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# PF01412A

## MOS FET Power Amplifier Module for E-GSM Handy Phone

# HITACHI

ADE-208-477B (Z)  
3rd Edition  
February 1997

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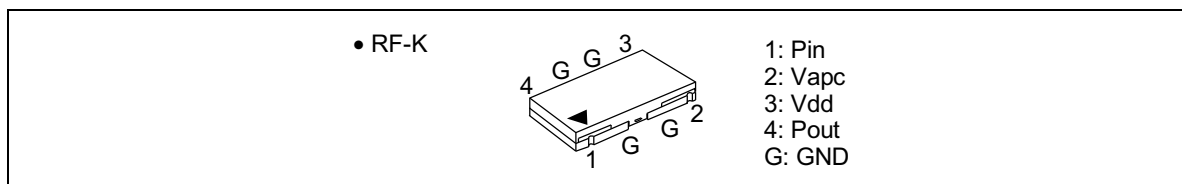
### Application

- For GSM class4 890 to 915 MHz
- For 5.5V nominal DC/DC converter use

### Features

- High gain 3stage amplifier : 0 dBm input
- Lead less thin & Small package : 2 mm Max, 0.2cc
- High efficiency : 45% Typ at 3.8 W
- Wide gain control range : 90 dB Typ

### Pin Arrangement



### Absolute Maximum Ratings (Tc = 25°C)

Item	Symbol	Rating	Unit
Supply voltage	V <sub>DD</sub>	10	V
Supply current	I <sub>DD</sub>	3	A
V <sub>APC</sub> voltage	V <sub>APC</sub>	4	V
Input power	Pin	10	mW
Operating case temperature	Tc (op)	-30 to +100	°C
Storage temperature	Tstg	-30 to +100	°C
Output power	Pout	6	W

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### Electrical Characteristics (T<sub>c</sub> = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Frequency range	f	890	—	915	MHz	
Control voltage range	V <sub>APC</sub>	0.5	—	3.0	V	
Drain cutoff current	I <sub>DS</sub>	—	—	100	μA	V <sub>DD</sub> = 10 V, V <sub>APC</sub> = 0 V
Total efficiency	η <sub>T</sub>	40	45	—	%	Pin = 1 mW, V <sub>DD</sub> = 5.5 V,
2nd harmonic distortion	2nd H.D.	—	−45	−35	dBc	Pout = 3.8 W, Vapc = controlled
3rd harmonic distortion	3rd H.D.	—	−45	−35	dBc	R <sub>L</sub> = R <sub>g</sub> = 50 Ω, T <sub>c</sub> = 25°C
Input VSWR	VSWR (in)	—	1.5	3	—	
Output power (1)	Pout (1)	3.8	4.5	—	W	Pin = 1 mW, V <sub>DD</sub> = 5.5 V, V <sub>APC</sub> = 3.0 V, R <sub>L</sub> = R <sub>g</sub> = 50 Ω, T <sub>c</sub> = 25°C
Output power (2)	Pout (2)	2.5	3.2	—	W	Pin = 1 mW, V <sub>DD</sub> = 5.0 V, V <sub>APC</sub> = 3.0 V, R <sub>L</sub> = R <sub>g</sub> = 50 Ω, T <sub>c</sub> = 80°C
Isolation	—	—	−50	−40	dBm	Pin = 1 mW, V <sub>DD</sub> = 5.5 V, V <sub>APC</sub> = 0.5 V, R <sub>L</sub> = R <sub>g</sub> = 50 Ω, T <sub>c</sub> = 25°C
Switching time	tr, tf	—	1	2	μs	Pin = 1 mW, V <sub>DD</sub> = 5.5 V, Pout = 3.8 W, R <sub>L</sub> = R <sub>g</sub> = 50 Ω, T <sub>c</sub> = 25°C
Stability & Load VSWR tolerance	—	No parasitic oscillation & No degradation			—	Pin = 1 mW, V <sub>DD</sub> = 5 to 6 V, Pout ≤ 3.8 W, Vapc ≤ 3 V GSM pulse. R <sub>g</sub> = 50 Ω, t = 20 sec., T <sub>c</sub> = 25°C, Output VSWR = 6 : 1 All phases



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