
PF0231A

MOS FET Power Amplifier Module for ADC Handy Phone

HITACHI

ADE-208-378A (Z)
2nd. Edition
July 1996

Application

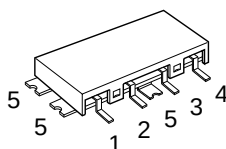
For ADC class3 824 to 849 MHz

Features

- Low voltage operation 4.8 V
- High efficiency: 42% Typ for CW
34% Typ for $\pi/4$ -DQPSK
- Simple Pout control: Controllable by VAPC
- Low power control current: 600 μ A Typ.

Pin Arrangement

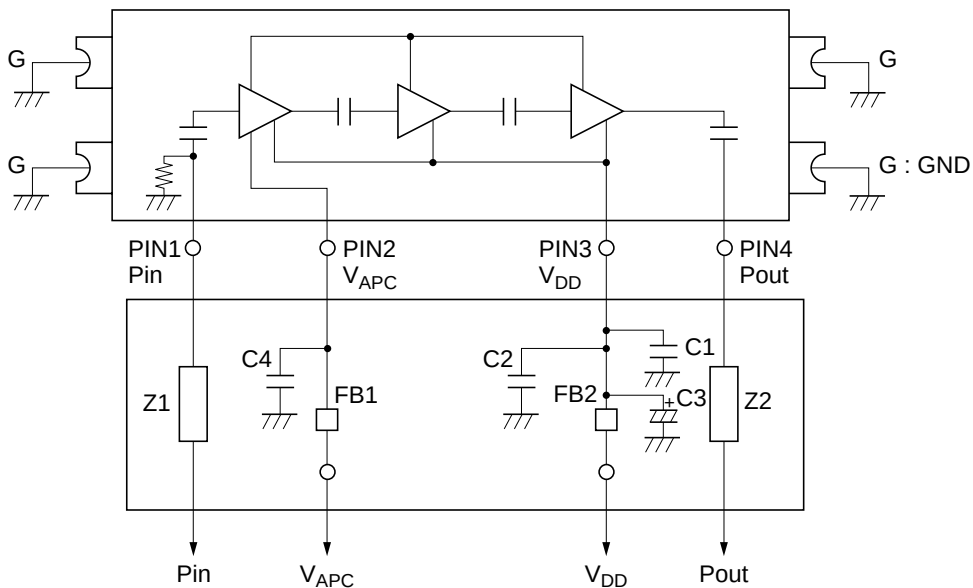
• RF-E



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

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Internal Diagram and External Circuit



C1 = C4 = 0.01 μ F (Ceramic chip)
 C2 = 4.7 μ F (Tantalum)
 C3 = 220 μ F (Aluminum electrolyte)
 FB = Ferrite bead BL01RN1-A62-001 (Manufacturer: MURATA) or equivalent
 Z1 = Z2 = 50 Ω (Micro strip line)

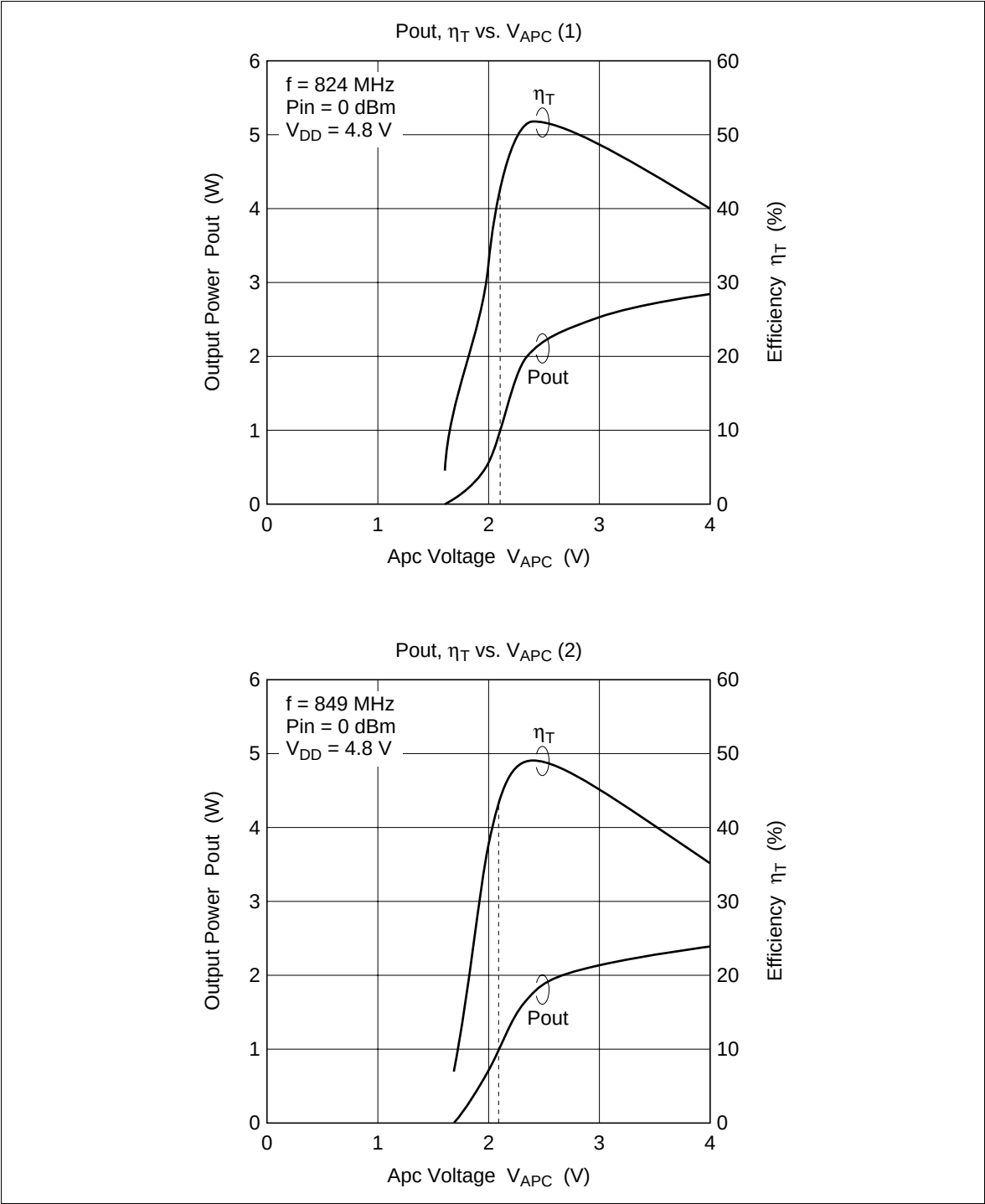
Absolute Maximum Ratings (T_c = 25°C)

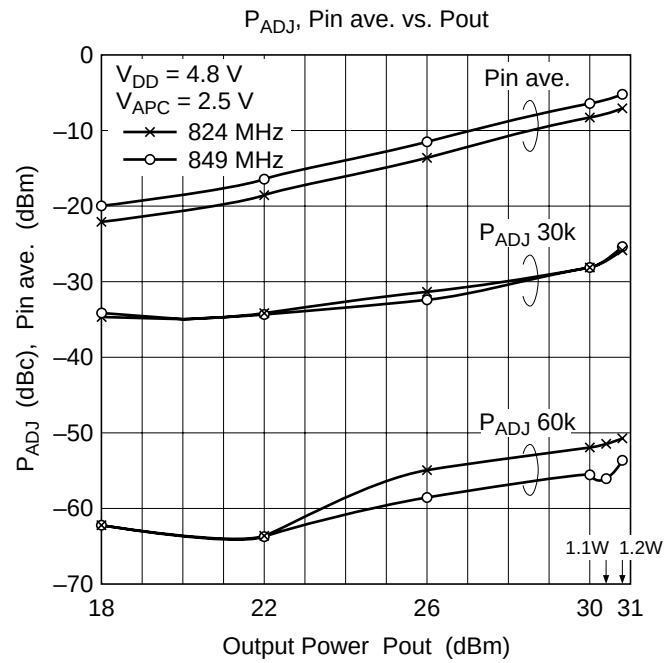
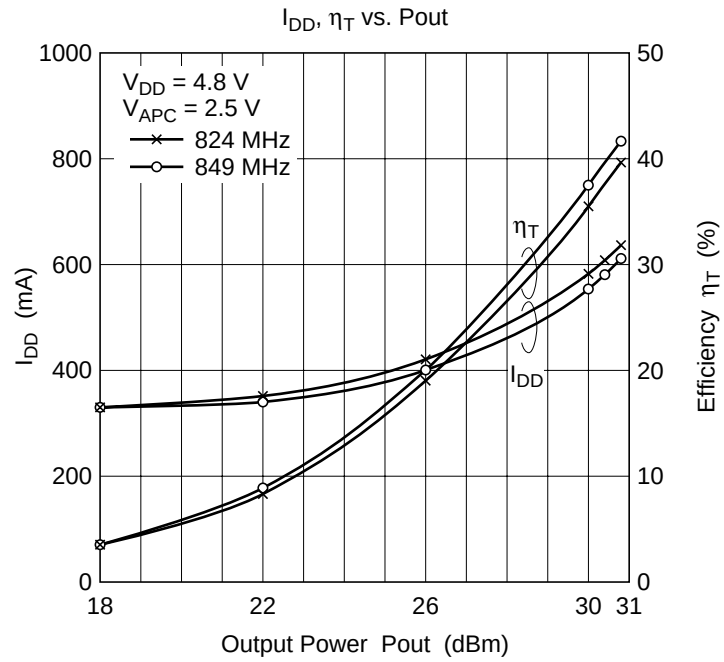
Item	Symbol	Rating	Unit
Supply voltage	V _{DD}	10	V
Supply current	I _{DD}	1.5	A
V _{APC} voltage	V _{APC}	4.5	V
Input power	P _{in}	20	mW
Operating case temperature	T _c (op)	-30 to +100	°C
Storage temperature	T _{stg}	-30 to +100	°C

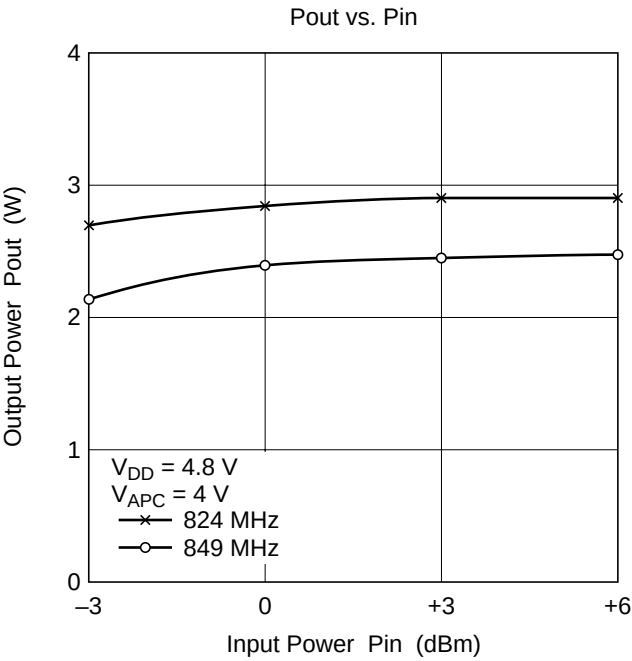
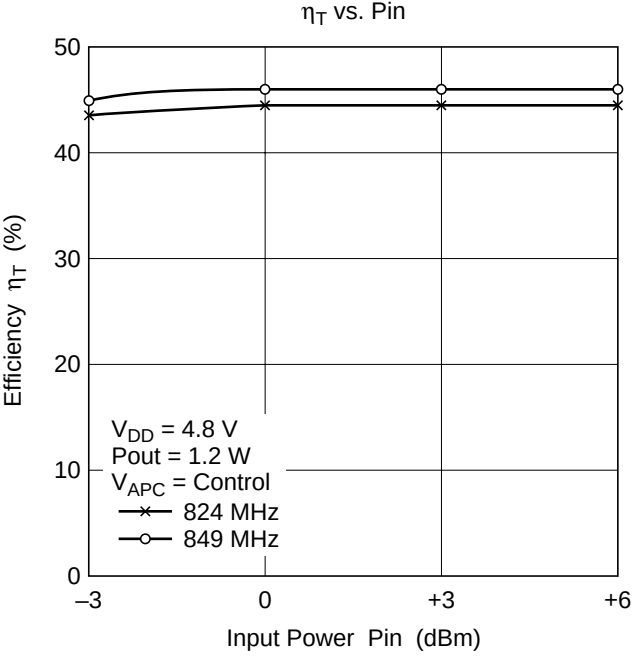
Electrical Characteristics (T_c = 25°C)

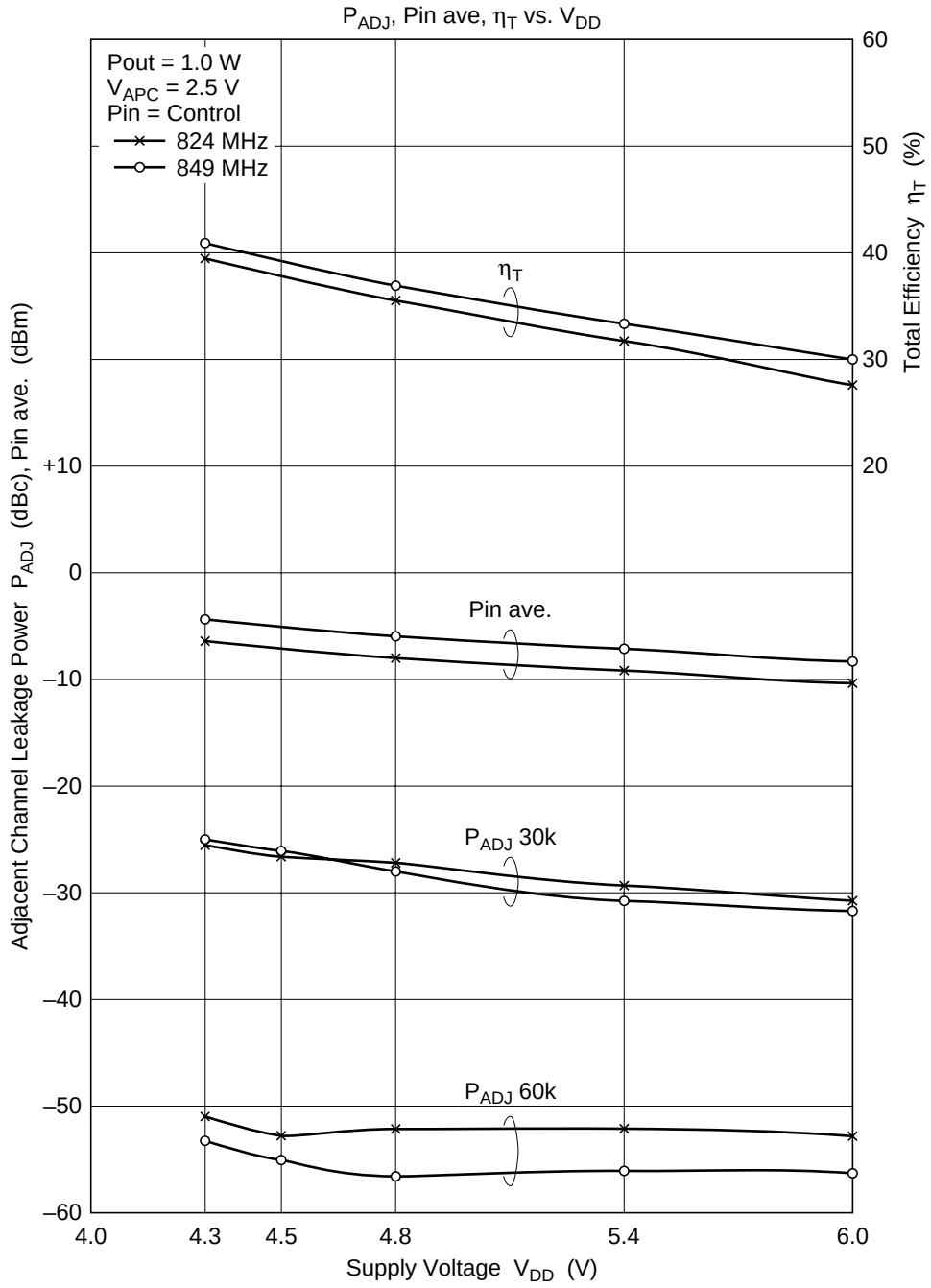
Item	Symbol	Min	Typ	Max	Unit	Test Condition
Frequency range	f	824	—	849	MHz	—
Drain cutoff current	I _{DS}	—	—	100	μA	V _{DD} = 10 V, V _{APC} = 0 V
Total efficiency(1)	η _T (1)	37	42	—	%	Pin = 1 mW, V _{DD} = 4.8 V,
2nd harmonic distortion	2nd H.D.	—	−35	−30	dBc	P _{out} = 1.2 W (at V _{APC} controlled),
3rd harmonic distortion	3rd H.D.	—	−40	−30	dBc	RL = R _g = 50 Ω
Input VSWR	VSWR (in)	—	1.5	3	—	
Output power	P _{out}	1.6	2.1	—	W	Pin = 1 mW, V _{DD} = 4.8 V, V _{APC} = 4.0 V, RL = R _g = 50 Ω
Isolation	—	—	−40	−35	dBm	Pin = 1 mW, V _{DD} = 4.8 V, V _{APC} = 0.5 V, RL = R _g = 50 Ω
Total efficiency(2)	η _T (2)	30	34	—	%	Pin = controlled (p/4-DQPSK, √α =
Adjacent channel	PADJ (30k)	—	−30	−27	dBc	0.35, 48.6kbps), BW = 24.3 kHz with
leakage power	PADJ (60k)	—	−55	−47	dBc	R-NYQT, P _{out} = 1.0 W ave., V _{DD} = 4.8 V, V _{APC} = 2.5 V
Load VSWR tolerance	—	No degradation			—	Pin = 1 mW, V _{DD} = 6 V, P _{out} ≤ 1.4 W, t = 10 sec., Output VSWR = 20:1 All phases
Stability	—	No parasitic oscillation			—	Pin = 1 mW, V _{DD} = 4 to 6 V, P _{out} ≤ 1.4 W, Output VSWR = 3:1 All phases, R _g = 50 Ω

Characteristics Curve

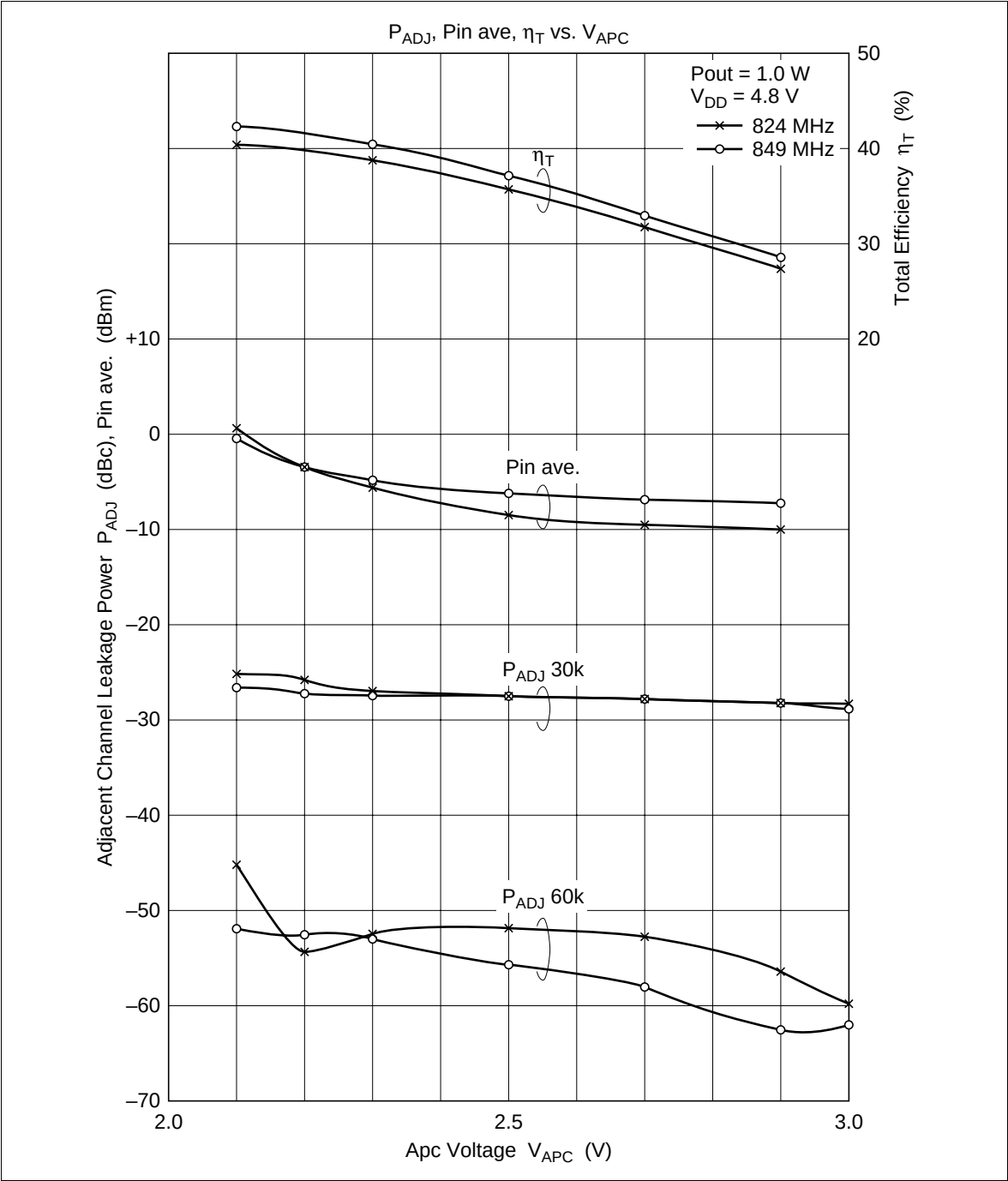








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Package Dimensions

Unit: mm

