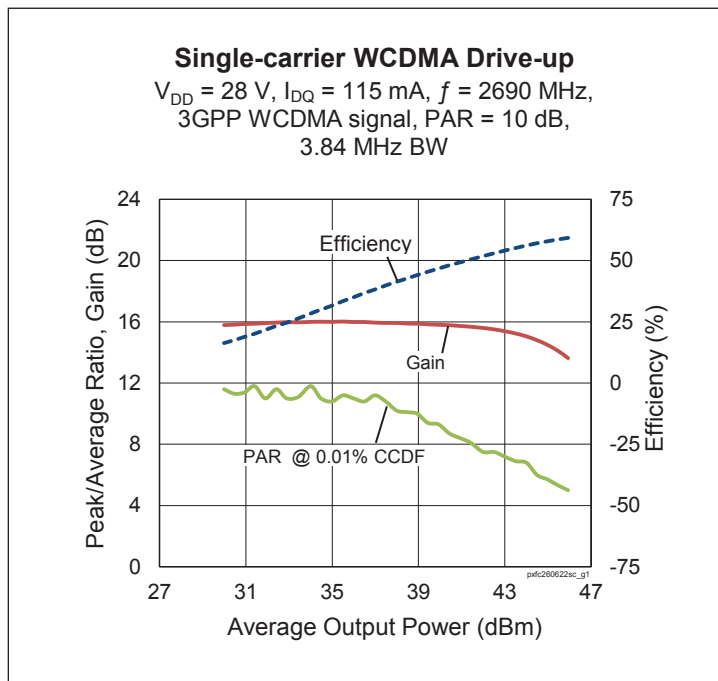
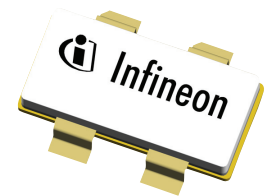


## Thermally-Enhanced High Power RF LDMOS FET 75 W, 28 V, 2496 – 2690 MHz

### Description

The PXAC260622SC is a 75-watt LDMOS FET with an asymmetric design for use in multi-standard cellular power amplifier applications in the 2496 to 2690 MHz frequency band. It features dual-path design, input and output matching, and a thermally-enhanced, surface-mount package with earless flange. Manufactured with Infineon's advanced LDMOS process, this device provides excellent thermal performance and superior reliability.

PXAC260622SC  
Package H-37248H-4  
with formed leads



### Features

- Broadband internal input and output matching
- Asymmetrical Doherty design
  - Main: 25 W Typ ( $P_{1dB}$ )
  - Peak: 50 W Typ ( $P_{1dB}$ )
- Typical pulsed performance in a Doherty configuration, at 39.5 dB  $P_{OUT}$ , 2690 MHz, 28 V, with pulse 10  $\mu$ s, 10% DC
  - Gain = 16dB
  - Efficiency = 45%
- Integrated ESD protection
- Pb-free and RoHS compliant
- Capable of handling 10:1 VSWR @ 28 V, 50 W (CW) output power

### RF Characteristics

#### Single-carrier WCDMA Specifications (device tested in Infineon Doherty test fixture with straight leads)

$V_{DD} = 28\text{ V}$ ,  $I_{DQ} = 115\text{ mA}$ ,  $P_{OUT} = 8.9\text{ W}$  avg,  $f_1 = 2690\text{ MHz}$ , 3GPP signal, channel bandwidth = 3.84 MHz, peak/average = 10 dB @ 0.01% CCDF

Characteristic	Symbol	Min	Typ	Max	Unit
Gain	$G_{ps}$	14.5	15.8	—	dB
Drain Efficiency	$\eta_D$	40	42	—	%
Adjacent Channel Power Ratio	ACPR	—	-30	-27	dBc

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

**ESD:** Electrostatic discharge sensitive device—observe handling precautions!

## DC Characteristics

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	$\mu\text{A}$
	$V_{DS} = 63\text{ V}, V_{GS} = 0\text{ V}$	$I_{DSS}$	—	—	10	$\mu\text{A}$
Gate Leakage Current	$V_{GS} = 10\text{ V}, V_{DS} = 0\text{ V}$	$I_{GSS}$	—	—	1.0	$\mu\text{A}$
On-state Resistance	(main) $V_{GS} = 10\text{ V}, V_{DS} = 0.1\text{ V}$	$R_{DS(on)}$	—	0.50	—	$\Omega$
	(peak) $V_{GS} = 10\text{ V}, V_{DS} = 0.1\text{ V}$	$R_{DS(on)}$	—	0.25	—	$\Omega$
Operating Gate Voltage	(main) $V_{DS} = 28\text{ V}, I_{DQ} = 115\text{ mA}$	$V_{GS}$	2.0	2.6	3.0	V
	(peak) $V_{DS} = 28\text{ V}, I_{DQ} = 0\text{ A}$	$V_{GS}$	—	1.4	—	V

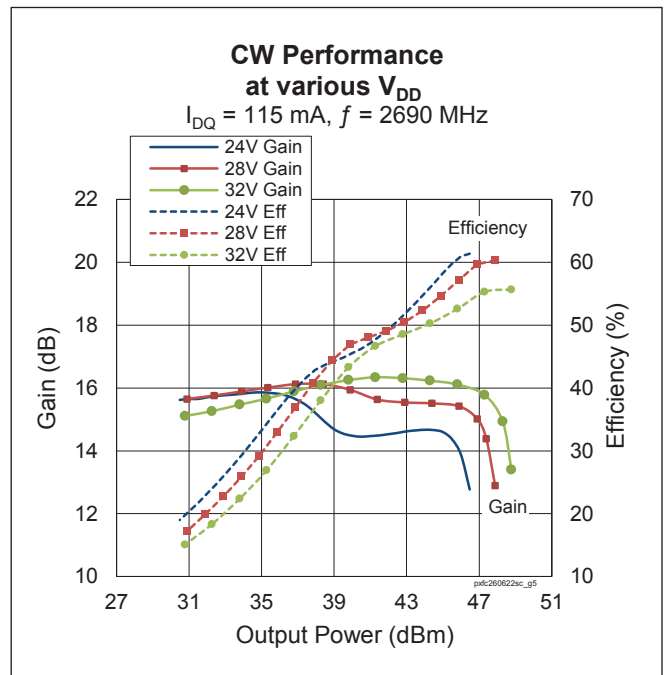
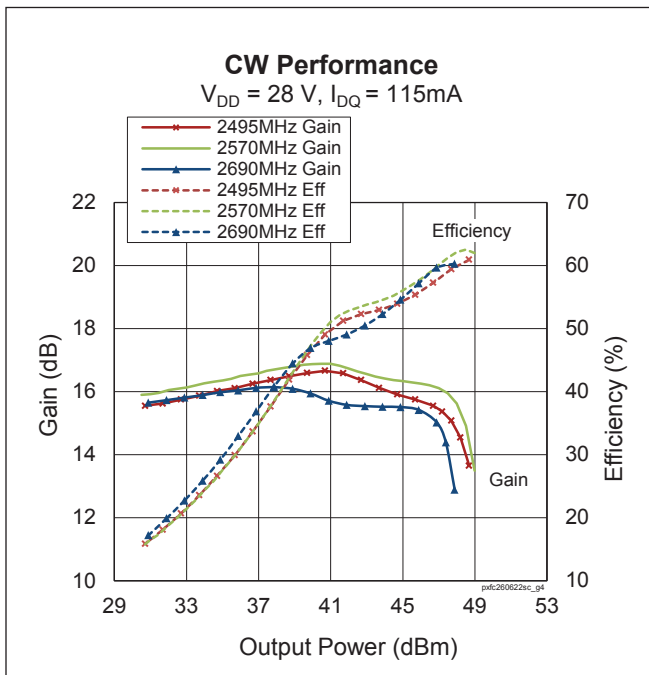
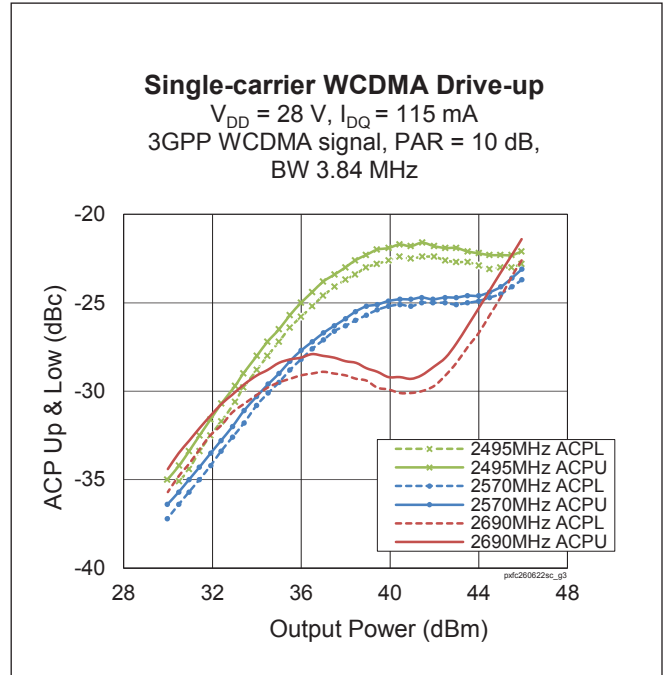
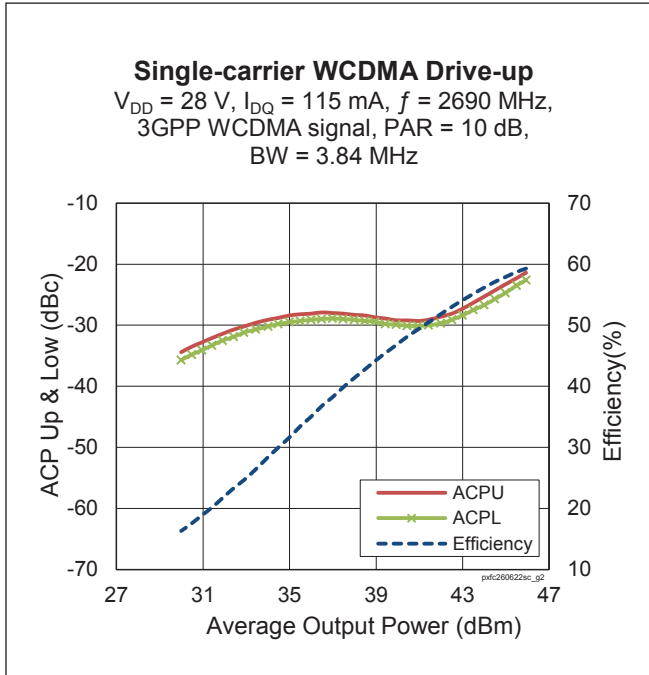
## Maximum Ratings

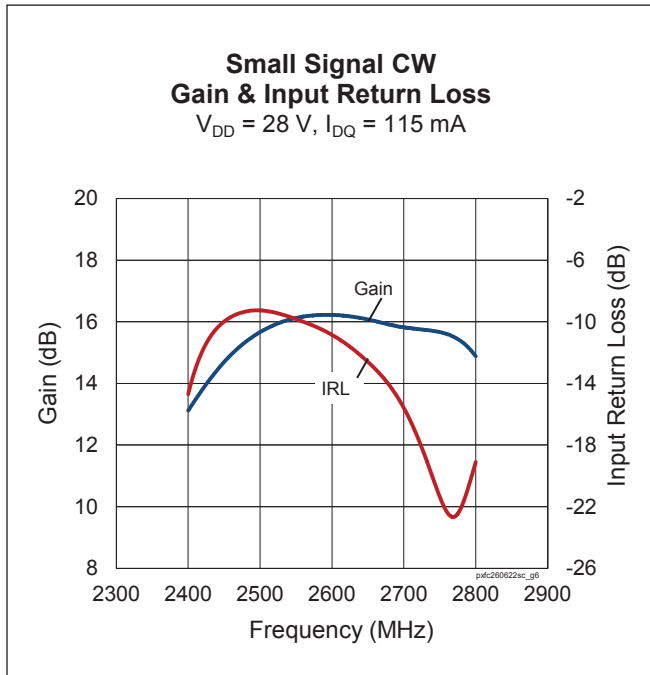
Parameter	Symbol	Value	Unit
Drain-source Voltage	$V_{DSS}$	65	V
Gate-source Voltage	$V_{GS}$	-6 to +10	V
Operating Voltage	$V_{DD}$	0 to +32	V
Junction Temperature	$T_J$	225	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance (main, $T_{CASE} = 70^{\circ}\text{C}, 55\text{ W CW}$ )	$R_{\theta JC}$	0.962	$^{\circ}\text{C/W}$
Thermal Resistance (peak, $T_{CASE} = 70^{\circ}\text{C}, 55\text{ W CW}$ )	$R_{\theta JC}$	0.499	$^{\circ}\text{C/W}$

## Ordering Information

Type and Version	Order Code	Package Description	Shipping
PXAC260622SC V1 R250	PXAC260622SCV1R250XTMA1	H-37248H-4, earless flange	Tape & Reel, 250 pcs

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



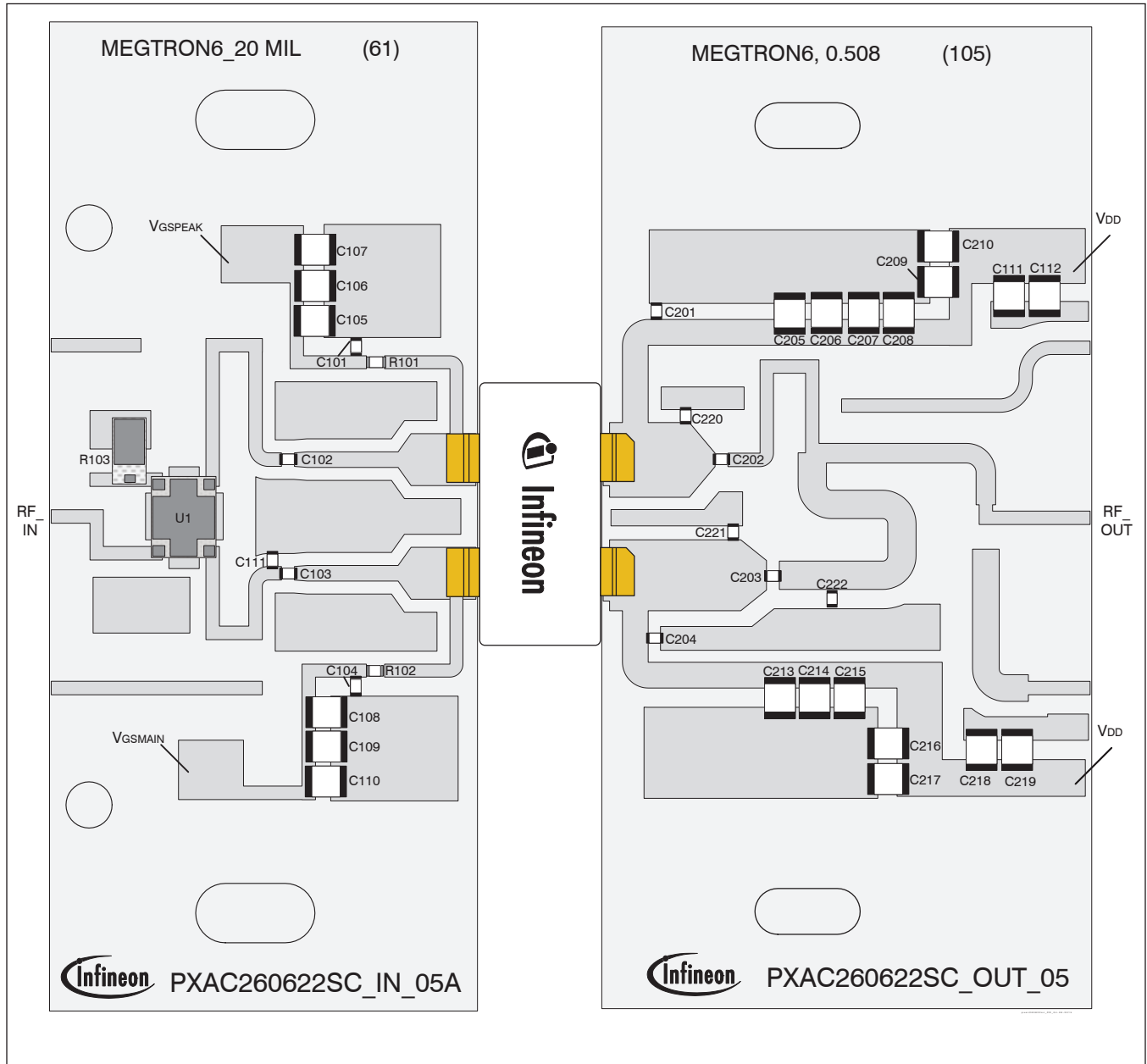
**Typical Performance (cont.)**

**Load Pull Performance**
**Main Side Load Pull Performance** – Pulsed CW signal: 10  $\mu\text{s}$ , 10% duty cycle, 28 V,  $I_{DQ} = 115\text{ mA}$ 

Freq [MHz]	$Z_s$ [ $\Omega$ ]	$P_{1dB}$									
		Max Output Power					Max Drain Efficiency				
		$Z_l$ [ $\Omega$ ]	Gain [dB]	$P_{OUT}$ [dBm]	$P_{OUT}$ [W]	$\eta_D$ [%]	$Z_l$ [ $\Omega$ ]	Gain [dB]	$P_{OUT}$ [dBm]	$P_{OUT}$ [W]	$\eta_D$ [%]
2496	16.4 – j12.3	9.8 – j12.0	19.8	44.3	27.1	55.1	10.9 – j5.9	21.6	43.2	20.8	61.3
2570	18.0 – j11.1	8.9 – j11.8	19.4	44.3	26.7	54.1	9.5 – j6.0	21.4	43.0	20.0	60.4
2690	18.3 – j0.1	10.1 – j13.5	19.2	44.4	27.8	56.0	8.0 – j8.4	20.9	43.3	21.4	61.5

**Peak Side Load Pull Performance** – Pulsed CW signal: 10  $\mu\text{s}$ , 10% duty cycle, 28 V,  $V_{GSPEAK} = 1.4\text{ V}$ ,  $I_{DQ} = 115\text{ mA}$ 

Freq [MHz]	$Z_s$ [ $\Omega$ ]	$P_{1dB}$									
		Max Output Power					Max Drain Efficiency				
		$Z_l$ [ $\Omega$ ]	Gain [dB]	$P_{OUT}$ [dBm]	$P_{OUT}$ [W]	$\eta_D$ [%]	$Z_l$ [ $\Omega$ ]	Gain [dB]	$P_{OUT}$ [dBm]	$P_{OUT}$ [W]	$\eta_D$ [%]
2495	17.6 – j14.7	5.3 – j11.1	14.7	47.7	59	59.4	7.8 – j7.1	15.6	46.2	42	67.6
2570	19.7 – j11.1	6.2 – j13.2	15.5	47.4	55	56.8	7.0 – j7.4	15.6	45.7	37	65.5
2690	19.0 – j0.5	6.1 – j15.1	14.1	47.4	55	57.8	6.2 – j10.5	15.1	45.9	38	64.8

Reference Circuit , 2496 – 2690 MHz



Reference circuit assembly diagram (not to scale)

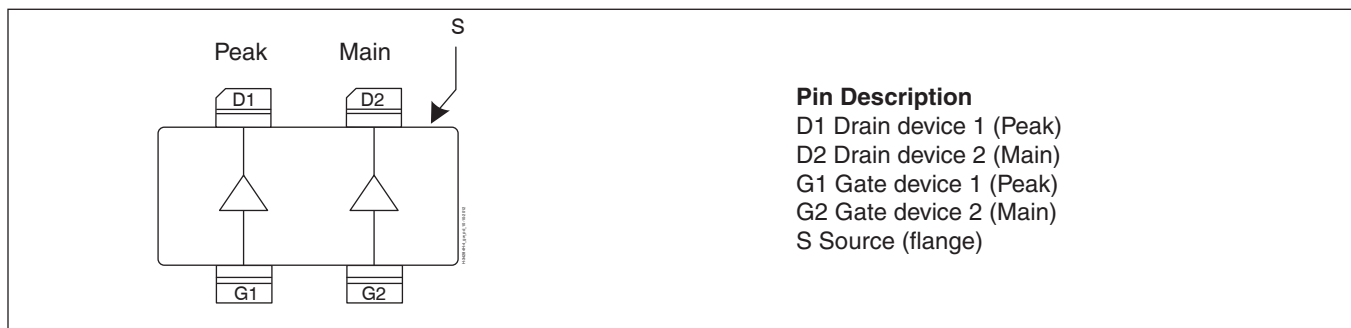
**Reference Circuit** (cont.)

**Reference Circuit Assembly**

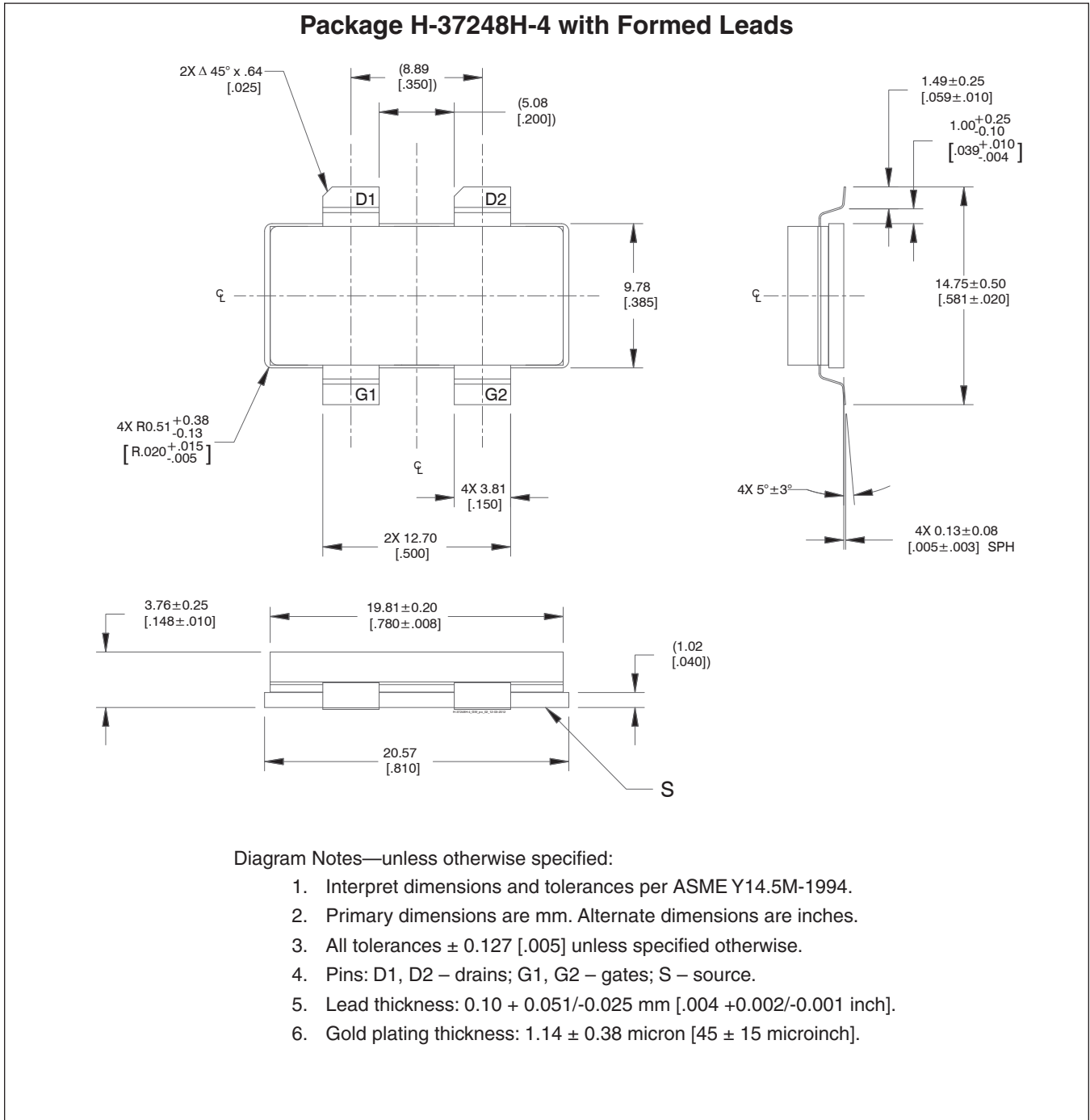
DUT	PXAC260622SC V1
Test Fixture Part No.	LTA/PXAC260062SC V1
PCB	Rogers 4350, 0.508 mm [0.020"] thick, 2 oz. copper, $\epsilon_r = 3.66$ , $f = 2496 - 2690$ MHz
Find Gerber files for this test fixture on the Infineon Web site at <a href="http://www.infineon.com/rfpower">http://www.infineon.com/rfpower</a>	

**Components Information**

Component	Description	Manufacturer	P/N
<b>Input</b>			
C101, C102, C103, C104	Capacitor, 8.2 pF	ATC	ATC800A8R2JW150XB
C105, C106, C107, C108, C109, C110	Capacitor, 4.7 $\mu$ F	Murata Electronics North America	GRM32ER71H475KA88L
C111	Capacitor, 0.5 pF	ATC	ATC800A0R5CW150XB
R101, R102	Resistor, 10 $\Omega$	Panasonic Electronic Components	ERJ-3GEYJ100V
R103	Resistor, 50 $\Omega$	Richardson	C16A50Z4
U1	Hybrid Coupler	Anaren	X3C25P1-04S
<b>Output</b>			
C201, C202, C203, C204	Capacitor, 8.2 pF	ATC	ATC800A8R2JW150XB
C205, C206, C207, C208, C209, C210, C211, C212, C213, C214, C215, C216, C217, C218, C219	Capacitor, 4.7 $\mu$ F	Murata Electronics North America	GRM32ER71H475KA88L
C220	Capacitor, 1.5 pF	ATC	ATC800A1R5CW150XB
C221	Capacitor, 1.0 pF	ATC	ATC800A1R0CW150XB
C222	Capacitor, 0.6 pF	ATC	ATC800A0R6CW150XB

**Pinout Diagram** (top view)

*Lead connections for PXAC260622SC*

Package Outline Specifications



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