

PF0414A

MOS FET Power Amplifier Module for DCS 1800 Handy Phone

HITACHI

ADE-208-431C (Z)
4th Edition
Jan. 2001

Application

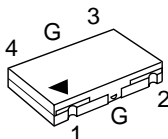
For DCS 1800 class1 1710 MHz to 1785 MHz.

Features

- 3stage amplifier
- Small package: 0.2 cc
- High efficiency: 45 % Typ
- High speed switching: 0.9 μ sec

Pin Arrangement

- RF-K



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

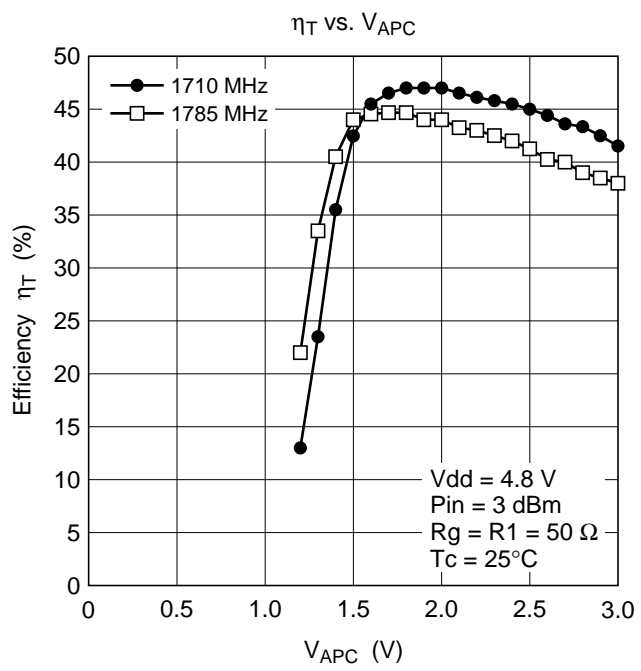
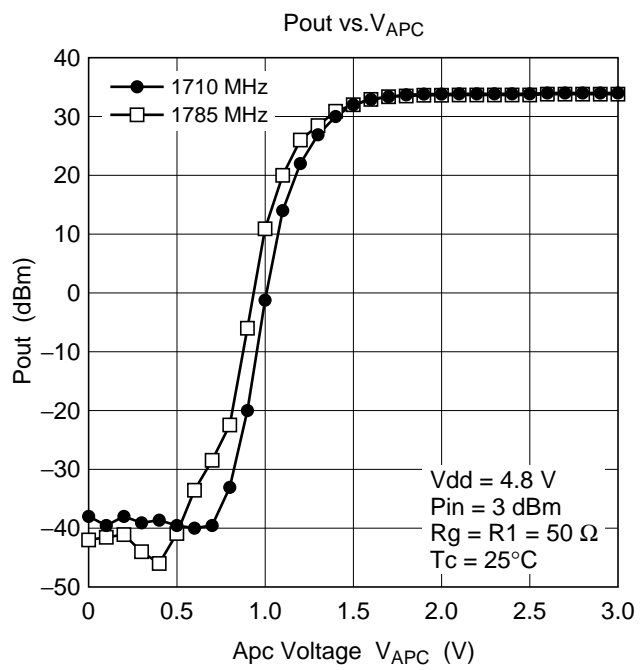
Absolute Maximum Ratings ($T_c = 25^\circ\text{C}$)

Item	Symbol	Rating	Unit
Supply voltage	V_{DD}	11	V
Supply current	I_{DD}	3	A
V_{APC} voltage	V_{APC}	6	V
Input power	Pin	20	mW
Operating case temperature	T_c (op)	-30 to +100	$^\circ\text{C}$
Storage temperature	T_{stg}	-30 to +100	$^\circ\text{C}$
Output power	Pout	3	W

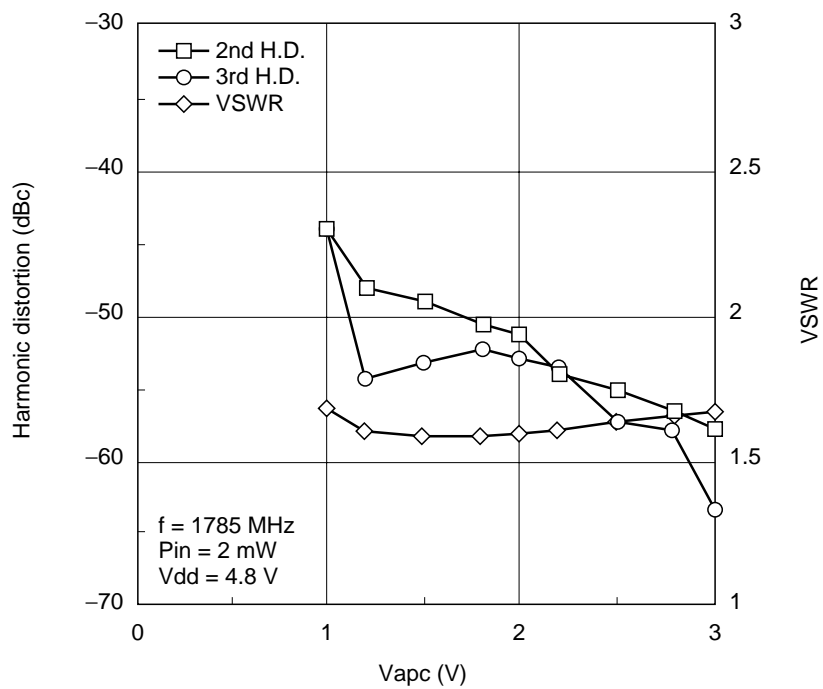
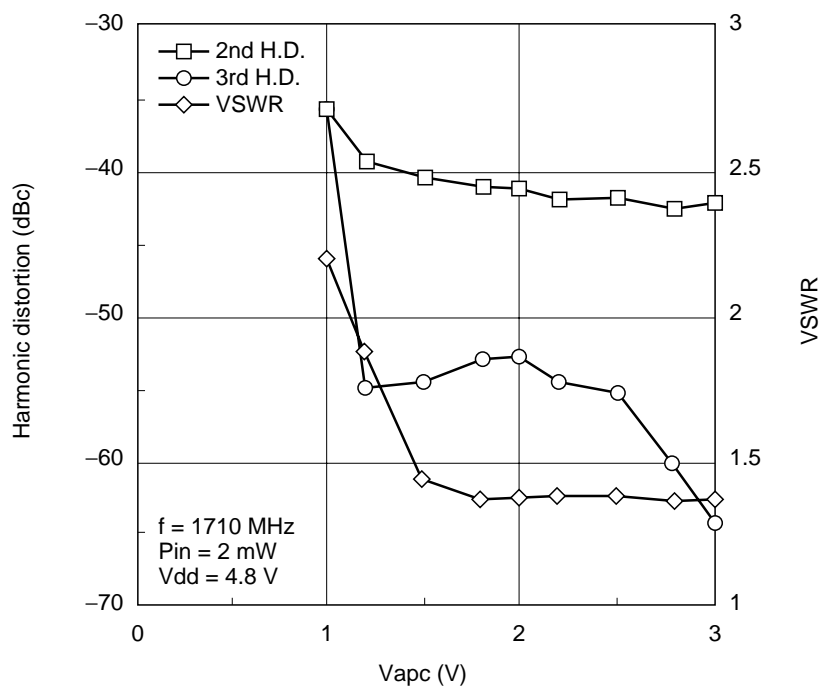
Electrical Characteristics (Tc = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Frequency range	f	1710	—	1785	MHz	
Control voltage range	V _{APC}	0.5	—	3	V	
Drain cutoff current	I _{DS}	—	—	100	μA	V _{DD} = 11 V, V _{APC} = 0 V
Total efficiency	η _T	37	45	—	%	Pin = 2 mW, V _{DD} = 4.8 V,
2nd harmonic distortion	2nd H.D.	—	−45	−35	dBc	Pout = 1.8 W (at APC controlled),
3rd harmonic distortion	3rd H.D.	—	−45	−35	dBc	R _L = R _g = 50 Ω, Tc = 25°C
Input VSWR	VSWR (in)	—	1.5	3	—	
Output power (1)	Pout (1)	1.8	2.4	—	W	Pin = 2 mW, V _{DD} = 4.8 V, V _{APC} = 3 V, R _L = R _g = 50 Ω, Tc = 25°C
Output power (2)	Pout (2)	1.2	1.5	—	W	Pin = 2 mW, V _{DD} = 4.3 V, V _{APC} = 3 V, R _L = R _g = 50 Ω, Tc = 80°C
Isolation	—	—	−40	−30	dBm	Pin = 2 mW, V _{DD} = 4.8 V, V _{APC} = 0.5 V, R _L = R _g = 50 Ω, Tc = 25°C
Switching time	t _r , t _f	—	0.9	2	μs	Pin = 2 mW, V _{DD} = 4.8 V, Pout = 1.8 W, R _L = R _g = 50 Ω, Tc = 25°C
Stability	—	No parasitic oscillation			—	Pin = 2 mW, V _{DD} = 6 V, Ids ≤ 0.9 A (only pulsed), Pout ≤ 1.8 W (at APC controlled), R _g = 50 Ω, t = 20 sec., Tc = 25°C, Output VSWR = 10 : 1 All phases

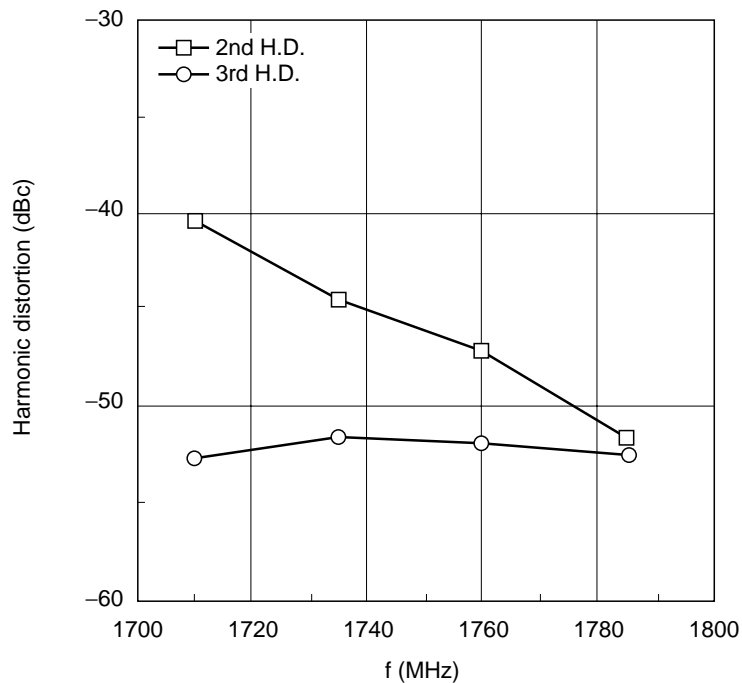
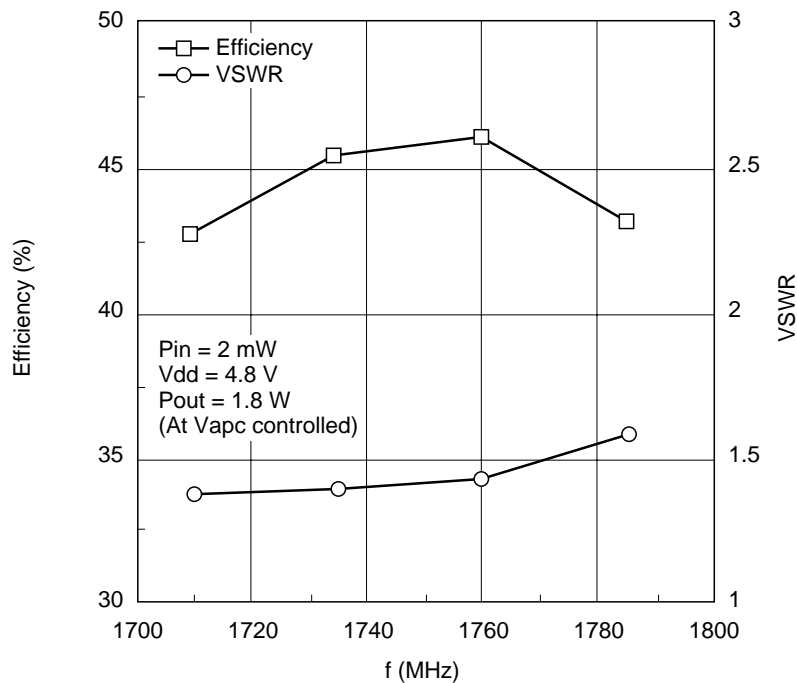
Characteristic Curves



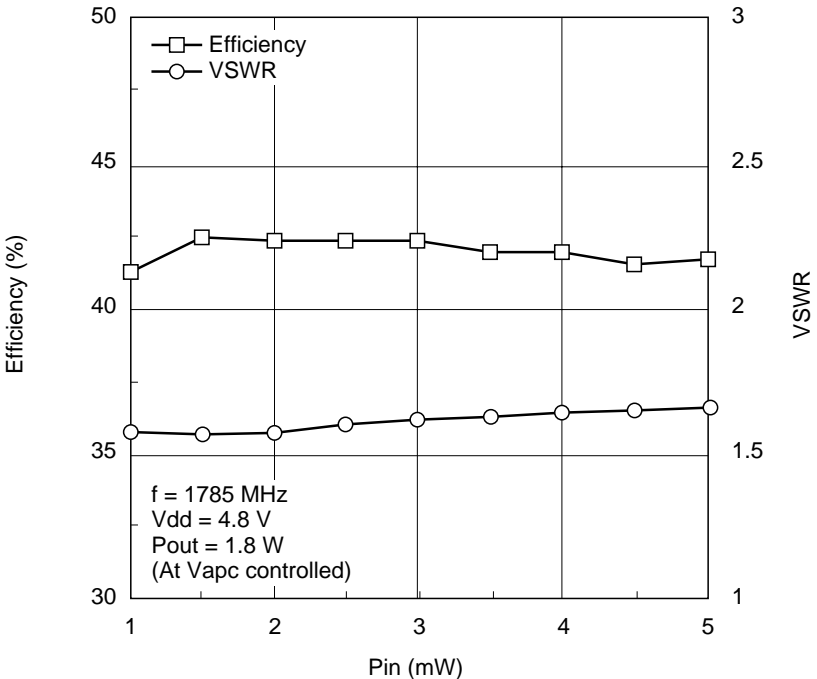
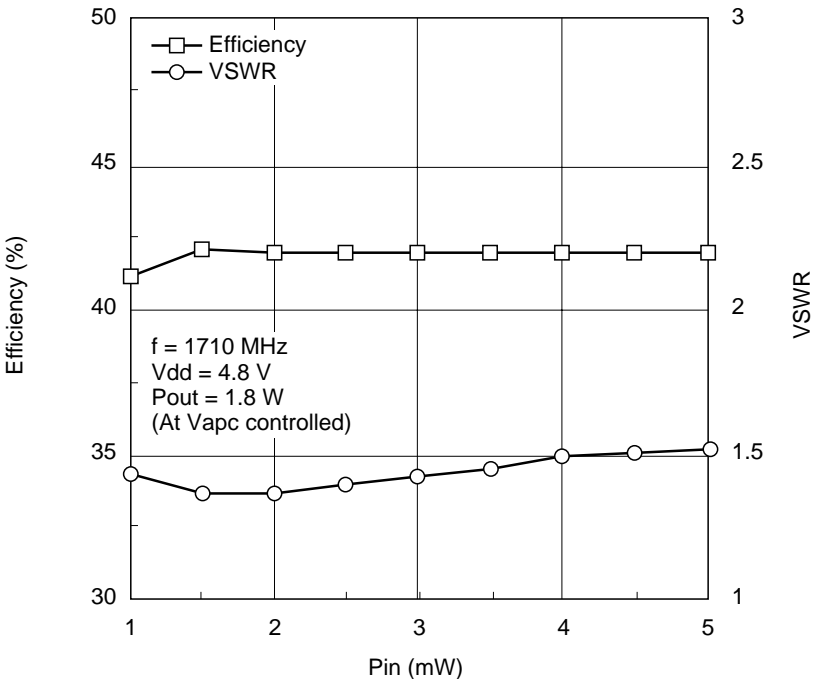
Vapc dependence



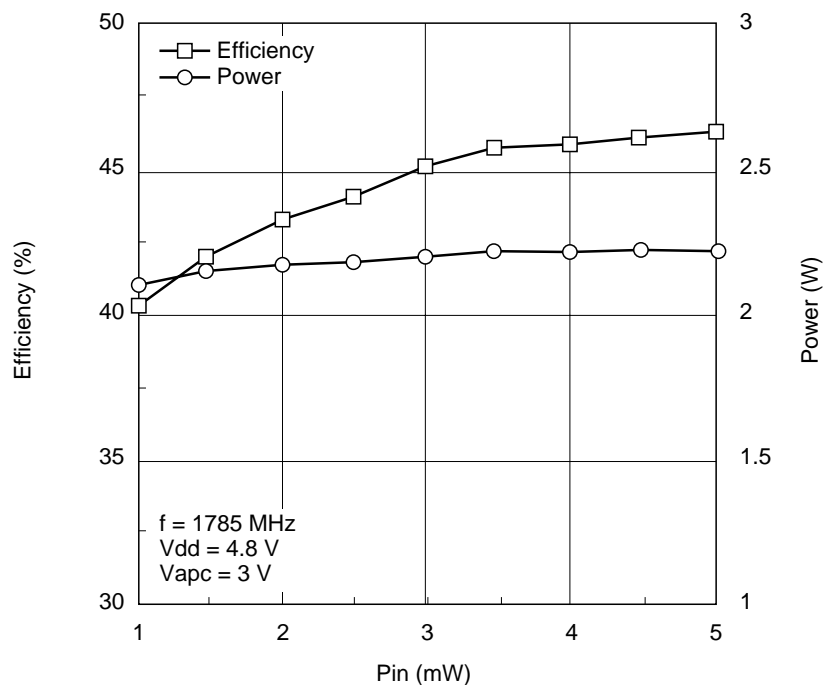
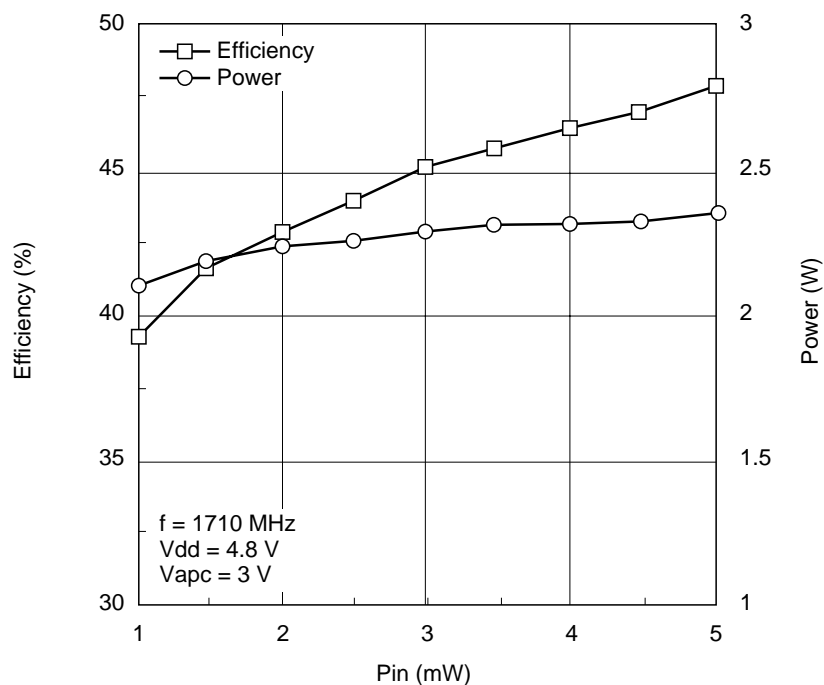
Frequency dependence



Pin dependence

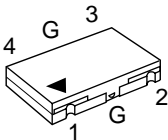
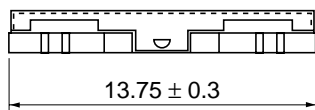
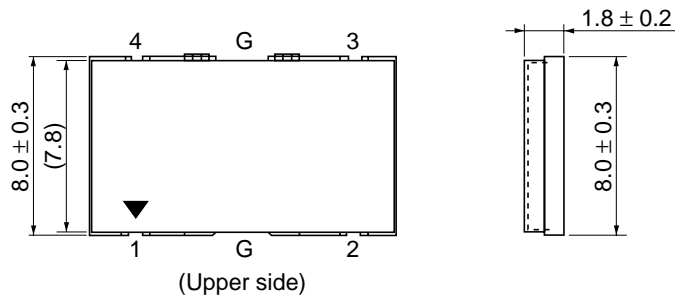


Pin dependence

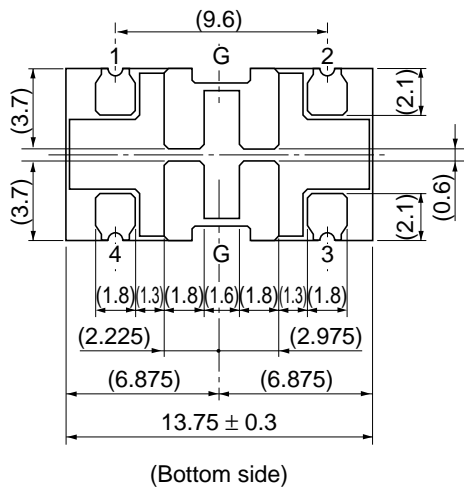


Package Dimensions

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-K
JEDEC	—
EIAJ	—
Mass (reference value)	—

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