

# PF01411A

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

# HITACHI

ADE-208-433D (Z)  
5th Edition  
Jan. 2001

### Application

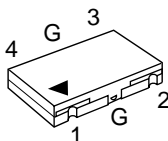
- For E-GSM class4 880 MHz to 915 MHz
- For 4.8 V nominal battery use

### 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

- RF-K



- 1: Pin
- 2: V<sub>apc</sub>
- 3: V<sub>DD</sub>
- 4: P<sub>out</sub>
- G: GND

### Absolute Maximum Ratings (T<sub>c</sub> = 25°C)

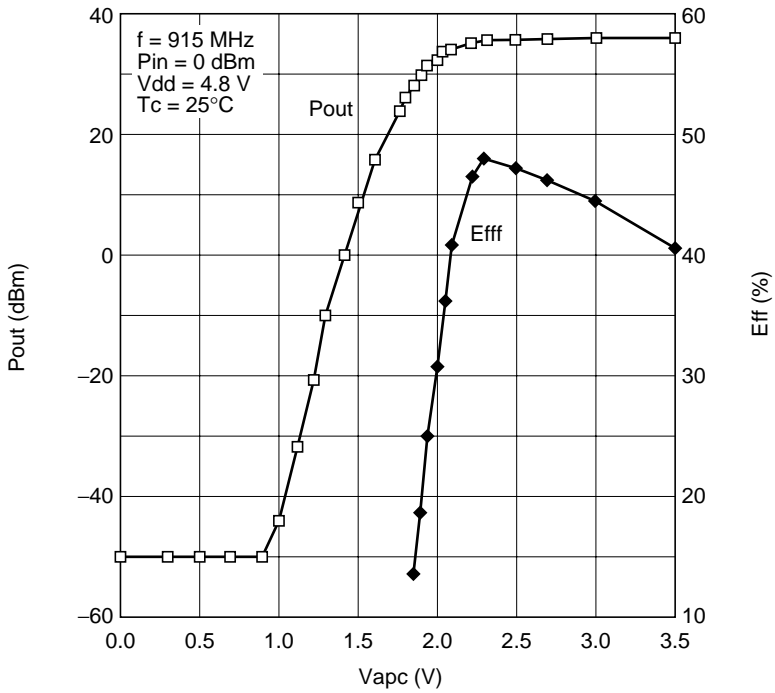
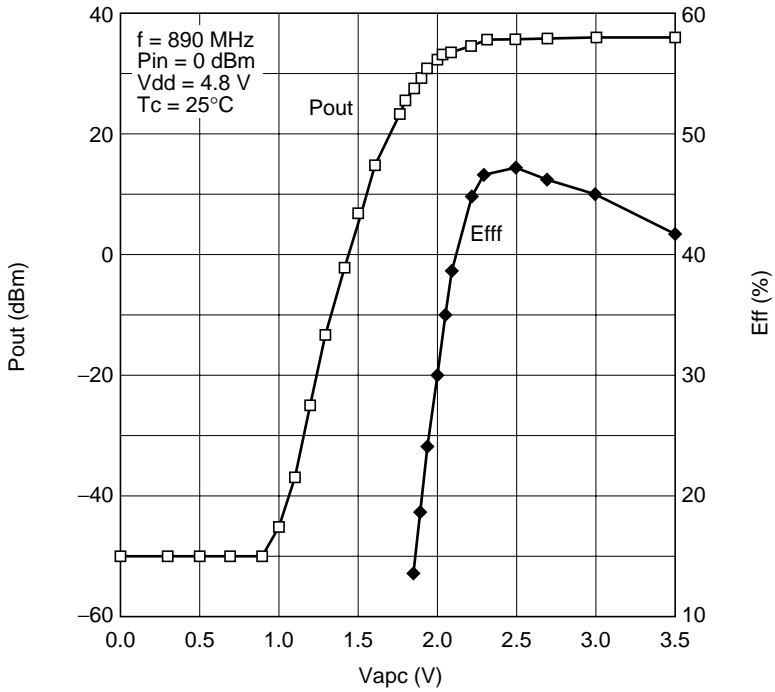
Item	Symbol	Rating	Unit
Supply voltage	V <sub>DD</sub>	10	V
Supply current	I <sub>DD</sub>	3	A
V <sub>APC</sub> voltage	V <sub>APC</sub>	4	V
Input power	P <sub>in</sub>	10	mW
Operating case temperature	T <sub>c</sub> (op)	-30 to +100	°C
Storage temperature	T <sub>stg</sub>	-30 to +100	°C
Output power	P <sub>out</sub>	5	W

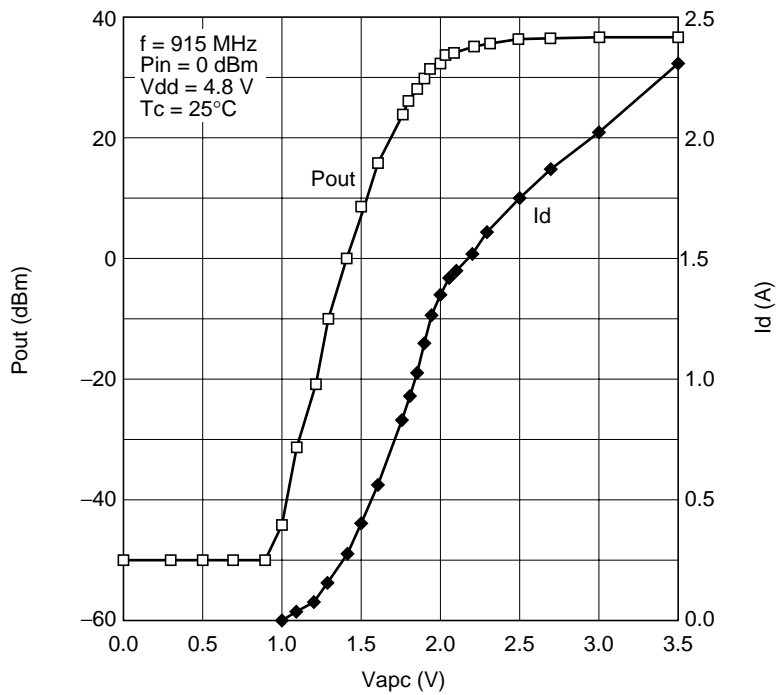
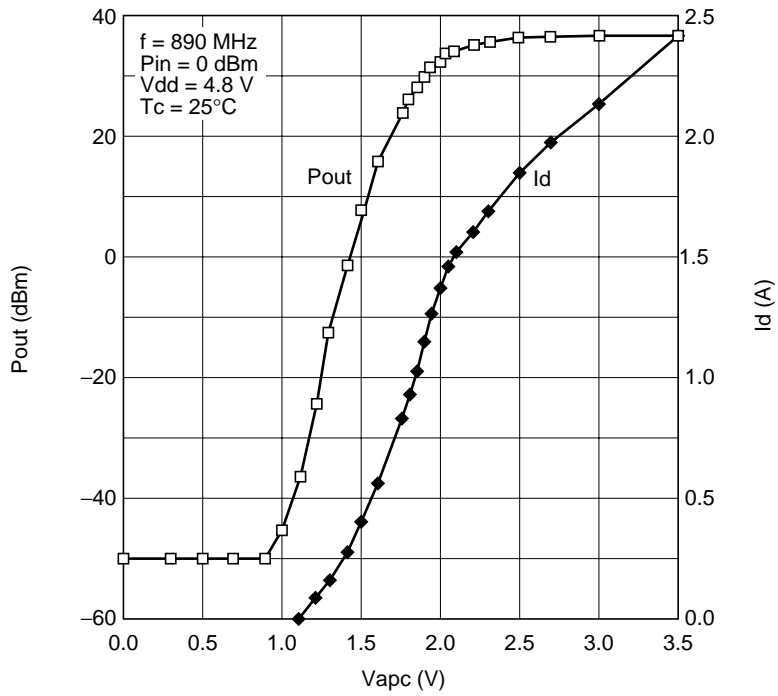
**Electrical Characteristics (Tc = 25°C)**

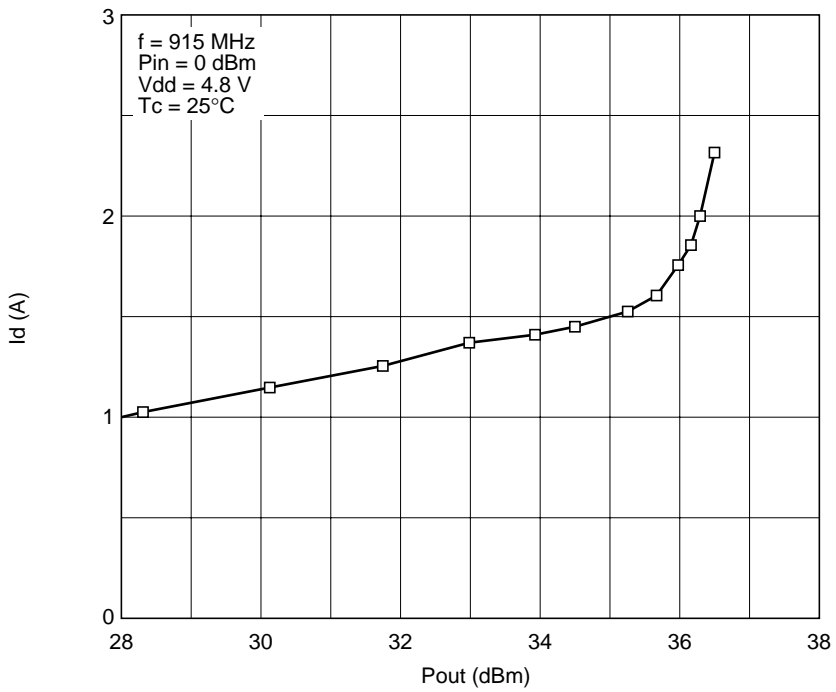
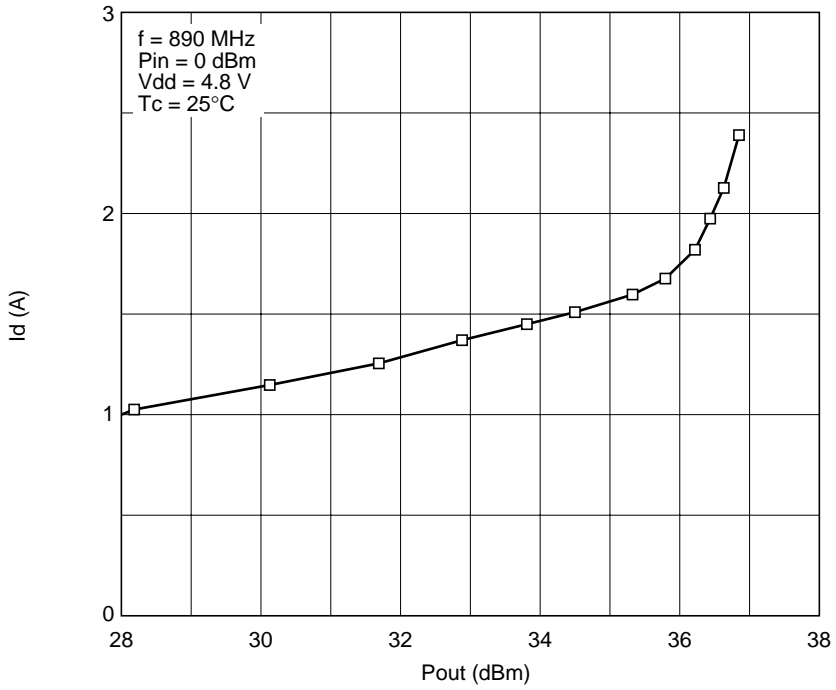
Item	Symbol	Min	Typ	Max	Unit	Test Condition
Frequency range	f	880	—	915	MHz	
Control voltage range	V <sub>APC</sub>	0.5	—	3.0	V	
Drain cutoff current	I <sub>DS</sub>	—	—	100	μA	V <sub>DD</sub> = 10V, V <sub>APC</sub> = 0V
Total efficiency	η <sub>T</sub>	40	45	—	%	Pin = 1mW, V <sub>DD</sub> = 4.8V,
2nd harmonic distortion	2nd H.D.	—	-45	-35	dBc	Pout = 3.8W, Vapc = controlled
3rd harmonic distortion	3rd H.D.	—	-45	-35	dBc	R <sub>L</sub> = R <sub>g</sub> = 50Ω, Tc = 25°C
Input VSWR	VSWR (in)	—	1.5	3	—	
Output power (1)	Pout (1)	3.8	4.3	—	W	Pin = 1mW, V <sub>DD</sub> = 4.8V, V <sub>APC</sub> = 3.0V, R <sub>L</sub> = R <sub>g</sub> = 50Ω, Tc = 25°C
Output power (2)	Pout (2)	2.5	2.9	—	W	Pin = 1mW, V <sub>DD</sub> = 4.3V, V <sub>APC</sub> = 3.0V, R <sub>L</sub> = R <sub>g</sub> = 50Ω, Tc = 80°C
Isolation	—	—	-50	-40	dBm	Pin = 1mW, V <sub>DD</sub> = 4.8V, V <sub>APC</sub> = 0.5V, R <sub>L</sub> = R <sub>g</sub> = 50Ω, Tc = 25°C
Switching time	t <sub>r</sub> , t <sub>f</sub>	—	1	2	μs	Pin = 1mW, V <sub>DD</sub> = 4.8V, Pout = 3.8W, R <sub>L</sub> = R <sub>g</sub> = 50Ω, Tc = 25°C
Stability & Load VSWR tolerance	—	No parasitic oscillation & No degradation			—	Pin = 1mW, V <sub>DD</sub> = 4 to 7V, Pout ≤ 3.8W, Vapc ≤ 3V GSM pulse. R <sub>g</sub> = 50Ω, t = 20sec., Tc = 25°C, Output VSWR = 6 : 1 All phases

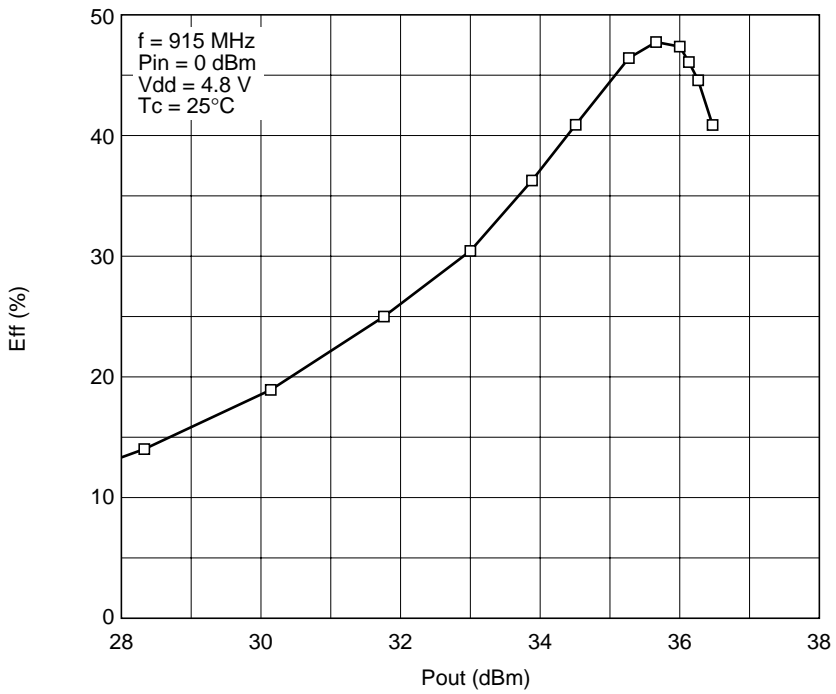
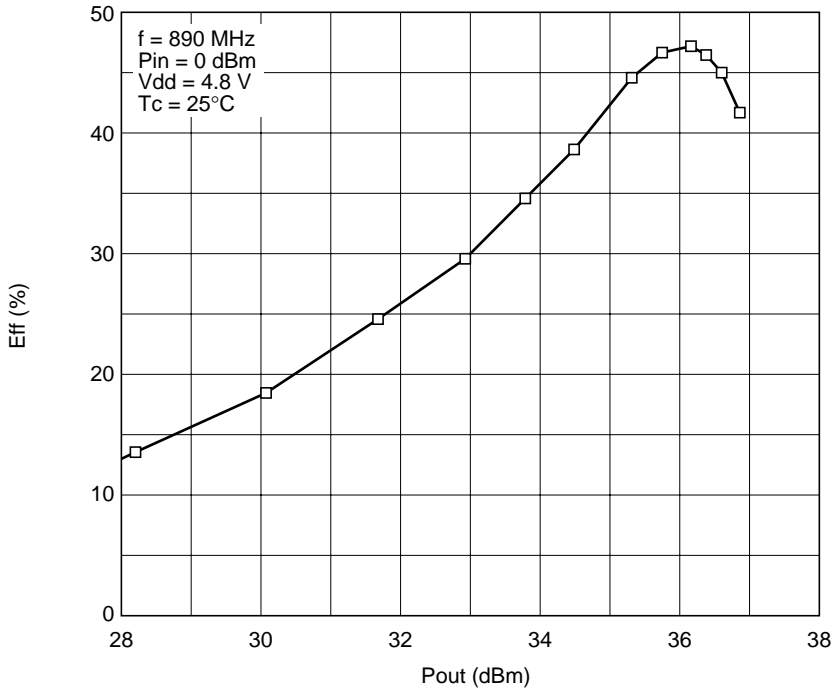


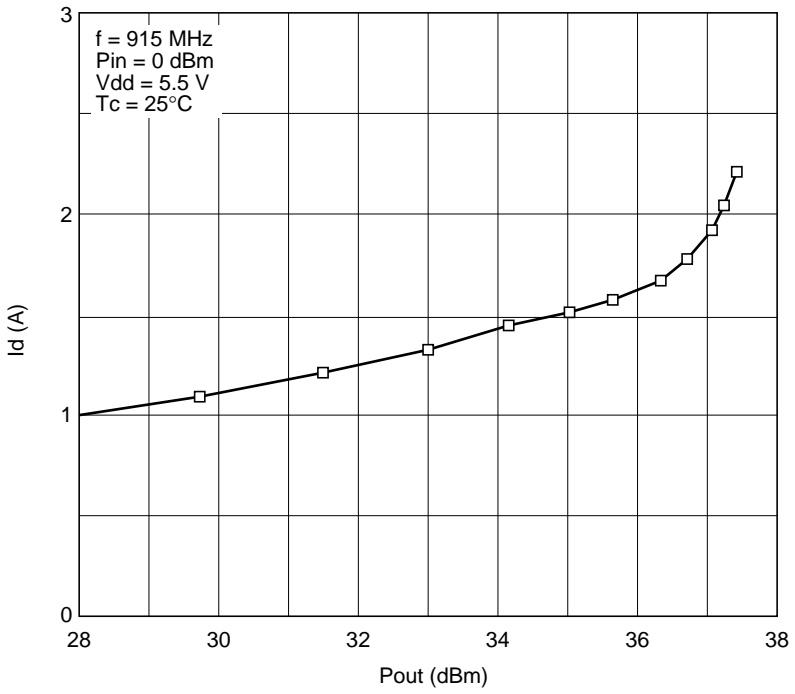
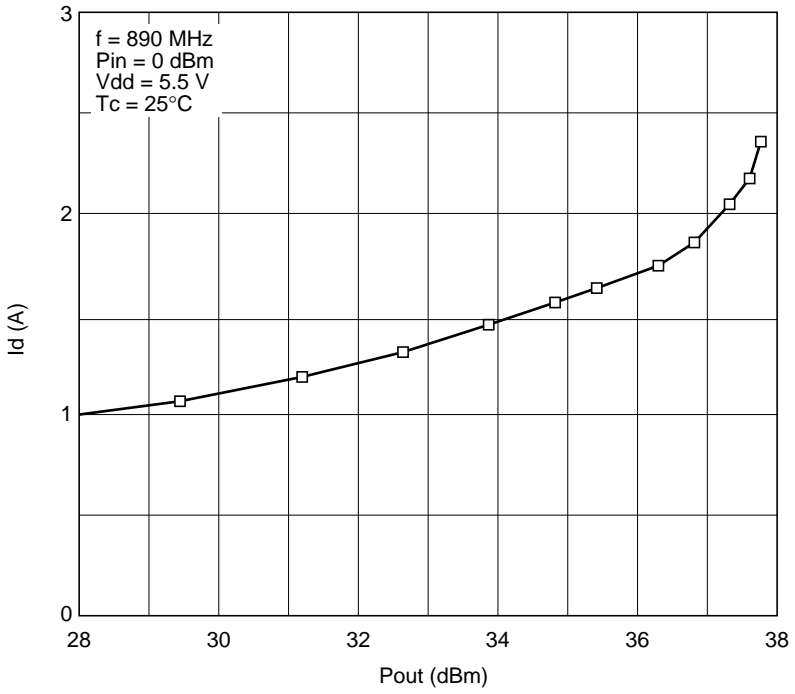
Characteristic Curves

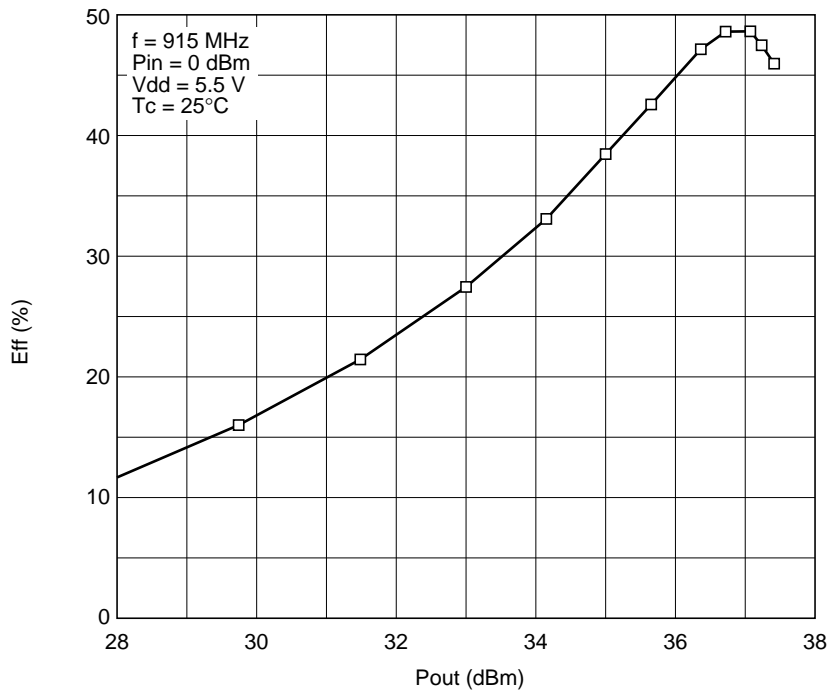
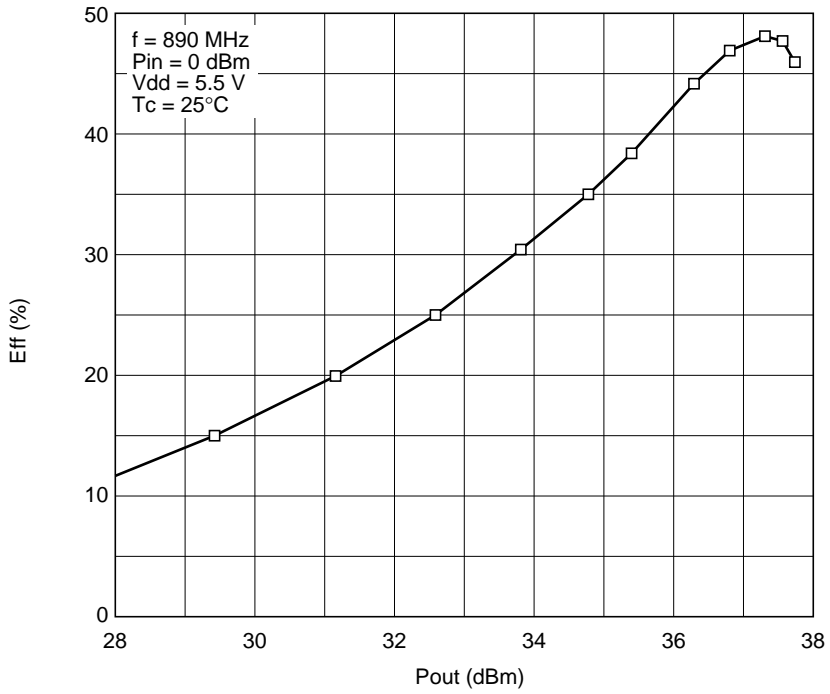






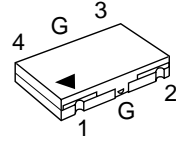
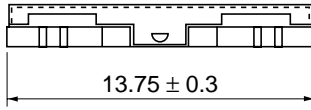
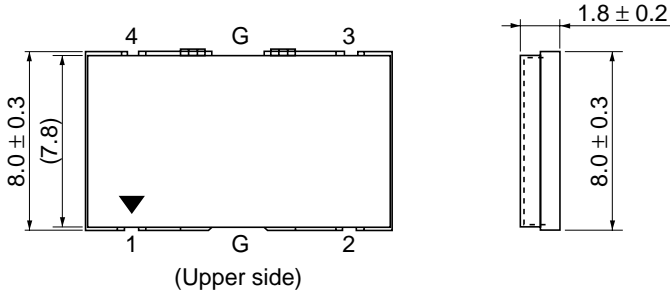




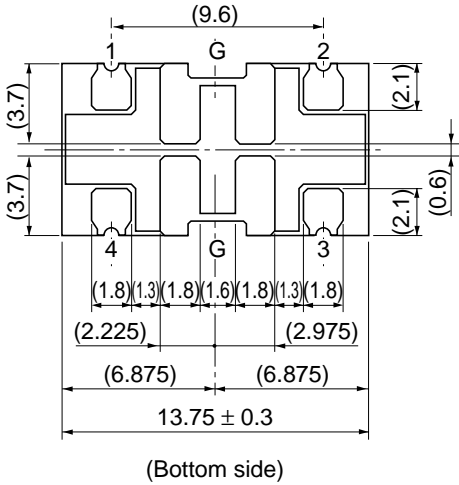


Package Dimensions

Unit: mm



- 1: Pin
- 2: V<sub>apc</sub>
- 3: V<sub>dd</sub>
- 4: Pout
- G: GND



Remark:  
Coplanarity of bottom side of terminals are less than  $0 \pm 0.1$ mm.

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

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