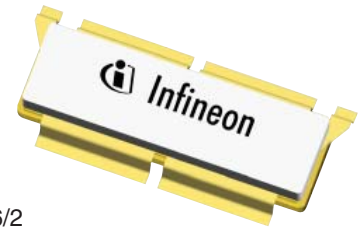
green Product

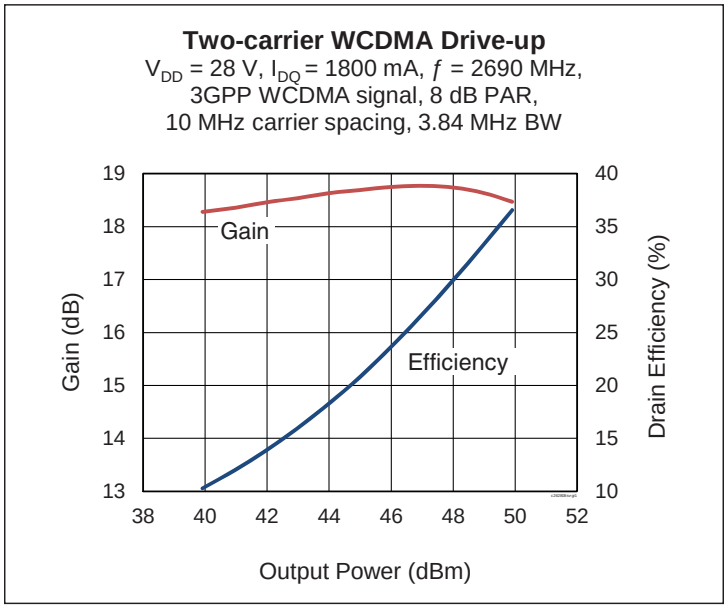
Thermally-Enhanced High Power RF LDMOS FET
280 W, 28 V, 2620 – 2690 MHz

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 W
  - Efficiency = 52%
  - Gain = 18 dB
- Typical 1-carrier WCDMA performance, 2655 MHz, 28 V
  - Output power at P_{1dB} = 56 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) 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
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} = 1.45 A	V_{GS}	—	2.65	—	V
Gate Leakage Current	V_{GS} = 10 V, V_{DS} = 0 V	I_{GSS}	—	—	1	µA

Maximum Ratings

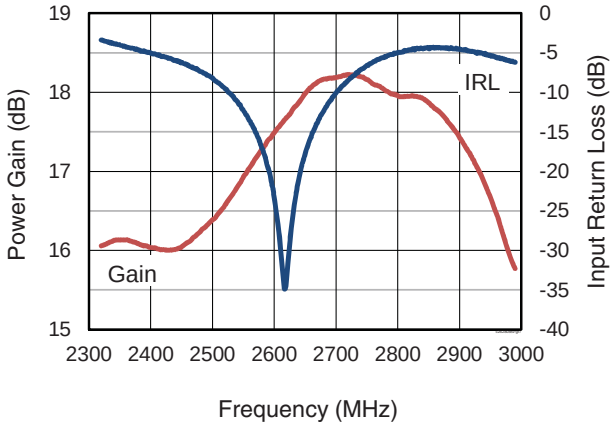
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	65	V
Gate-Source Voltage	V_{GS}	–6 to +10	V
Operating Voltage	V_{DD}	0 to +32	V
Junction Temperature	T_J	200	°C
Storage Temperature Range	T_{STG}	–65 to +150	°C
Thermal Resistance (T_{CASE} = 70°C, 200 W CW)	$R_{\theta JC}$	0.20	°C/W

Ordering Information

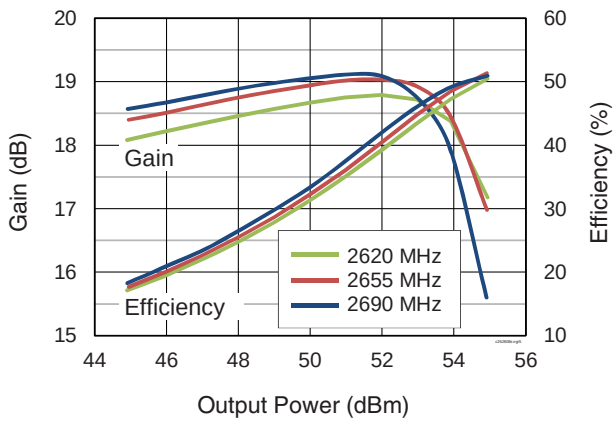
Type and Version	Order Code	Package and Description	Shipping
PTFC 262808SV V1 R250	PTFC262808SVV1R250XTMA1	H-37275G-6/2, ceramic open-cavity, formed leads, earless	Tape & Reel, 250 pcs

Typical Performance (data taken in a reference design fixture)

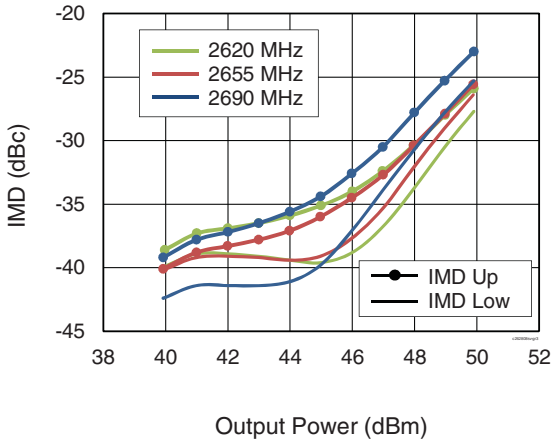
Pulsed CW Performance
(gain and input return loss)
V_{DD} = 28 V, I_{DQ} = 650 mA



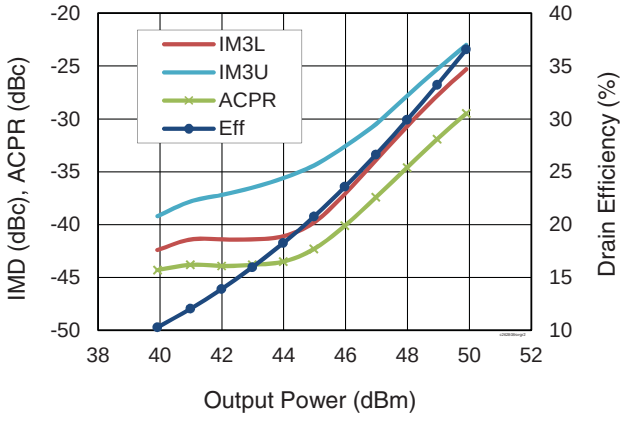
Pulsed CW Performance
V_{DD} = 28 V, I_{DQ} = 1.8 A



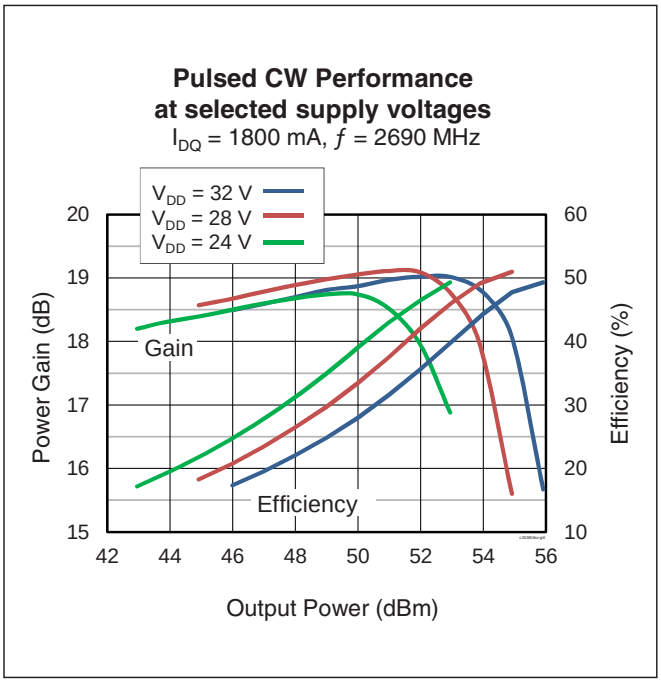
Two-carrier WCDMA Drive-up
V_{DD} = 28 V, I_{DQ} = 1800 mA,
3GPP WCDMA signal, 8 dB PAR,
10 MHz carrier spacing, 3.84 MHz BW



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

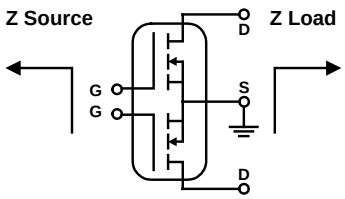


Typical Performance (cont.)



Broadband Circuit Impedance

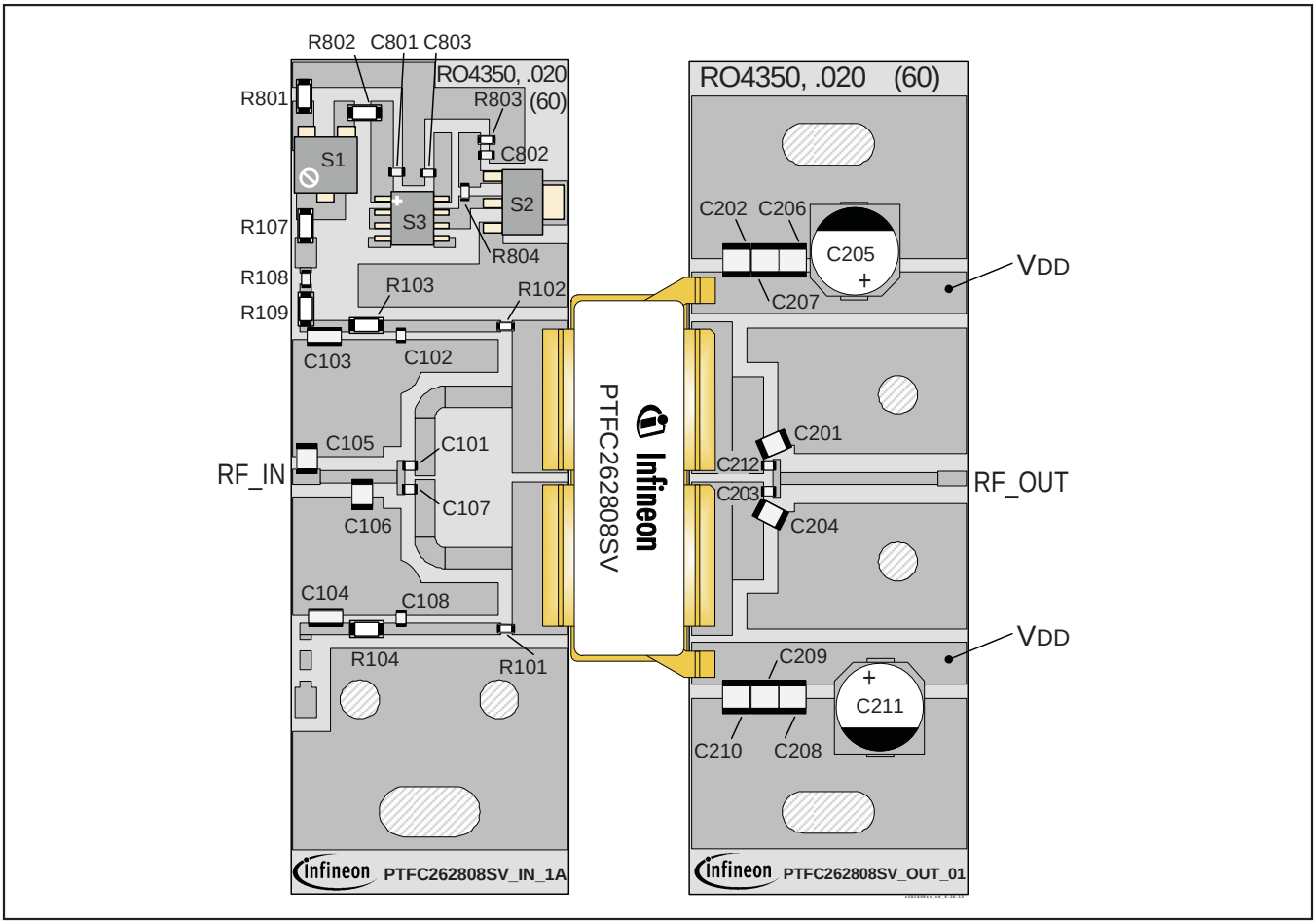
Frequency	Z Source Ω		Z Load Ω	
MHz	R	jX	R	jX
2620	2.07	–2.45	0.69	–4.22
2655	1.98	–2.39	0.68	–4.19
2690	1.91	–2.33	0.66	–4.08



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, 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, C107, C108	Chip capacitor, 18 pF	ATC	ATC800A180JW250X
C103, C104	Capacitor, 10 µF	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

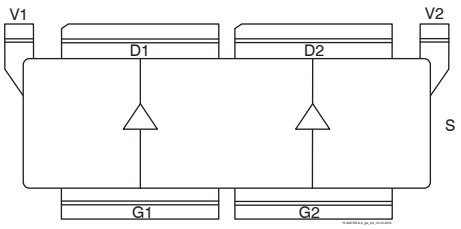
(table cont. next page)

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 µF	Taiyo Yuden	UMK325C7106MM-T
C203, C212	Chip capacitor, 18 pF	ATC	ATC800A180JW250X
C205, C211	Capacitor, 220 µF, 35 V	Panasonic Electronic Components	EEE-FP1V221AP

Pinout Diagram



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

Package Outline Specifications

Package H-37275G-6/2

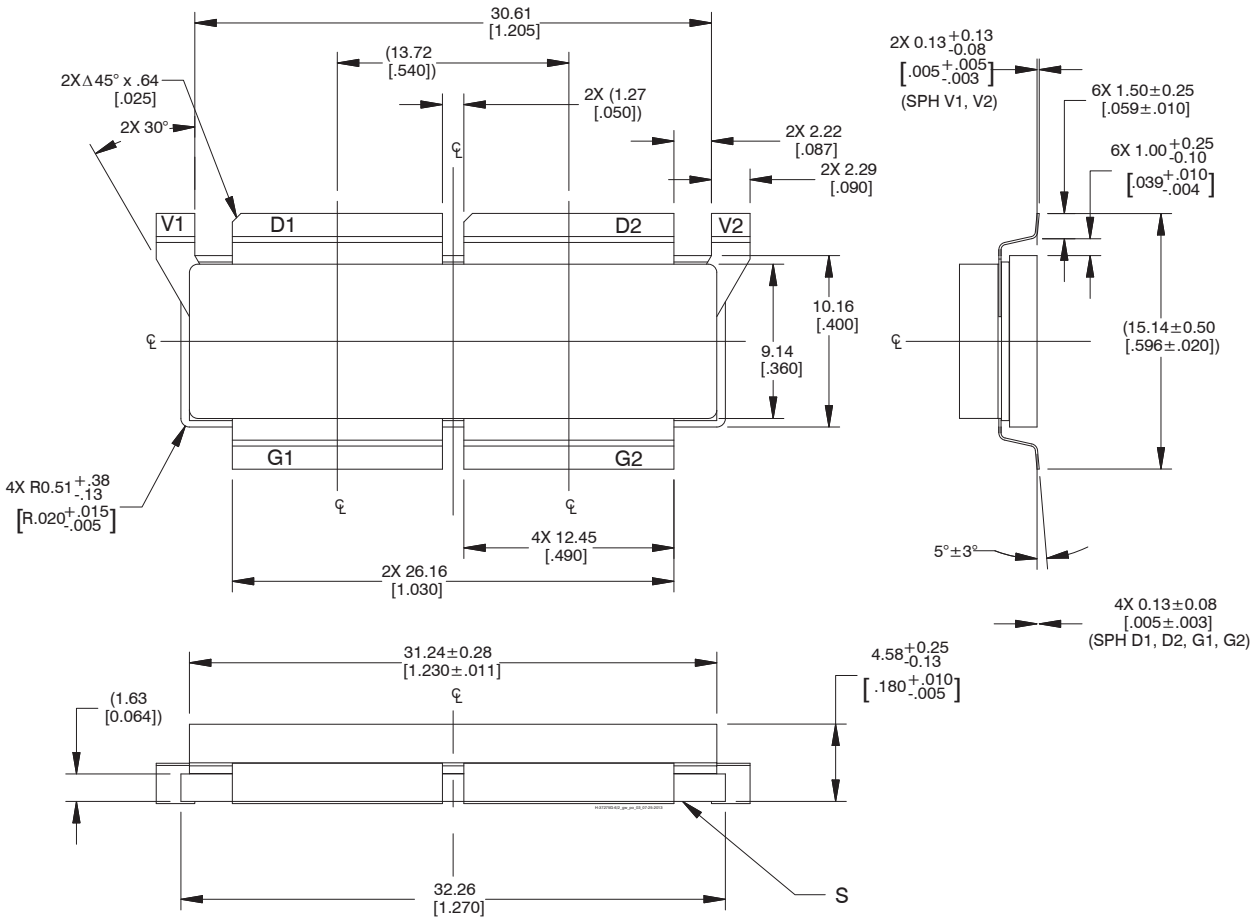


Diagram Notes—unless otherwise specified:

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:	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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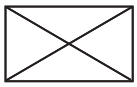

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