

PF04115B

MOS FET Power Amplifier Module for PCS 1900 Handy Phone

HITACHI

ADE-208-808A (Z)
2nd Edition
Jan. 2001

Application

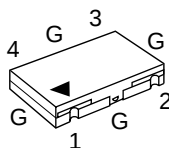
For PCS 1900 class1 1850 MHz to 1910 MHz.

Features

- 3stage amplifier : 0 dBm input
- Small package : 0.2 cc
- High efficiency : 42 % Typ at 32.5 dBm
- Wide gain control range : 70 dB Typ
- Low voltage operation : 3.5 V

Pin Arrangement

- RF-K2



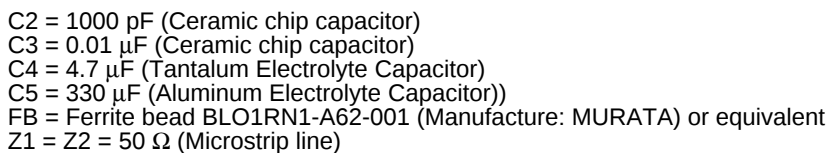
1: Pin
2: V_{apc}
3: V_{dd}
4: P_{out}
G: GND

Absolute Maximum Ratings (T_c = 25°C)

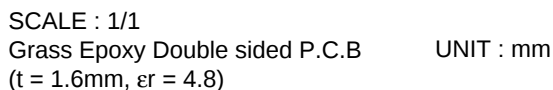
Item	Symbol	Rating	Unit
Supply voltage	V _{DD}	8	V
Supply current	I _{DD}	2	A
V _{APC} voltage	V _{APC}	3	V
Input power	Pin	10	dBm
Operating case temperature	T _c (op)	-30 to +100	°C
Storage temperature	T _{stg}	-30 to +100	°C
Output power	P _{out}	34.7	dBm

Electrical Characteristics (Tc = 25°C)

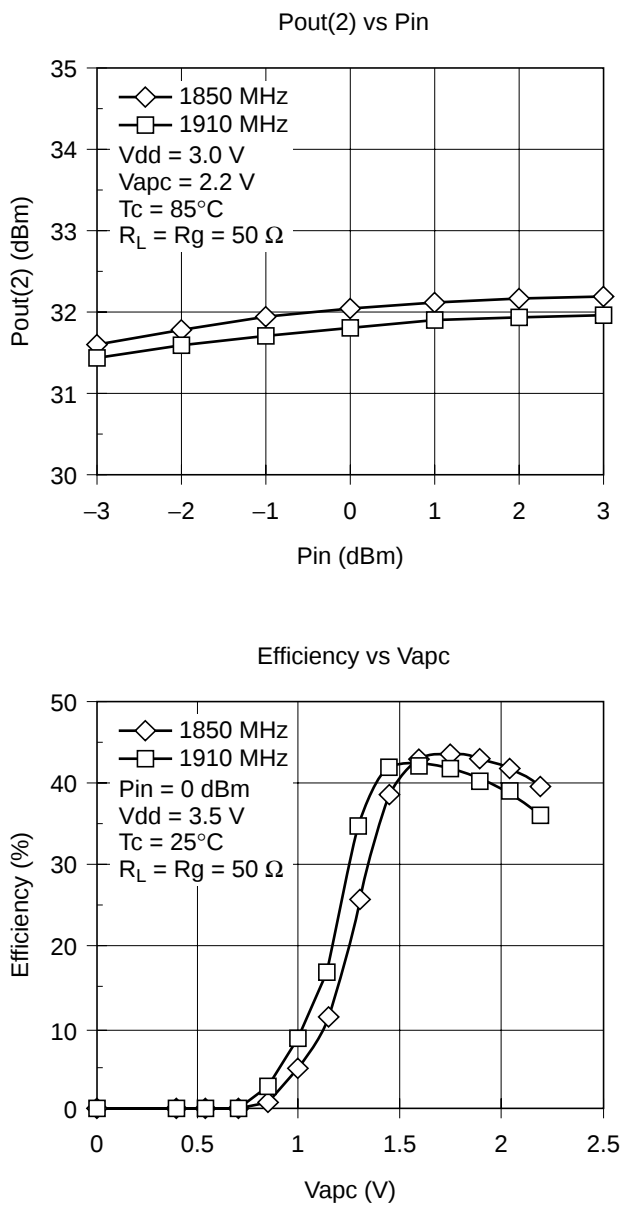
Item	Symbol	Min	Typ	Max	Unit	Test Condition
Frequency range	f	1850	—	1910	MHz	
Control voltage range	V _{APC}	0.5	—	2.2	V	
Drain cutoff current	I _{DS}	—	—	100	μA	V _{DD} = 4.2 V, V _{APC} = 0 V, RF no input
Total efficiency	η _T	37	42	—	%	Pin = 0 dBm, V _{DD} = 3.5 V,
2nd harmonic distortion	2nd H.D.	—	−45	−35	dBc	Pout = 32.5 dBm, Vapc controlled,
3rd harmonic distortion	3rd H.D.	—	−45	−35	dBc	R _L = Rg = 50 Ω, Tc = 25°C
Input VSWR	VSWR (in)	—	1.5	3	—	
Output power (1)	Pout (1)	32.5	33.0	—	dBm	Pin = 0 dBm, V _{DD} = 3.5 V, V _{APC} = 2.2 V, R _L = Rg = 50 Ω, Tc = 25°C
Output power (2)	Pout (2)	30.8	31.5	—	dBm	Pin = 0 dBm, V _{DD} = 3.0 V, V _{APC} = 2.2 V, R _L = Rg = 50 Ω, Tc = 85°C
Isolation	—	—	−36	−33	dBm	Pin = 0 dBm, V _{DD} = 3.5 V, V _{APC} = 0.5 V, R _L = Rg = 50 Ω, Tc = 25°C
Switching time	t _r , t _f	—	1	2	μs	Pin = 0 dBm, V _{DD} = 3.5 V, Pout = 32.5 dBm, R _L = Rg = 50 Ω, Tc = 25°C
Stability & Load VSWR tolerance	—	No parasitic oscillation			—	Pin = 0 dBm, V _{DD} = 3 to 4.2 V, Pout ≤ 32.5 dBm (at APC controlled), t = 20 sec., Rg = 50 Ω, Tc = 25°C, Output VSWR = 6 : 1 All phases

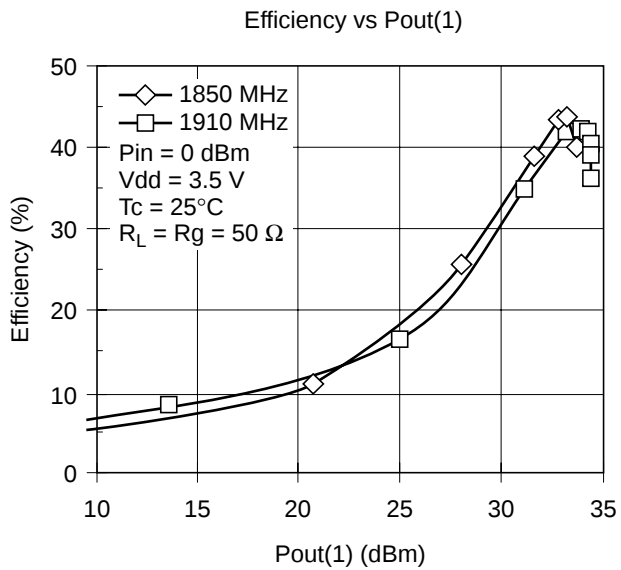
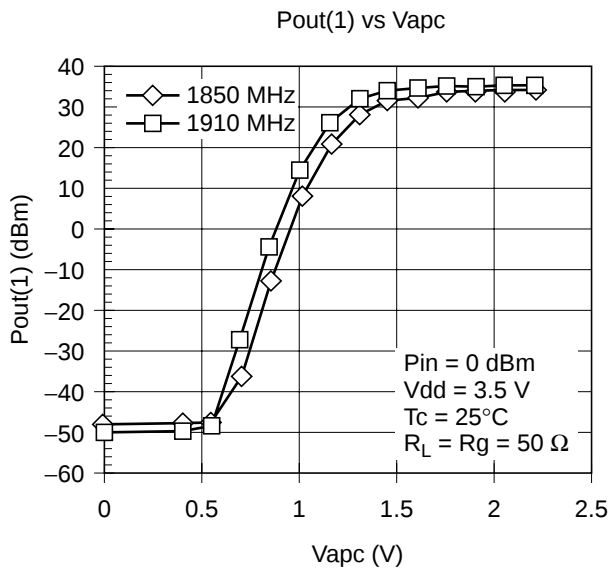


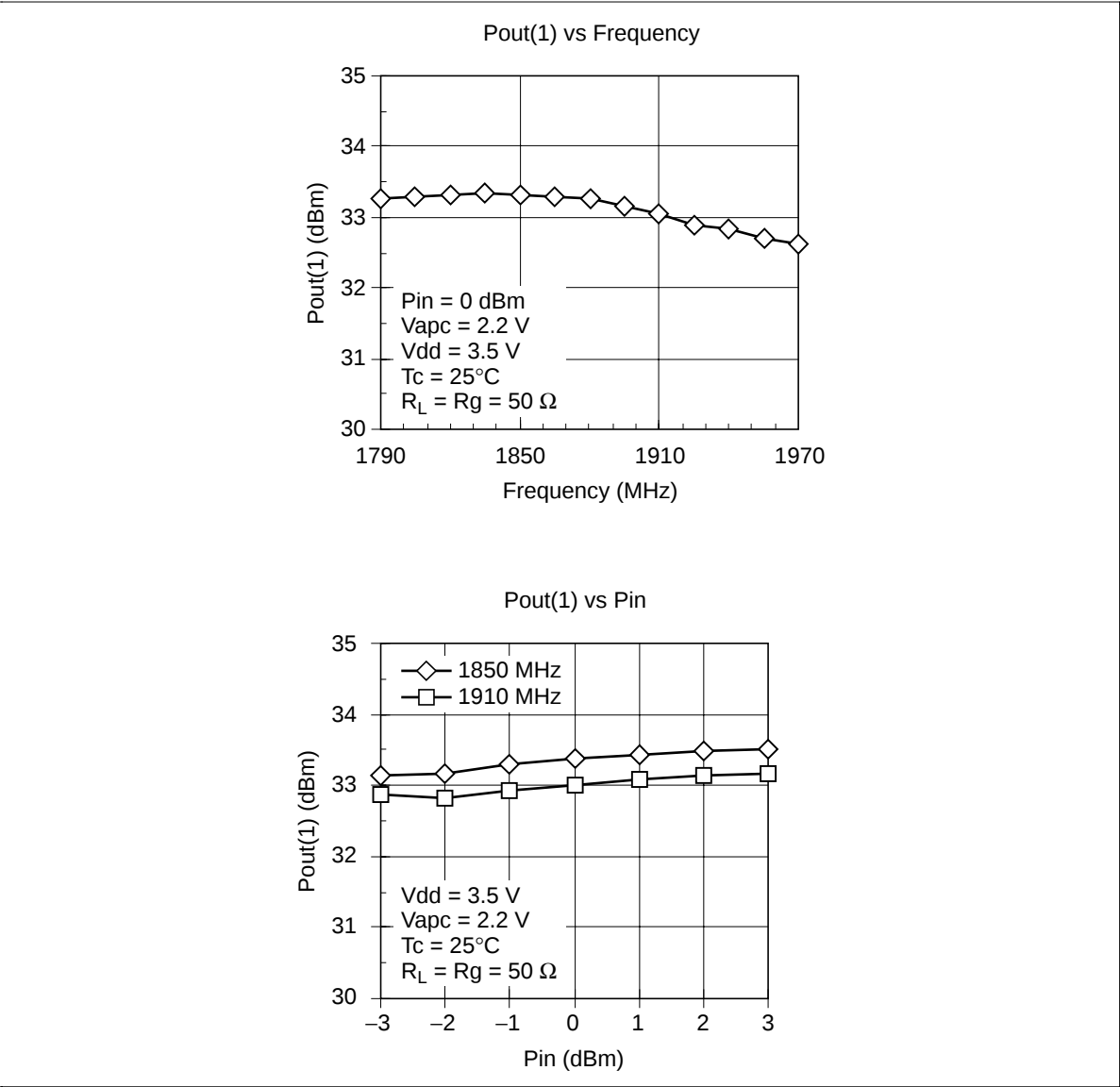
Test Fixture Pattern



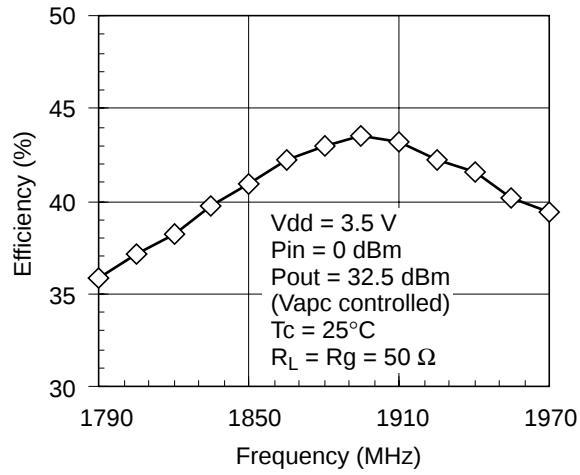
Characteristic Curves



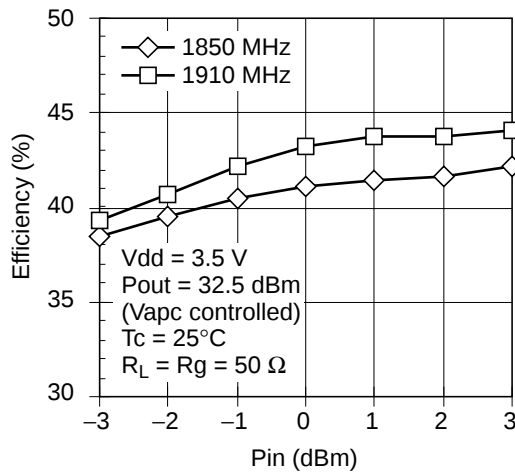


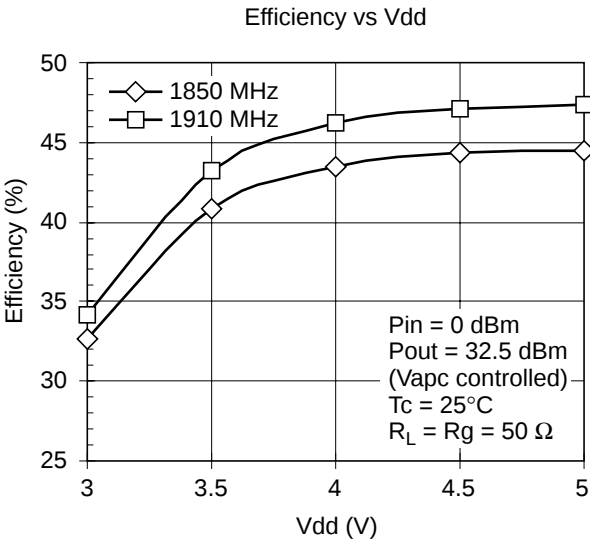
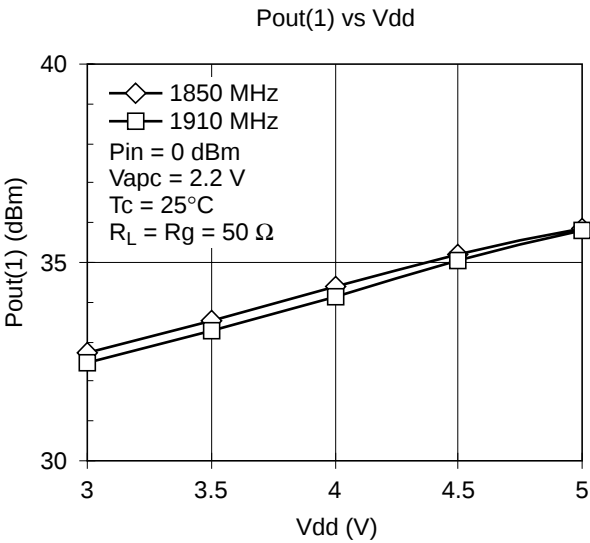


Efficiency vs Frequency



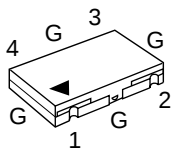
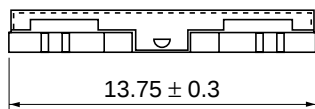
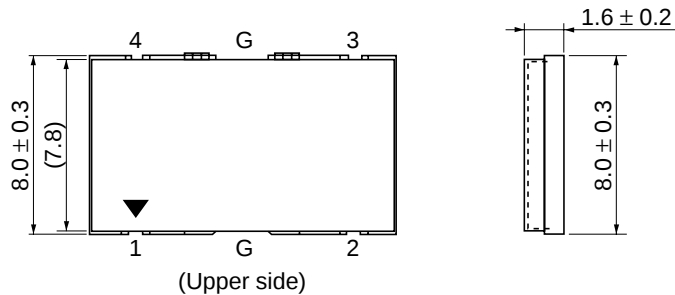
Efficiency vs Pin



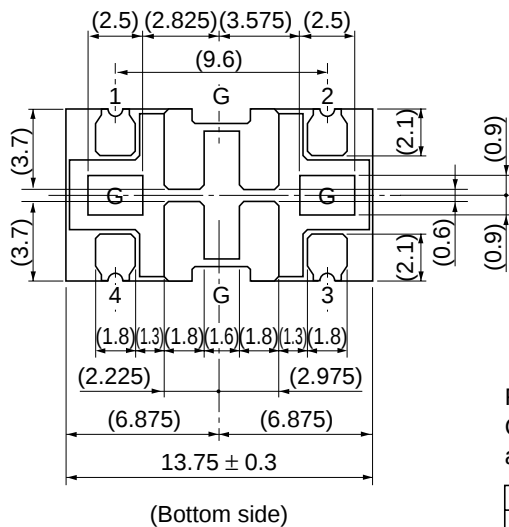


Package Dimensions

Unit: mm



- 1: Pin
- 2: Vapc
- 3: Vdd
- 4: Pout
- G: GND



Remark:
Coplanarity of bottom side of terminals
are less than 0 ± 0.1 mm.

Hitachi Code	RF-K2
JEDEC	—
EIAJ	—
Mass (reference value)	—

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Hitachi, Ltd.

Semiconductor & Integrated Circuits.
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL	NorthAmerica	: http://semiconductor.hitachi.com/
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For further information write to:

Hitachi Semiconductor (America) Inc. 179 East Tasman Drive, San Jose, CA 95134 Tel: <1>(408) 433-1990 Fax: <1>(408) 433-0223	Hitachi Europe GmbH Electronic Components Group Dornacher StraÙe 3 D-85622 Feldkirchen, Munich Germany Tel: <49> (89) 9 9180-0 Fax: <49> (89) 9 29 30 00	Hitachi Asia Ltd. Hitachi Tower 16 Collyer Quay #20-00, Singapore 049318 Tel: <65>-538-6533/538-8577 Fax: <65>-538-6933/538-3877 URL: http://www.hitachi.com.sg	Hitachi Asia (Hong Kong) Ltd. Group III (Electronic Components) 7/F., North Tower, World Finance Centre, Harbour City, Canton Road Tsim Sha Tsui, Kowloon, Hong Kong Tel: <852>-(2)-735-9218 Fax: <852>-(2)-730-0281 URL: http://www.hitachi.com.hk
	Hitachi Europe Ltd. Electronic Components Group. Whitebrook Park Lower Cookham Road Maidenhead Berkshire SL6 8YA, United Kingdom Tel: <44> (1628) 585000 Fax: <44> (1628) 585160	Hitachi Asia Ltd. (Taipei Branch Office) 4/F, No. 167, Tun Hwa North Road, Hung-Kuo Building, Taipei (105), Taiwan Tel: <886>-(2)-2718-3666 Fax: <886>-(2)-2718-8180 Telex: 23222 HAS-TP URL: http://www.hitachi.com.tw	

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