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## PF0412

MOS FET Power Amplifier Module  
for DCS 1800 Handy Phone

# HITACHI

ADE-208-402C (Z)  
4th. Edition  
December 1996

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### Application

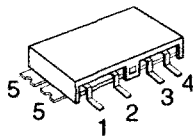
For DCS 1800 class 1 1710 to 1785MHz

### Features

- Small package: 0.6cc
- High efficiency: 35% Typ
- High speed switching: 0.9  $\mu$ sec

### Pin Arrangement

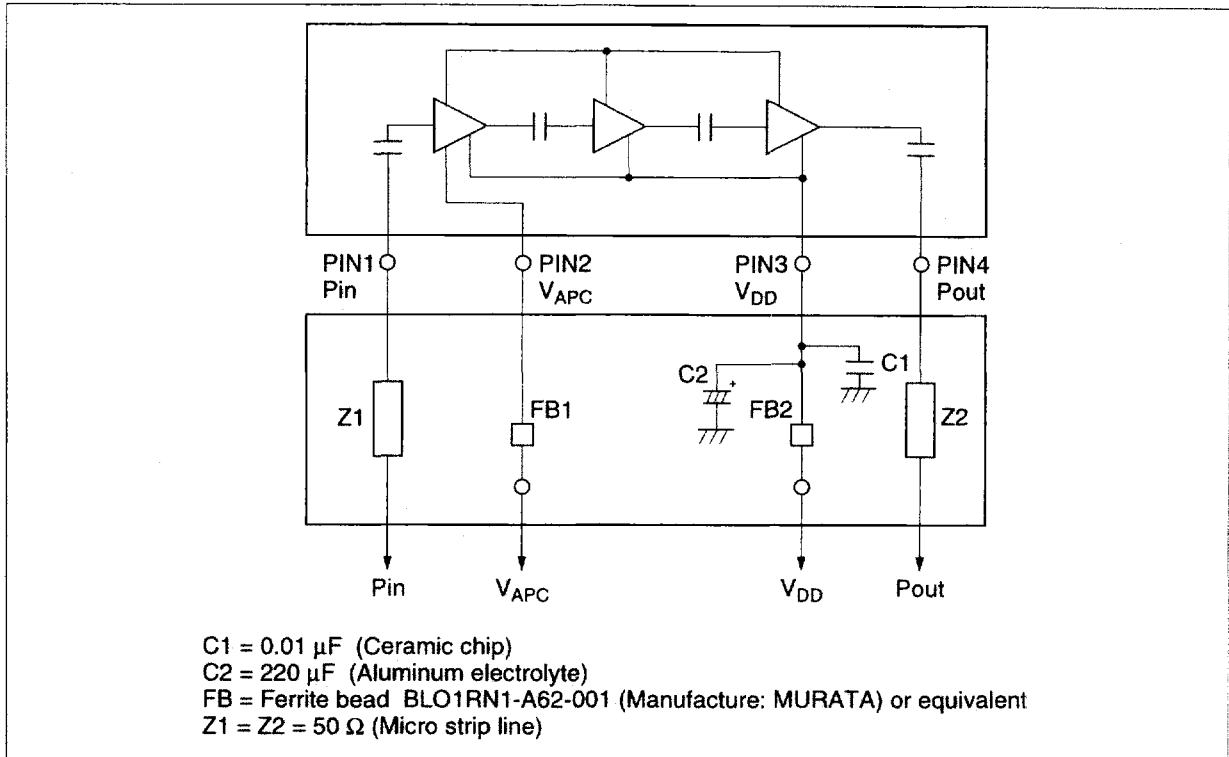
• RF-H1



- 1: Pin
- 2:  $V_{APC}$
- 3:  $V_{DD}$
- 4: Pout
- 5: GND

## PF0412

### Internal Diagram and External Circuit



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

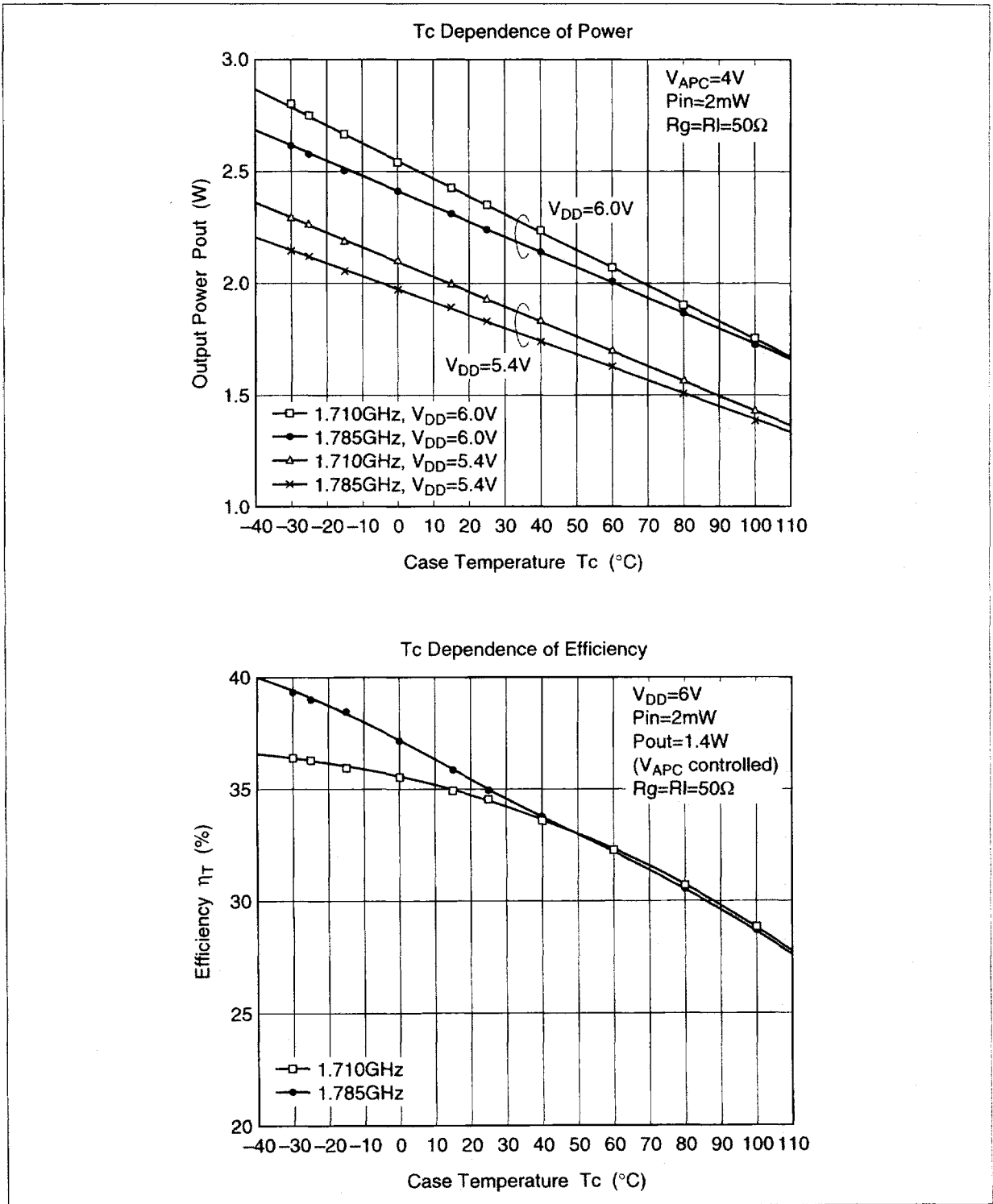
Item	Symbol	Rating	Unit
Supply voltage	VDD	10	V
Supply current	IDD	2	A
VAPC voltage	VAPC	6	V
Input power	Pin	20	mW
Operating case temperature	$T_c$ (op)	-30 to +100	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-30 to +100	$^\circ\text{C}$
Output power	Pout	3	W

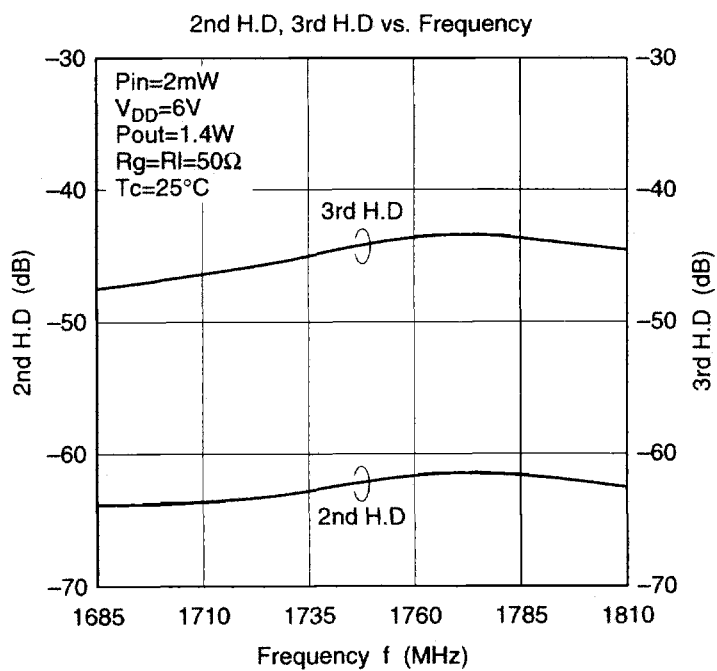
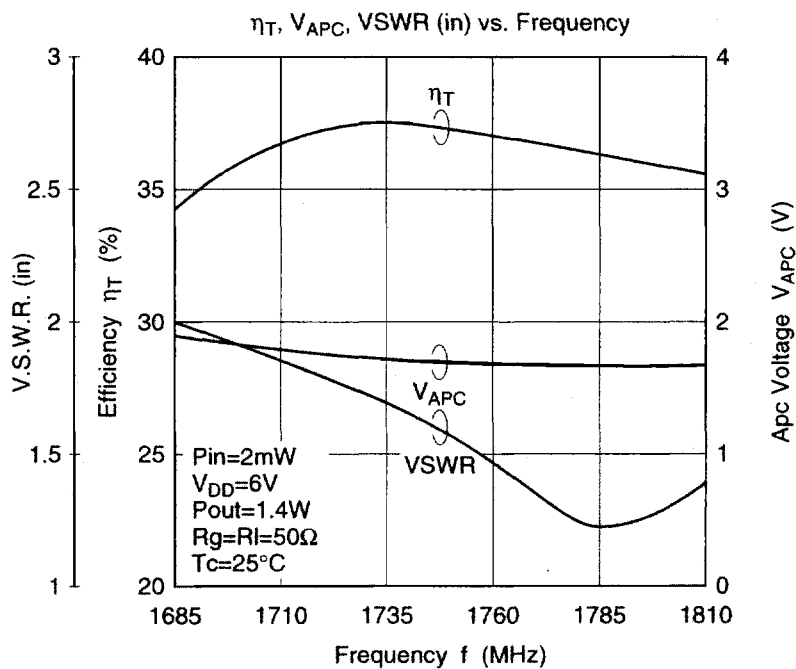
### Electrical Characteristics (Tc = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Frequency range	f	1710	—	1785	MHz	—
Control voltage range	VAPC	0.5	—	4.0	V	—
Drain cutoff current	IDS	—	—	100	μA	VDD = 10V, VAPC = 0V
Total efficiency	ηT	30	35	—	%	Pin = 2mW, VDD = 6V,
2nd harmonic distortion	2nd H.D.	—	-50	-35	dBc	Pout = 1.4W (at APC controlled),
3rd harmonic distortion	3rd H.D.	—	-50	-35	dBc	RL = Rg = 50Ω, Tc = 25°C
Input VSWR	VSWR (in)	—	2	3	—	
Output power (1)	Pout (1)	1.6	2.0	—	W	Pin = 2mW, VDD = 6V, VAPC = 4V, RL = Rg = 50Ω, Tc = 25°C
Output power (2)	Pout (2)	1.0	1.2	—	W	Pin = 2mW, VDD = 5.4V, VAPC = 4V, RL = Rg = 50Ω, Tc = 80°C
Isolation	—	—	-35	-30	dBm	Pin = 2mW, VDD = 6V, VAPC = 0.5V, RL = Rg = 50Ω, Tc = 25°C
Switching time	tr, tf	—	0.9	2	μs	Pin = 2mW, VDD = 6V, Pout = 1.4W, RL = Rg = 50Ω, Tc = 25°C
Stability	—	No parasitic oscillation			—	Pin = 2mW, VDD = 7.5V, Pout ≤ 1.4W, (at APC controlled), Rg = 50Ω, t = 20sec, Tc = 25°C, Output VSWR = 10:1 All phases

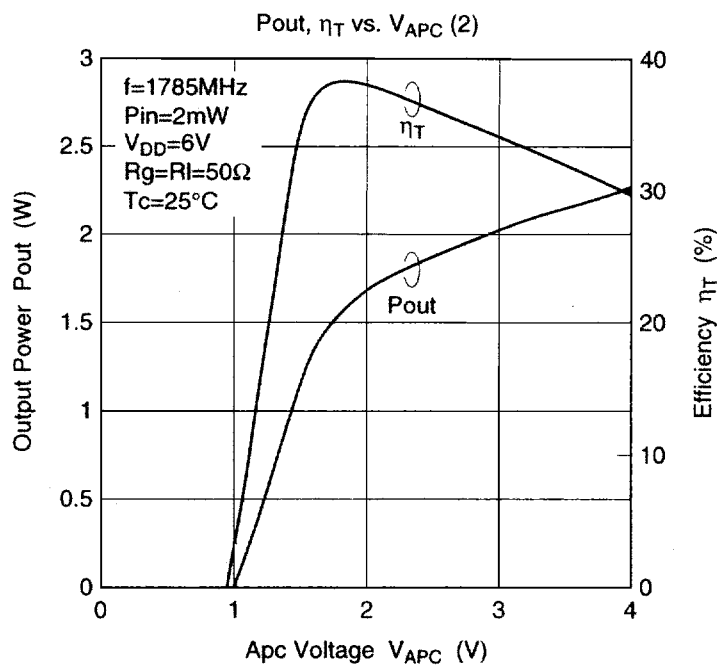
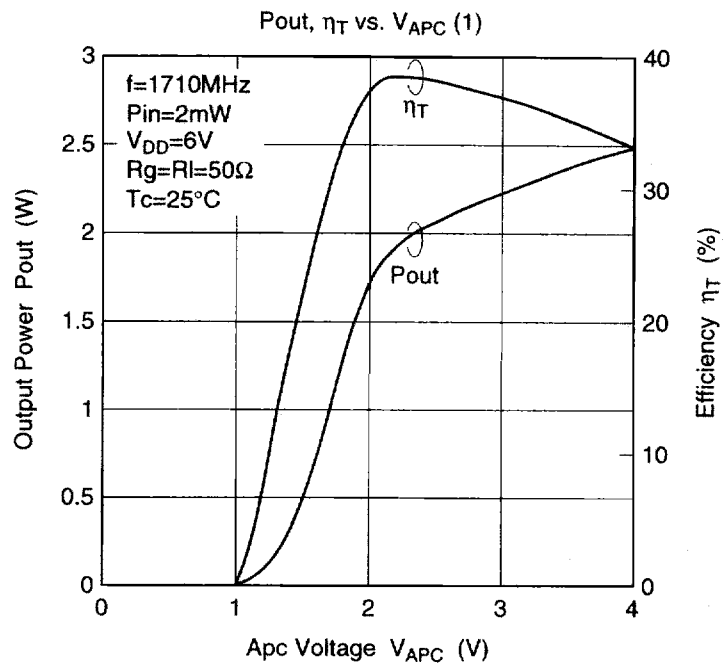
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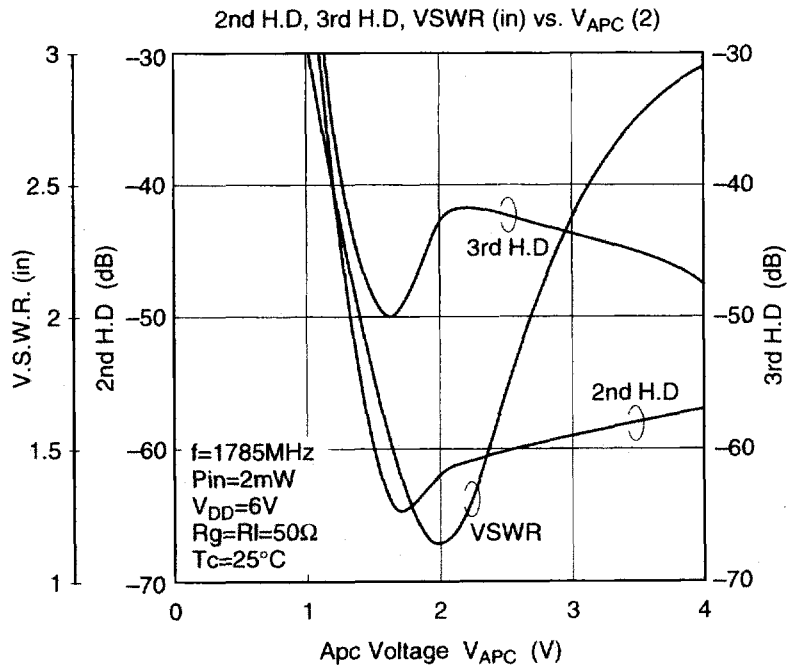
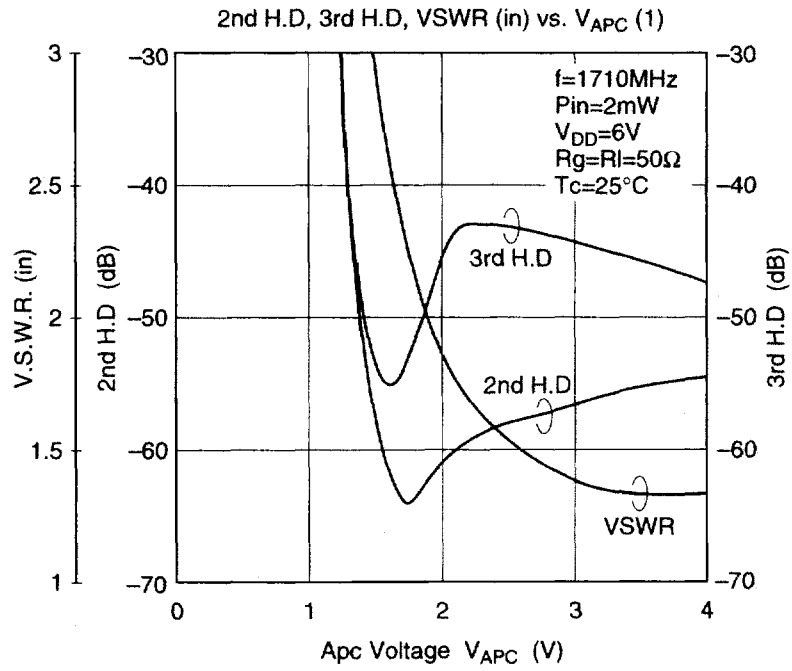
### Characteristics Curve



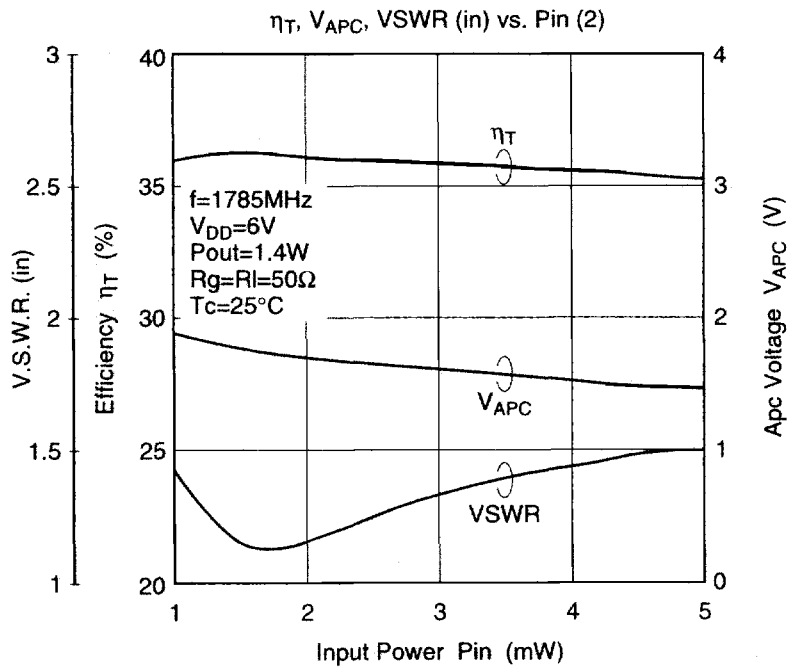
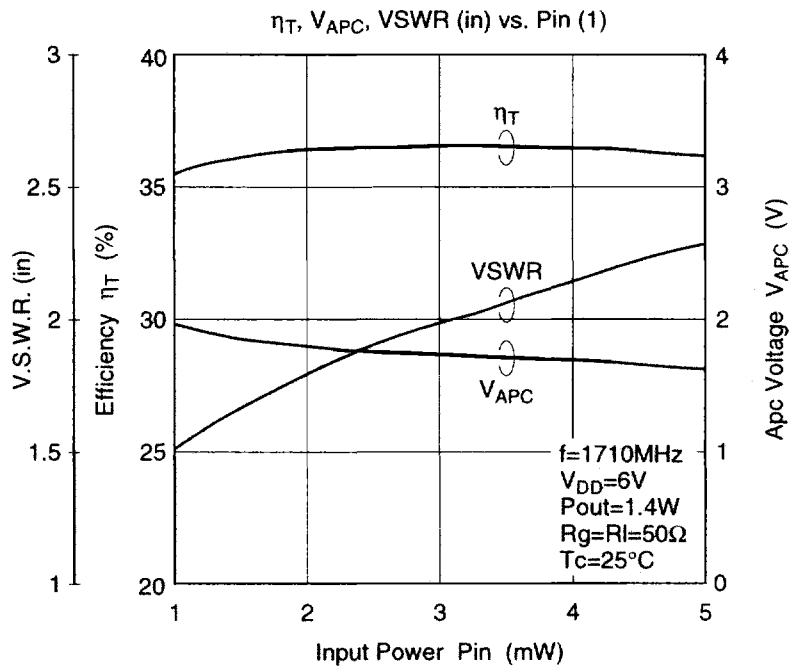


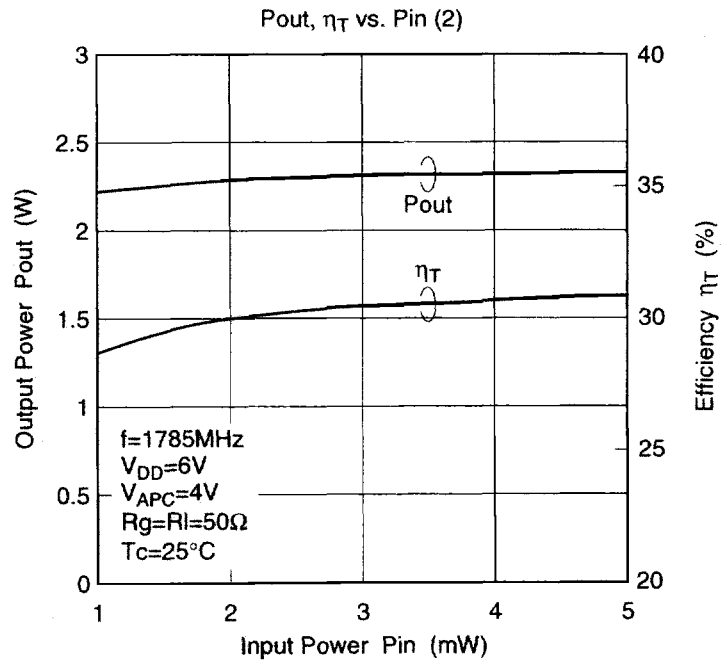
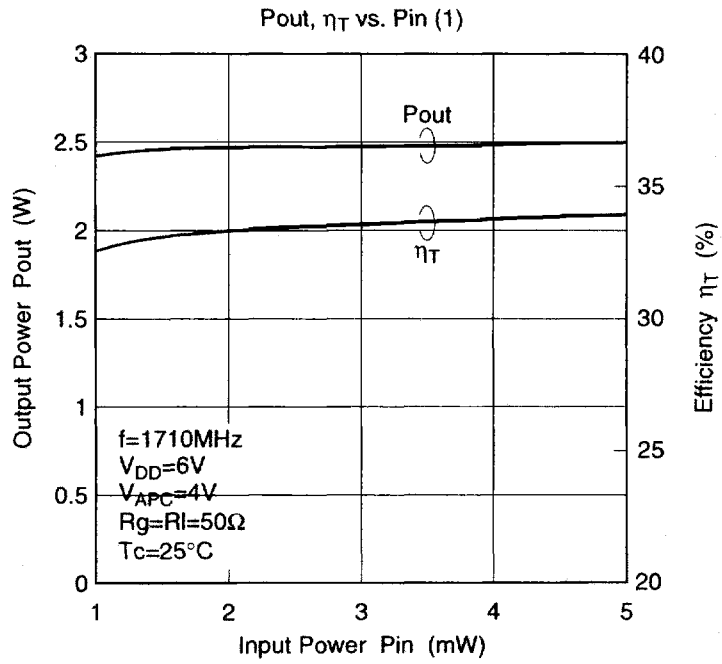
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### Package Dimensions

Unit: mm

