PF0414A

MOS FET Power Amplifier Module
for DCS 1800 Handy Phone

HITACHI

ADE-208-431B (Z)
3rd Edition
December 1997

Application

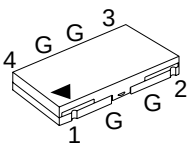
For DCS 1800 class1 1710 to 1785 MHz.

Features

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

Pin Arrangement

• RF-K



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

Absolute Maximum Ratings (Tc = 25°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	Tc (op)	–30 to +100	°C
Storage temperature	Tstg	–30 to +100	°C
Output power	Pout	3	W

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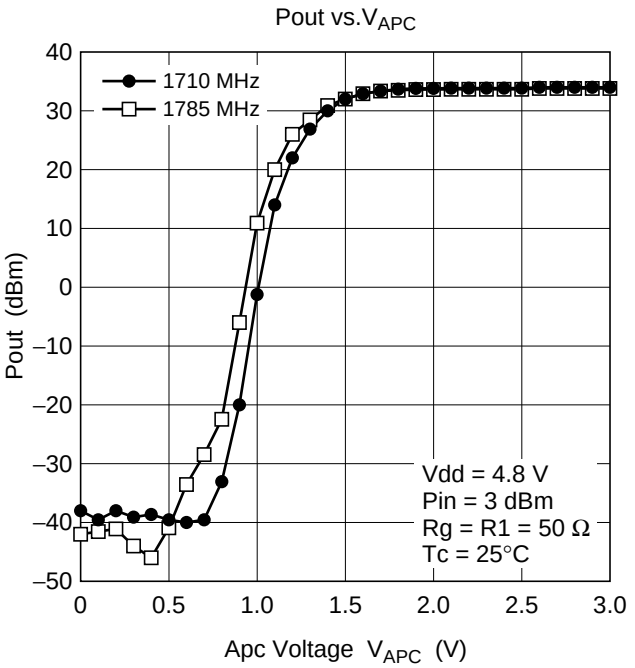
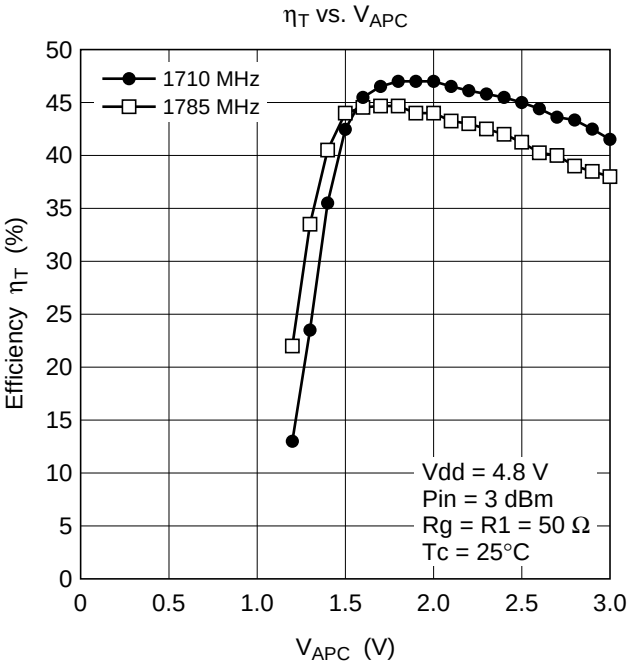
Electrical Characteristics (Tc = 25°C)

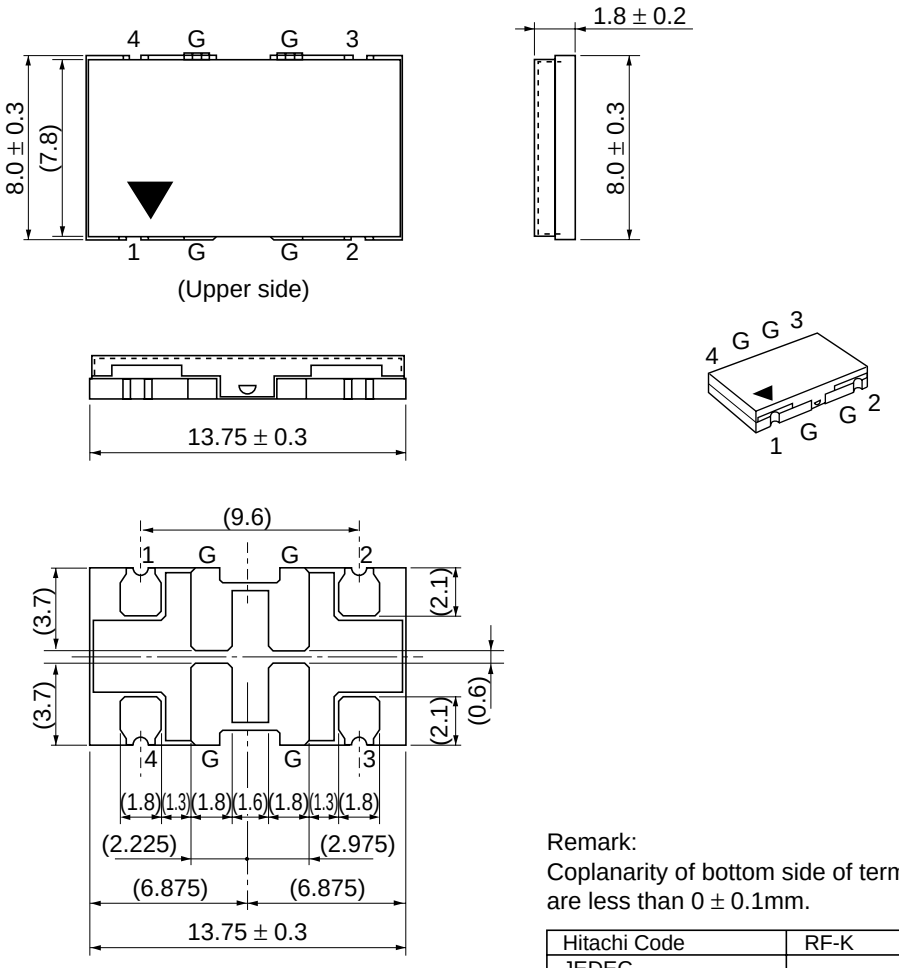
Item	Symbol	Min	Typ	Max	Unit	Test Condition
Frequency range	f	1710	—	1785	MHz	
Control voltage range	V_{APC}	0.5	—	3	V	
Drain cutoff current	I_{DS}	—	—	100	µA	V_{DD} = 11 V, V_{APC} = 0 V
Total efficiency	η_T	37	45	—	%	Pin = 2 mW, V_{DD} = 4.8 V,
2nd harmonic distortion	2nd H.D.	—	–45	–35	dBc	Pout = 1.8 W (at APC controlled),
3rd harmonic distortion	3rd H.D.	—	–45	–35	dBc	R_L = Rg = 50 Ω, Tc = 25°C
Input VSWR	VSWR (in)	—	1.5	3	—	
Output power (1)	Pout (1)	2.0	2.4	—	W	Pin = 2 mW, V_{DD} = 4.8 V, V_{APC} = 3 V, R_L = Rg = 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 = Rg = 50 Ω, Tc = 80°C
Isolation	—	—	–40	–30	dBm	Pin = 2 mW, V_{DD} = 4.8 V, V_{APC} = 0.5 V, R_L = Rg = 50 Ω, Tc = 25°C
Switching time	tr, tf	—	0.9	2	µs	Pin = 2 mW, V_{DD} = 4.8 V, Pout = 1.8 W, R_L = Rg = 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), Rg = 50 Ω, t = 20 sec., Tc = 25°C, Output VSWR = 10 : 1 All phases


Pout vs.V_{APC}
1710 MHz
1785 MHz
Vdd = 4.8 V
Pin = 3 dBm
Rg = R1 = 50 Ω
Tc = 25°C
Pout (dBm)
Apc Voltage V_{APC} (V)


η_T vs. V_{APC}
1710 MHz
1785 MHz
Vdd = 4.8 V
Pin = 3 dBm
Rg = R1 = 50 Ω
Tc = 25°C
Efficiency η_T (%)
V_{APC} (V)

Package Dimensions

Unit: mm



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

Hitachi Code	RF-K
JEDEC	—
EIAJ	—
Weight (reference value)	—

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