



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



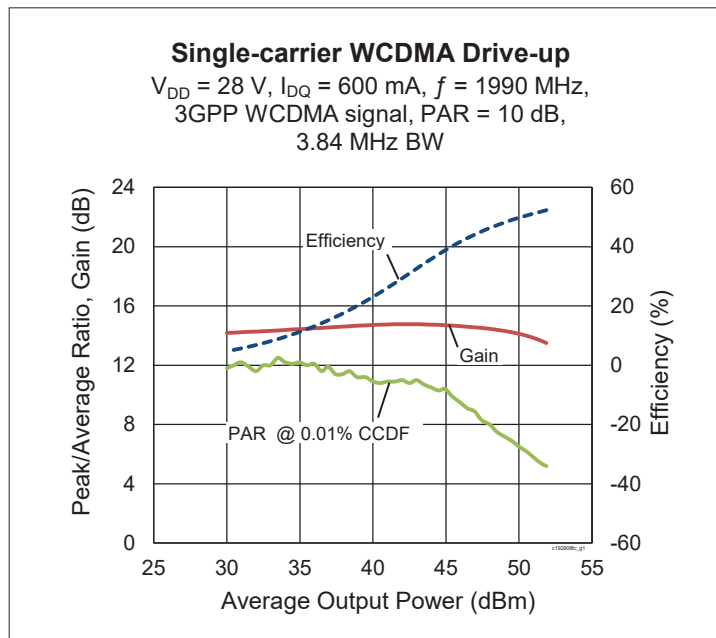
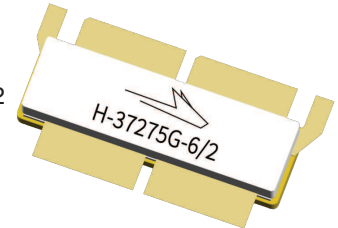
PXAC192908FV

Thermally-Enhanced High Power RF LDMOS FET 240 W, 28 V, 1930 – 1995 MHz

Description

The PXAC192908FV is a 240-watt LDMOS FET with an asymmetrical design intended for use in multi-standard cellular power amplifier applications in the 1930 to 1995 MHz frequency band. Features include dual-path design, 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.

PXAC192908FV
Package H-37275G-6/2



Features

- Broadband internal input and output matching
- Asymmetric Doherty design
 - Main: $P_{1dB} = 120\text{ W Typ}$
 - Peak: $P_{1dB} = 220\text{ W Typ}$
- Typical Pulsed CW performance, 1990 MHz, 28 V, combined outputs
 - Output power at $P_{1dB} = 240\text{ W}$
 - Efficiency = 54%
 - Gain = 14 dB
- Capable of handling 10:1 VSWR @ 28 V, 240 W (CW) output power
- Integrated ESD protection
- Human Body Model, Class 2 (per ANSI/ESDA/JEDEC JS-001)
- Low thermal resistance
- Pb-free and RoHS compliant

RF Characteristics

Single-carrier WCDMA Specifications (tested in Wolfspeed Doherty test fixture)

$V_{DD} = 28\text{ V}$, $I_{DQ} = 0.6\text{ A}$, $V_{GS(PEAK)} = 0.55\text{ V}$, $P_{OUT} = 70\text{ W avg}$, $f_1 = 1990\text{ MHz}$, 3GPP signal, channel bandwidth = 3.84 MHz, peak/average = 10 dB @ 0.01% CCDF

Characteristic	Symbol	Min	Typ	Max	Unit
Gain	G_{ps}	13	14	—	dB
Drain Efficiency	η_D	45	49	—	%
Adjacent Channel Power Ratio	ACPR	—	-28	-25	dBc

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

ESD: Electrostatic discharge sensitive device—observe handling precautions!

DC Characteristics (each 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	μA
	$V_{DS} = 63\text{ V}$, $V_{GS} = 0\text{ V}$	I_{DSS}	—	—	10	μA
On-State Resistance (main)	$V_{GS} = 10\text{ V}$, $V_{DS} = 0.1\text{ V}$	$R_{DS(on)}$	—	0.11	—	Ω
	(peak) $V_{GS} = 10\text{ V}$, $V_{DS} = 0.1\text{ V}$	$R_{DS(on)}$	—	0.06	—	Ω
Operating Gate Voltage (main)	$V_{DS} = 28\text{ V}$, $I_{DQ} = 0.6\text{ A}$	V_{GS}	2.5	2.65	2.75	V
	(peak) $V_{DS} = 28\text{ V}$, $I_{DQ} = 0\text{ A}$	V_{GS}	0.45	0.55	0.75	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	225	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	−65 to +150	$^{\circ}\text{C}$
Thermal Resistance (Doherty, $T_{CASE} = 70^{\circ}\text{C}$, 200 W CW, 1960 MHz, 28V, I_{DQ} (main) = 600 mA, V_{GS} (peak) = 0.55 V)	$R_{\theta JC}$	0.32	$^{\circ}\text{C/W}$

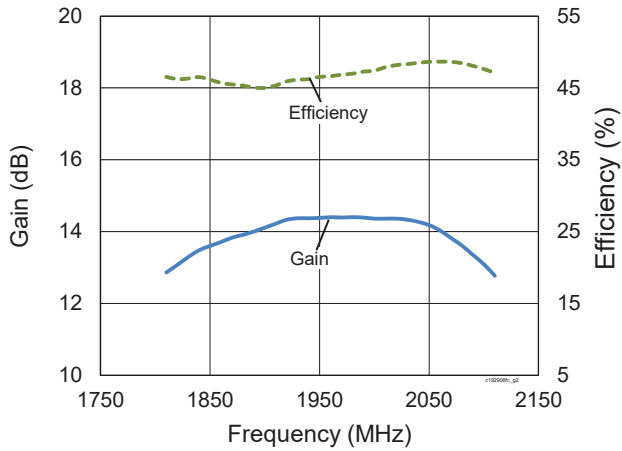
Ordering Information

Type and Version	Order Code	Package Description	Shipping
PXAC192908FV V1 R0	PXAC192908FV-V1-R0	H-37275G-6/2, earless flange	Tape & Reel, 50 pcs
PXAC192908FV V1 R250	PXAC192908FV-V1-R250	H-37275G-6/2, earless flange	Tape & Reel, 250 pcs

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

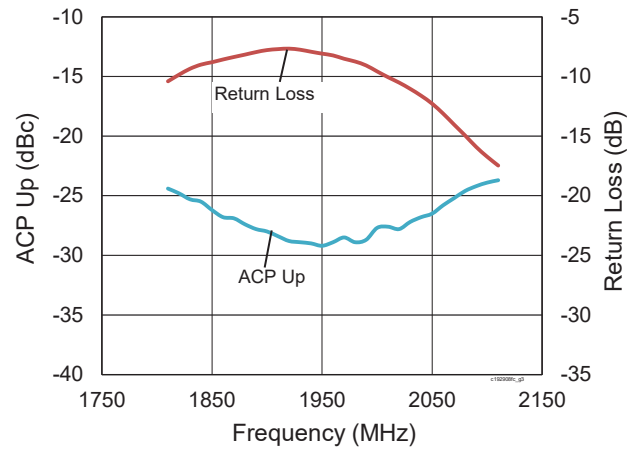
Single-carrier WCDMA Broadband Performance

$V_{DD} = 28\text{ V}$, $I_{DQ} = 600\text{ mA}$, $P_{OUT} = 48.45\text{ dBm}$,
3GPP WCDMA signal, PAR = 10 dB



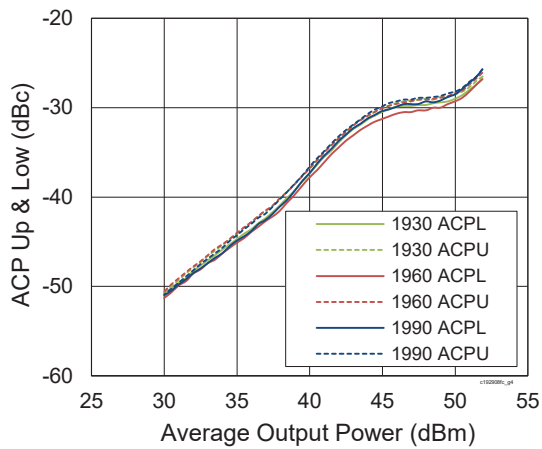
Single-carrier WCDMA Broadband Performance

$V_{DD} = 28\text{ V}$, $I_{DQ} = 600\text{ mA}$, $P_{OUT} = 48.45\text{ dBm}$,
3GPP WCDMA signal, PAR = 10 dB



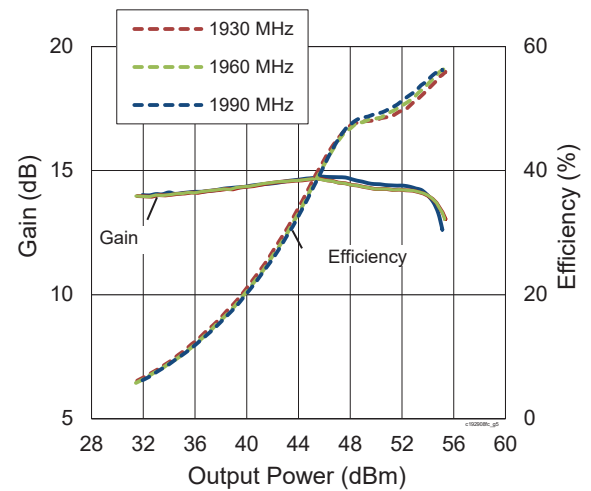
Single-carrier WCDMA 3GPP Drive-up

$V_{DD} = 28\text{ V}$, $I_{DQ} = 600\text{ mA}$,
3GPP WCDMA signal, PAR = 10 dB,
10 MHz carrier spacing, BW = 3.84 MHz

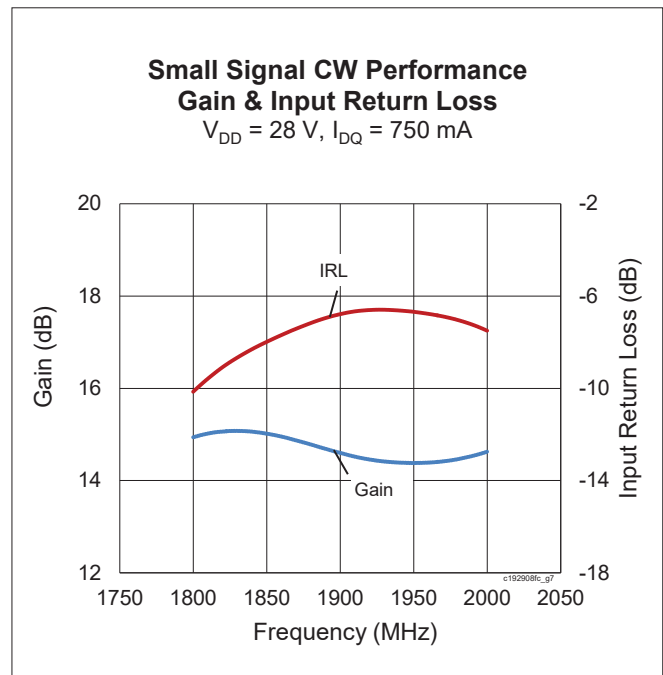
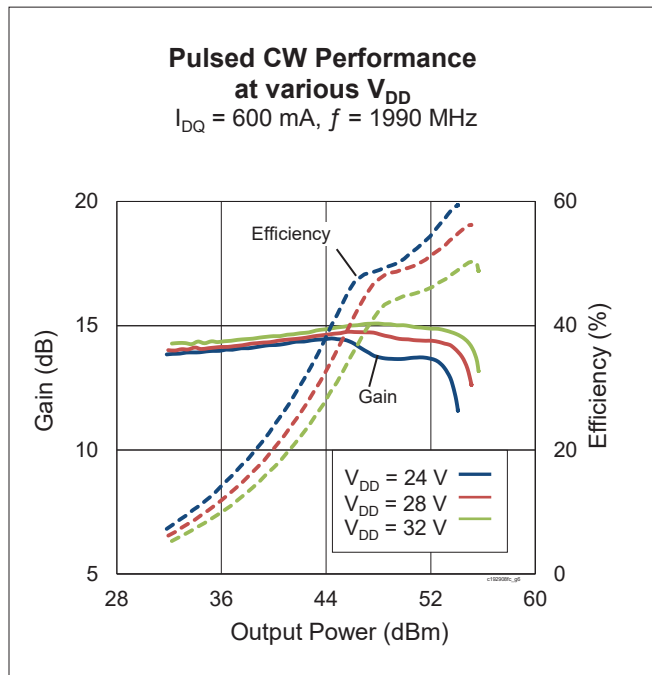


Pulsed CW Performance

$V_{DD} = 28\text{ V}$, $I_{DQ} = 600\text{ mA}$



Typical Performance (cont.)



Load Pull Performance

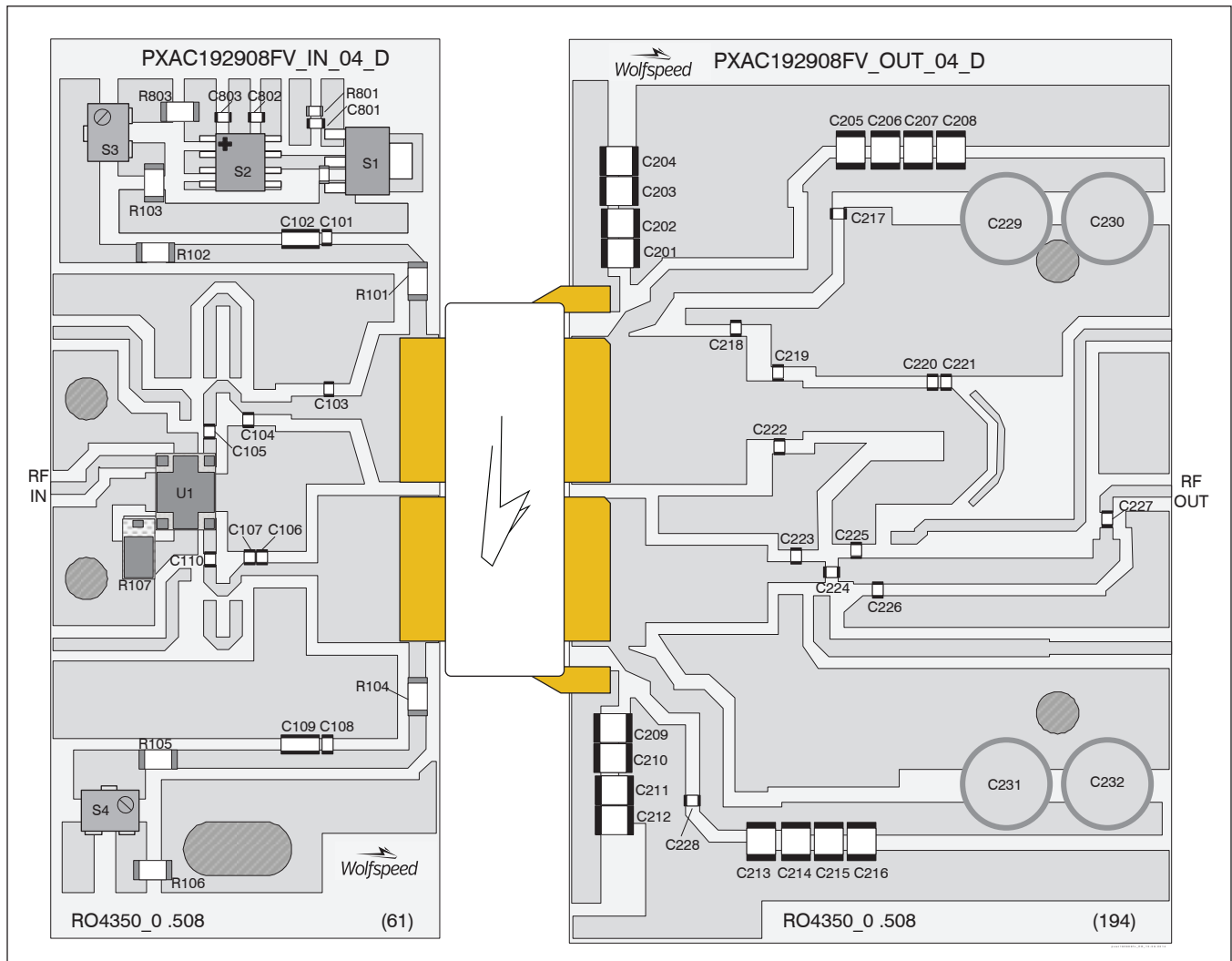
Main Side Load Pull Performance – Pulsed CW signal: $16 \mu\text{s}$, 10% duty cycle, $V_{DD} = 28 \text{ V}$, $I_{DQ} = 600 \text{ mA}$

		P1dB									
		Max Output Power					Max PAE				
Freq [MHz]	Zs [Ω]	ZI [Ω]	Gain [dB]	POUT [dBm]	POUT [W]	PAE [%]	ZI [Ω]	Gain [dB]	POUT [dBm]	POUT [W]	PAE [%]
1930	$8.0 - j11.0$	$2.1 - j4.7$	18.0	51.10	128.8	50.4	$3.6 - j2.7$	20.2	50.12	102.8	62.5
1960	$11.9 - j11.9$	$2.1 - j4.7$	18.2	51.10	128.8	51.0	$3.6 - j2.9$	20.2	50.08	101.9	61.6
1990	$18.0 - j10.4$	$2.1 - j4.8$	18.3	50.91	123.3	49.7	$3.63 - j2.6$	20.5	49.78	95.1	61.3

Peak Side Load Pull Performance – Pulsed CW signal: $16 \mu\text{s}$, 10% duty cycle, $V_{DD} = 28 \text{ V}$, $I_{DQ} = 90 \text{ mA}$

		P1dB									
		Max Output Power					Max PAE				
Freq [MHz]	Zs [Ω]	ZI [Ω]	Gain [dB]	POUT [dBm]	POUT [W]	PAE [%]	ZI [Ω]	Gain [dB]	POUT [dBm]	POUT [W]	PAE [%]
1930	$1.7 - j5.3$	$5.3 - j3.8$	18.0	54.24	265.5	55.6	$2.9 - j2.0$	19.6	53.04	201.4	66.3
1960	$2.0 - j5.8$	$5.3 - j3.7$	18.4	54.16	260.6	55.7	$2.9 - j2.2$	20.1	52.90	195.0	66.0
1990	$3.2 - j6.9$	$6.3 - j2.8$	18.7	54.08	255.9	54.7	$2.9 - j2.2$	20.3	52.88	194.1	65.0

Reference Circuit , 1930 – 1990 MHz



Reference circuit assembly diagram (not to scale)

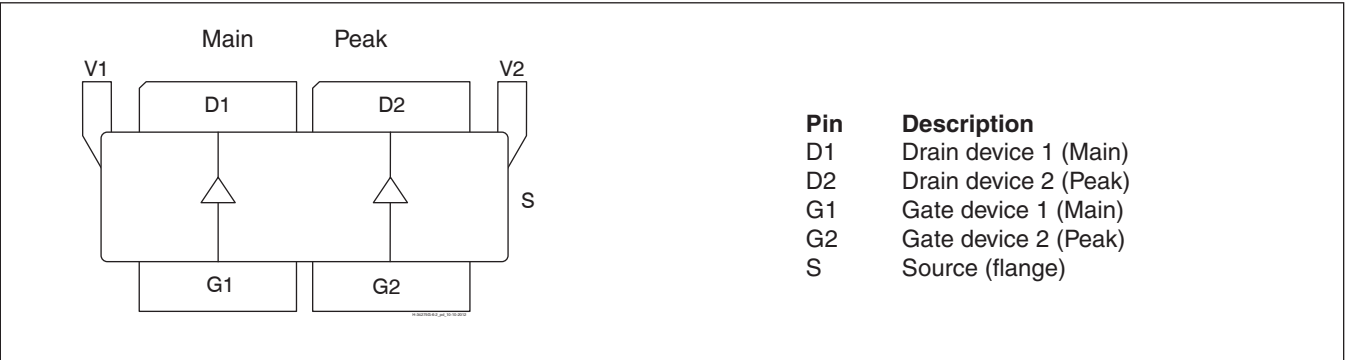
Reference Circuit (cont.)**Reference Circuit Assembly**

DUT	PXAC192908FV V1
Test Fixture Part No.	LTA/PXAC192908FV V1
PCB	Rogers 4350, 0.508 mm [0.020"] thick, 2 oz. copper, $\epsilon_r = 3.66$, $f = 1930 - 1990$ MHz
Find Gerber files for this test fixture on the Wolfspeed Web site at http://www.wolfspeed.com/RF	

Components Information

Component	Description	Suggested Manufacturer	P/N
Input			
C101, C108, C105	Capacitor, 18 pF	ATC	ATC600F180JT250X
C102, C109	Capacitor, 10 μ F	Murata	LLL31BC70G106MA01L
C103	Capacitor, 1 pF	ATC	ATC600F1R0CT250X
C104	Capacitor, 1.2 pF	ATC	ATC600A1R2CT250X
C106	Capacitor, 0.5 pF	ATC	ATC600F0R5CT250X
C107	Capacitor, 1.1 pF	ATC	ATC600F1R1CT250X
C801, C802, C803	Capacitor, 1000 pF	Panasonic Electronic Components	ECJ-1VB1H102K
R101, R104	Resistor, 5600 Ω	Panasonic Electronic Components	ERJ-8RQJ5R6V
R102, R105	Resistor, 1000 Ω	Panasonic Electronic Components	ERJ-8GEYJ102V
R103, R106	Resistor, 5.1 Ω	Panasonic Electronic Components	ERJ-8GEYJ5R1V
R107	Resistor, 50 Ω	Richardson	C16A50Z4
R801	Resistor, 1300 Ω	Panasonic Electronic Components	ERJ-3GEYJ132V
R802	Resistor, 1200 Ω	Panasonic Electronic Components	ERJ-3GEYJ122V
R803	Resistor, 5100 Ω	Panasonic Electronic Components	ERJ-8GEYJ512V
S1	Voltage Regulator	Texas Instruments	LM78L05ACM
S2	Transistor	Infineon Technologies	BCP56
S3, S4	Potentiometer, 2k Ω	Bourns Inc.	3224W-1-202E
U1	Hybrid coupler	Anaren	X3C19P1-04S
Output			
C201, C202, C203, C204, C205, C206, C207, C208, C209, C210, C211, C212, C213, C214, C215, C216	Capacitor, 10 μ F	Taiyo Yuden	UMK325C7106MM-T
C217, C224, C225, C227, C228	Capacitor, 18 pF	ATC	ATC600F180JT250X
C218	Capacitor, 0.5 pF	ATC	ATC600F0R5CT250X
C219	Capacitor, 1.8 pF	ATC	ATC600F1R8CT250X
C220	Capacitor, 0.8 pF	ATC	ATC600F0R8CT250X
C221	Capacitor, 0.4 pF	ATC	ATC600F0R4CT250X
C222, C226	Capacitor, 0.2 pF	ATC	ATC600F0R2CT250X
C223	Capacitor, 1.0 pF	ATC	ATC600F1R0CT250X
C229, C230, C231, 232	Capacitor, 220 μ F	Panasonic Electronic Components	EEE-FP1V221AP

Pinout Diagram (top view)



Lead connections for PXAC192908FV

Revision History

Revision	Date	Data Sheet Type	Page	Subjects (major changes since last revision)
01	2014-06-24	Advance	All	Data Sheet reflects advance specification for product development
01.1	2014-08-27	Advance	2	Updated main and peak side of pinout diagram, added thermal resistance
01.2	2014-09-24	Advance	2	Updated thermal resistance
02	2014-12-08	Production	All	Data Sheet reflects released product specification
02.1	2015-01-13	Production	4	Revised IDQ on main side of Load Pull Performance
02.2	2015-07-14	Production	1	Updated P1dB main & peak in Features
02.3	2016-06-17	Production	2	Updated ordering information to include R0
03	2018-06-25	Production	All	Converted to Wolfspeed Data Sheet

For more information, please contact:

4600 Silicon Drive
Durham, North Carolina, USA 27703
www.wolfspeed.com/RF

Sales Contact
RFSales@wolfspeed.com

RF Product Marketing Contact
RFMarketing@wolfspeed.com
919.407.7816

Notes

Disclaimer

Specifications are subject to change without notice. Cree, Inc. believes the information contained within this data sheet to be accurate and reliable. However, no responsibility is assumed by Cree for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Cree. Cree makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose. "Typical" parameters are the average values expected by Cree in large quantities and are provided for information purposes only. These values can and do vary in different applications and actual performance can vary over time. All operating parameters should be validated by customer's technical experts for each application. Cree products are not designed, intended or authorized for use as components in applications intended for surgical implant into the body or to support or sustain life, in applications in which the failure of the Cree product could result in personal injury or death or in applications for planning, construction, maintenance or direct operation of a nuclear facility.