

PF0210

MOS FET Power Amplifier Module for ADC Mobile Phone

HITACHI

ADE-208-102E (Z)

Preliminary

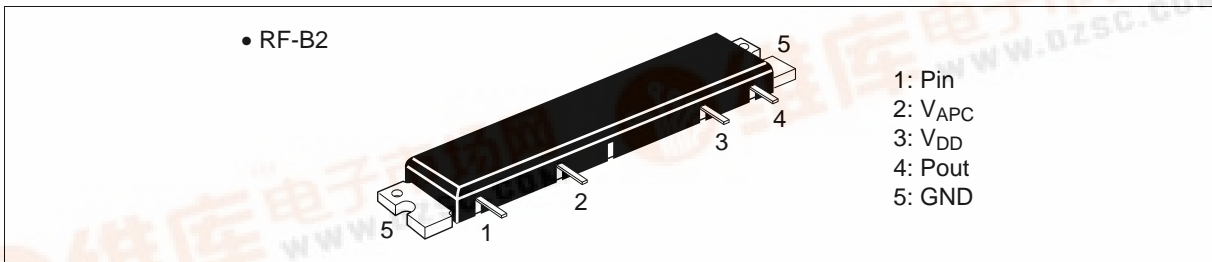
6th Edition

July 1996

Features

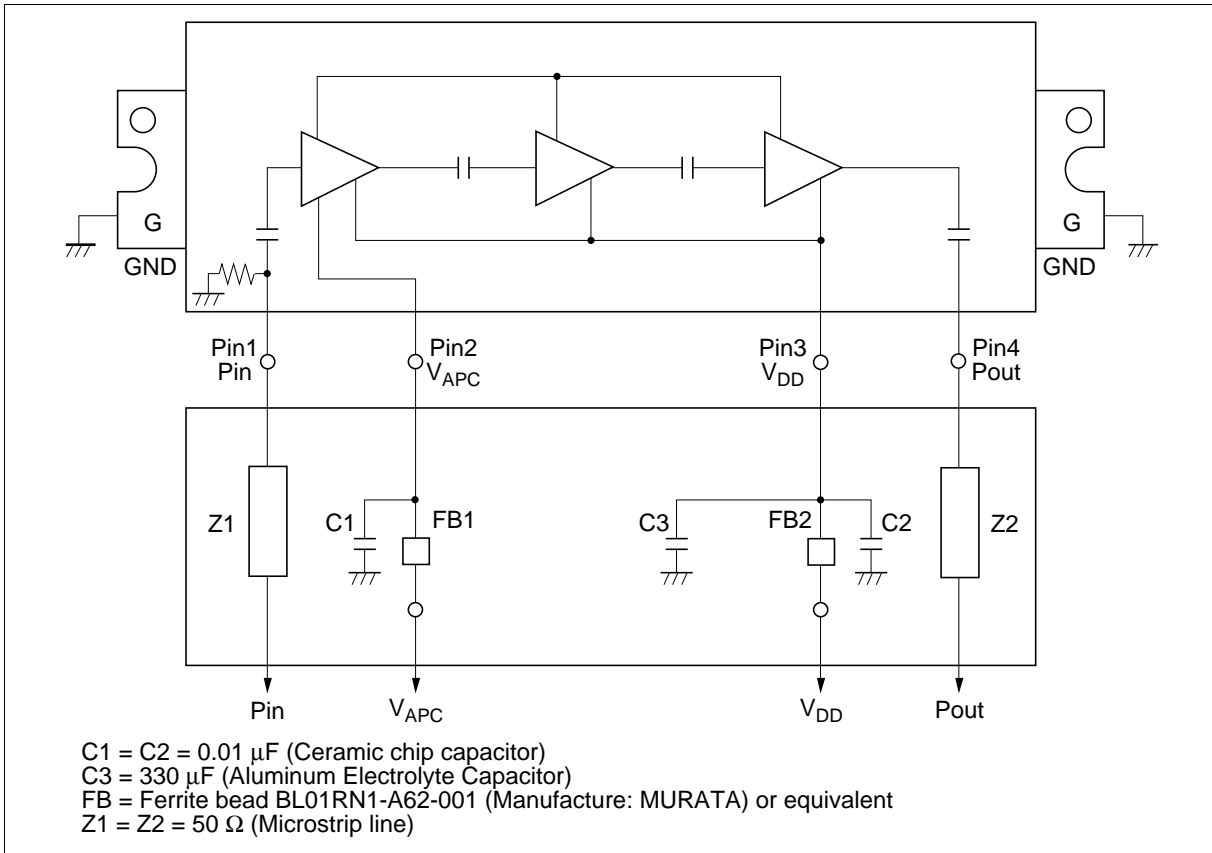
- High efficiency: 34% Typ for CW
30% Typ for $\pi/4$ -DQPSK
- Low input power: 0 dBm ave. Typ for $\pi/4$ -DQPSK
- Simple bias circuit
- High speed switching: 8 μ s Typ

Pin Arrangement



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Internal Diagram and External Circuit



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

Item	Symbol	Rating	Unit
Supply voltage	V_{DD}	17	V
Supply current	I_{DD}	4	A
V_{APC} voltage	V_{APC}	5.5	V
Input power	Pin	20	mW
Operating case temperature	T_c (op)	-30 to +100	$^\circ\text{C}$
Storage temperature	T_{stg}	-40 to +110	$^\circ\text{C}$

Electrical Characteristics ($T_c = 25^\circ\text{C}$)

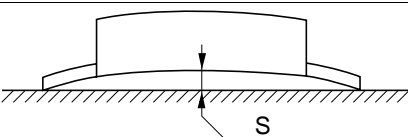
Analog Transmission

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Frequency	f	824	—	849	MHz	—
Drain cutoff current	I_{DS}	—	—	500	μA	$V_{DD} = 17\text{ V}, V_{APC} = 0\text{ V}$
Total efficiency(1)	$\eta_T(1)$	30	34	—	%	Pin = 3 dBm, $V_{DD} = 12.5\text{ V}$,
2nd harmonic distortion	2nd H.D.	—	-55	-30	dBc	Pout = 6 W (V_{APC} controlled),
3rd harmonic distortion	3rd H.D.	—	-60	-40	dBc	
Input VSWR	VSWR (in)	—	2	3	—	
Output power	Pout	6	9	—	W	Pin = 3 dBm, $V_{DD} = 12.5\text{ V}$, $V_{APC} = 4\text{ V}$
Isolation	—	—	-45	-40	dBm	Pin = 3dBm, $V_{DD} = 12.5\text{ V}$, $V_{APC} = 0.5\text{ V}$
Stability	—	No parasitic oscillation			—	Pin = 3 dBm, $V_{DD} = 12.5\text{ V}$, Pout $\leq 6\text{ W}$, Output VSWR = 20:1 All phases

Digital Transmission

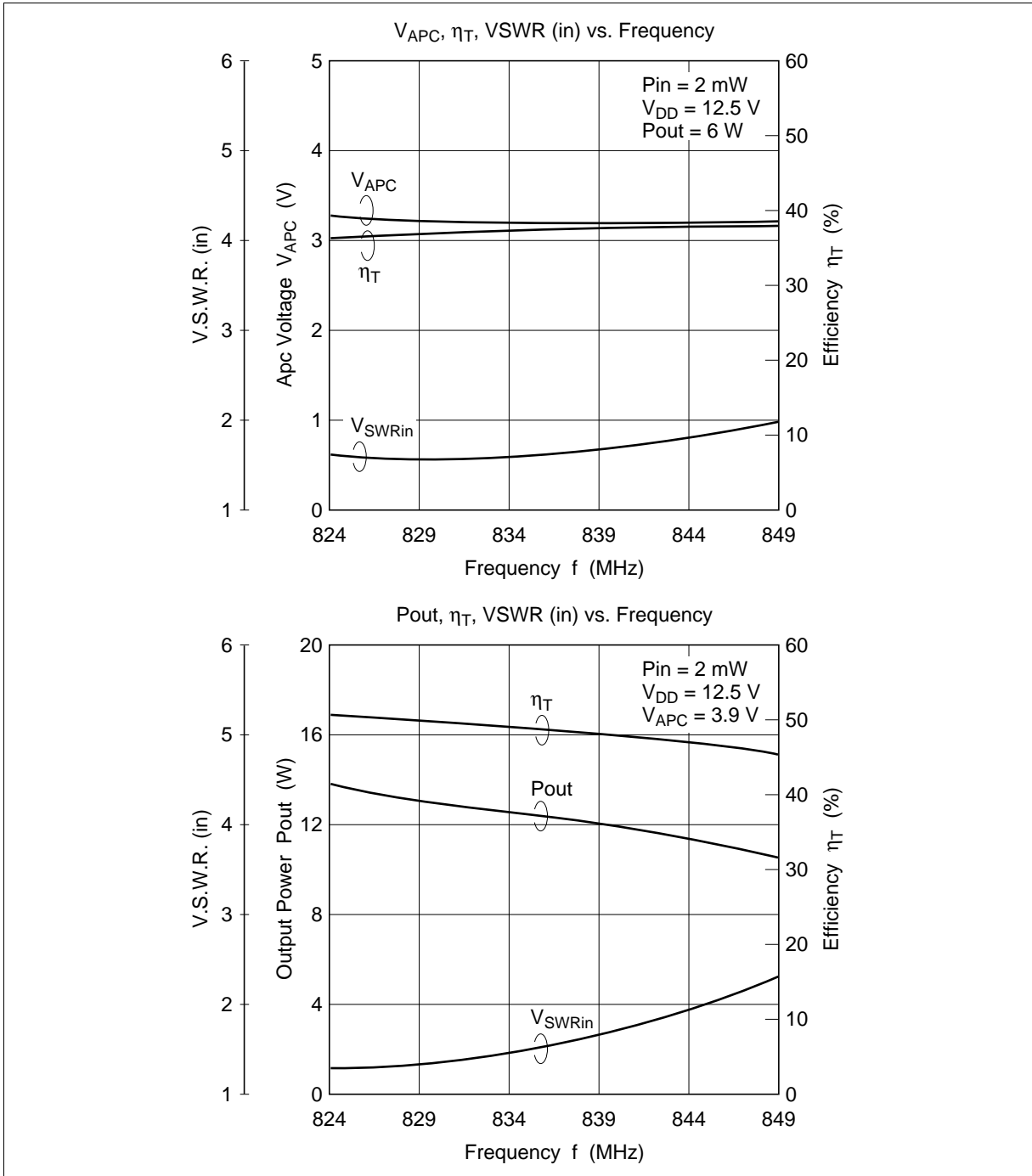
Item	Symbol	Min	Typ	Max	Unit	Test Condition
Frequency	f	824	—	849	MHz	—
Total efficiency(2)	$\eta_T(2)$	25	30	—	%	Pin controlled ($\pi/4$ -DQPSK, $\sqrt{\alpha} =$
Adjacent channel leakage power	P_{ADJ} (30k)	—	-30	-28	dBc	0.35, 48.6 kbps),
	P_{ADJ} (60k)	—	-50	-46	dBc	BW =24.3 kHz with Root Nyquist
Input power	Pin	—	—	5	dBm ave.	Filter, Pout = 5.5 W ave., $V_{DD} = 12.5\text{ V}$ $V_{APC} = 3.9\text{ V}$

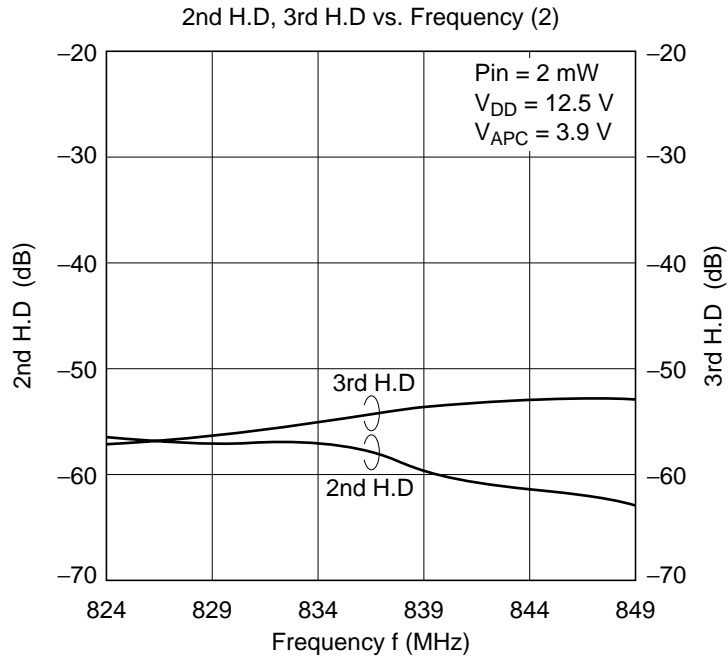
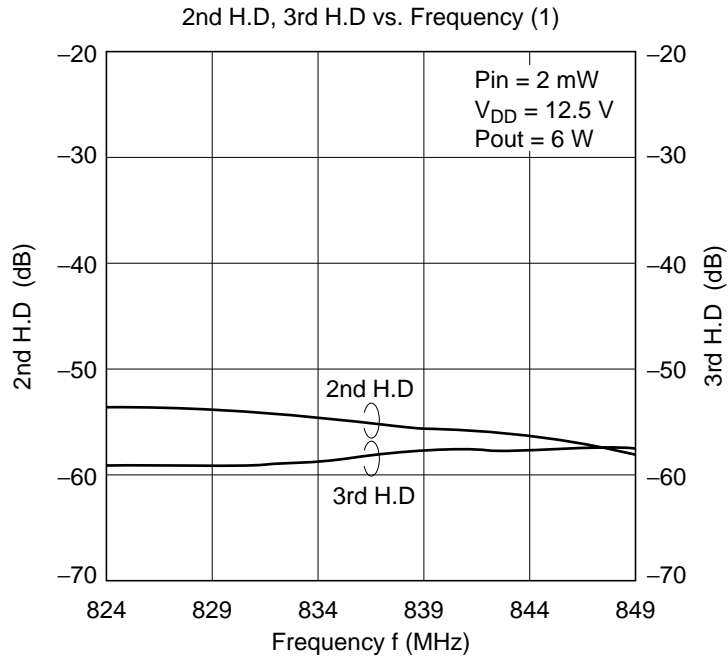
Mechanical Characteristics

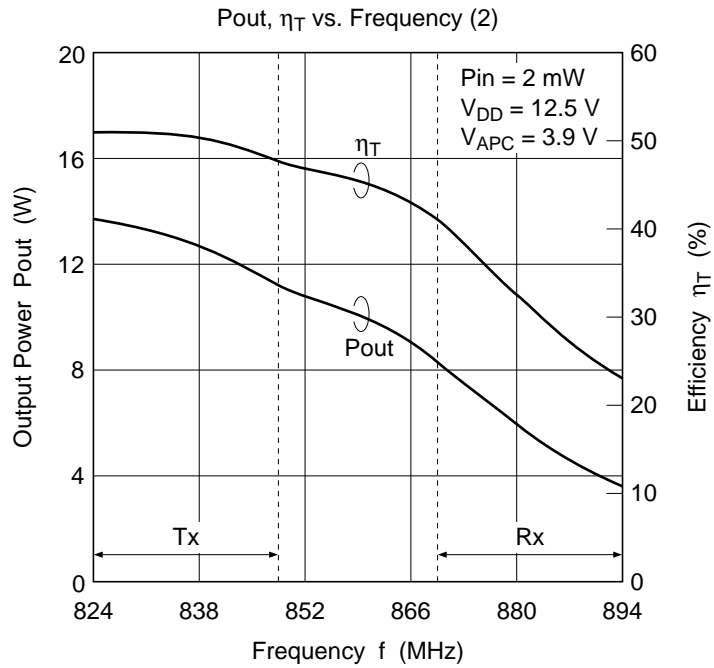
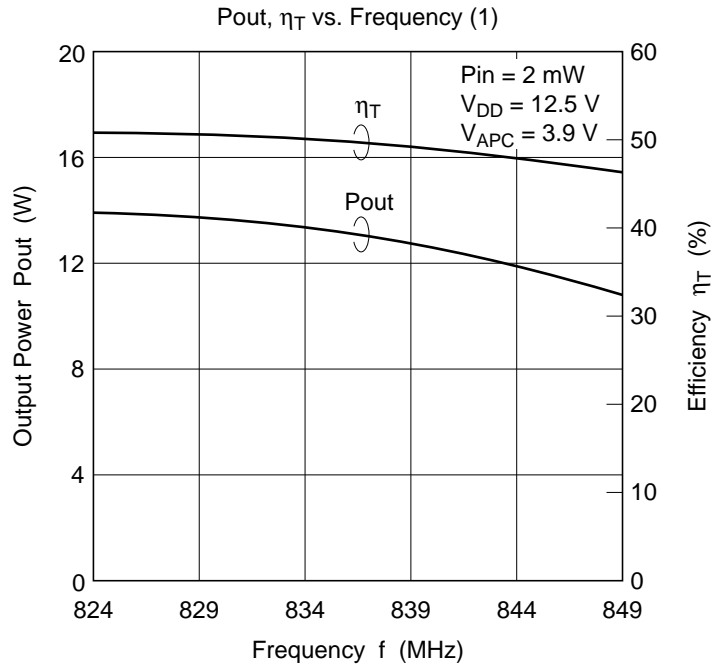
Item	Conditions	Spec
Torque for screw up the heatsink flange	M3 Screw Bolts	4 to 6 kg•cm
Warp size of the heatsink flange: S		S = 0 +0.3/- 0 mm

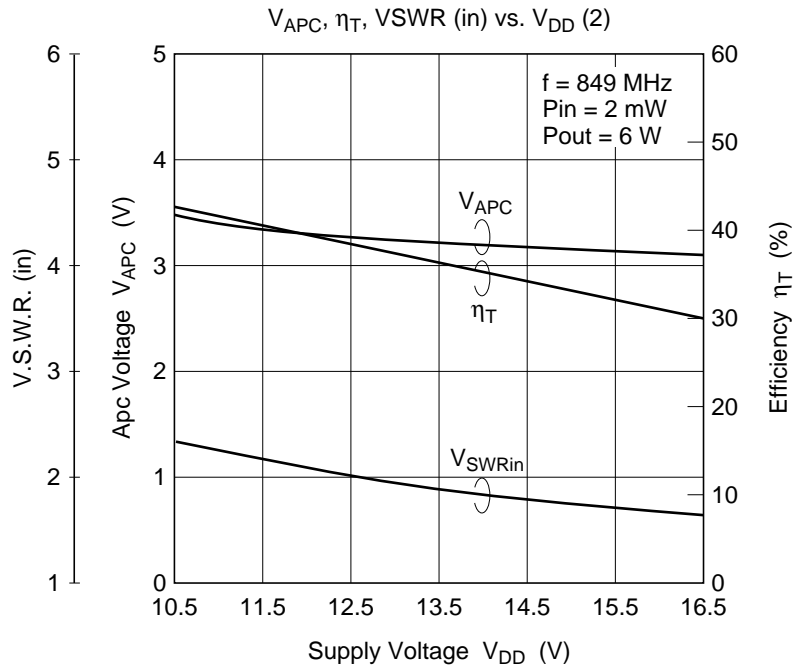
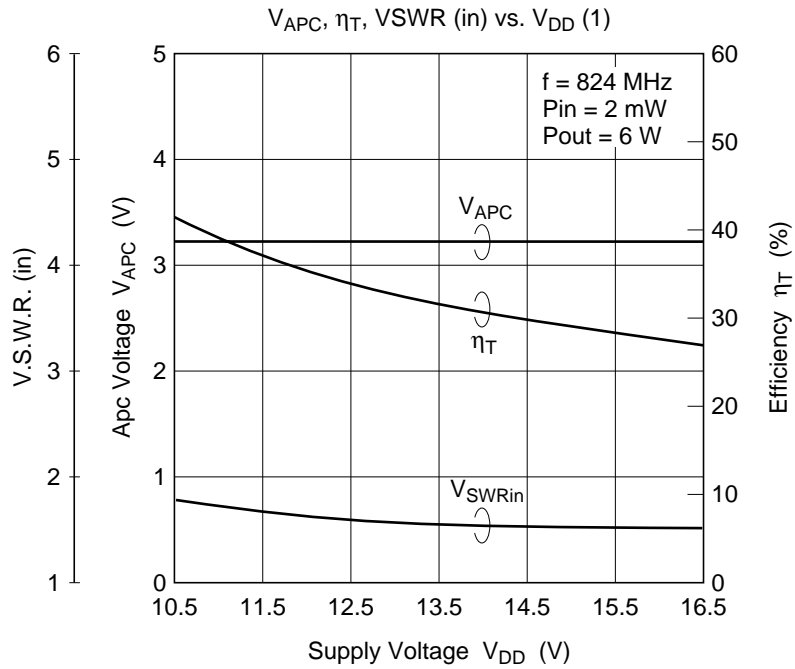
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Characteristics Curve

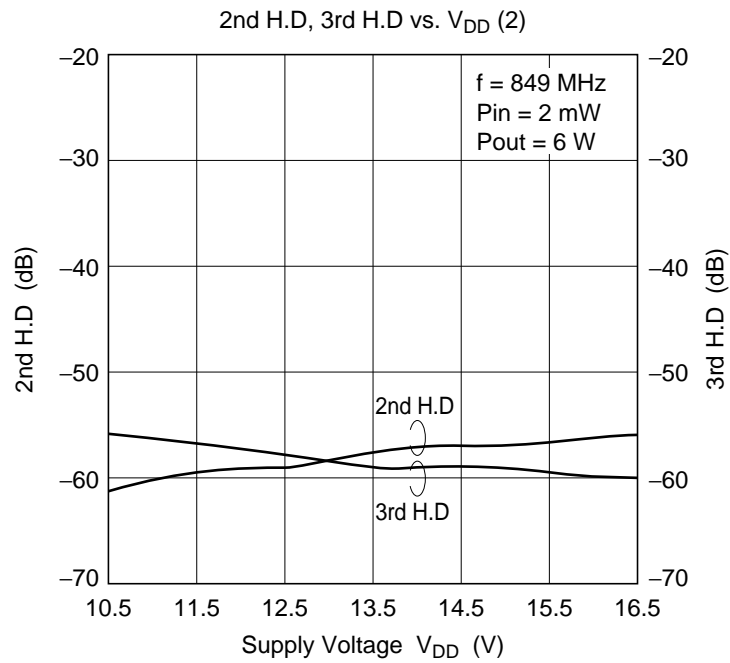
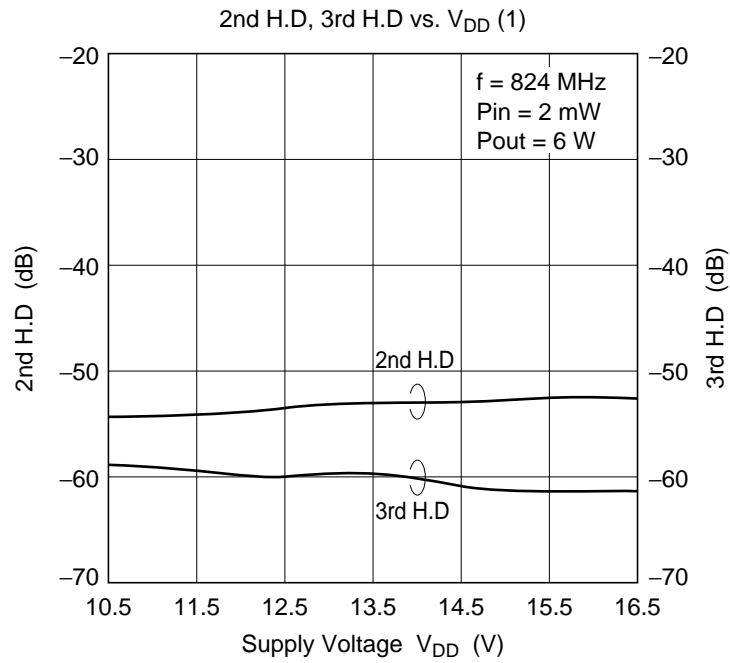


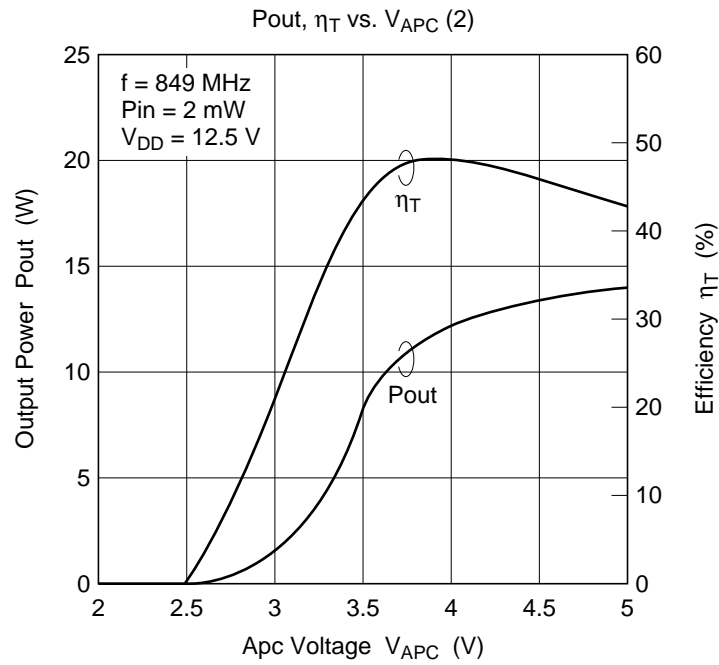
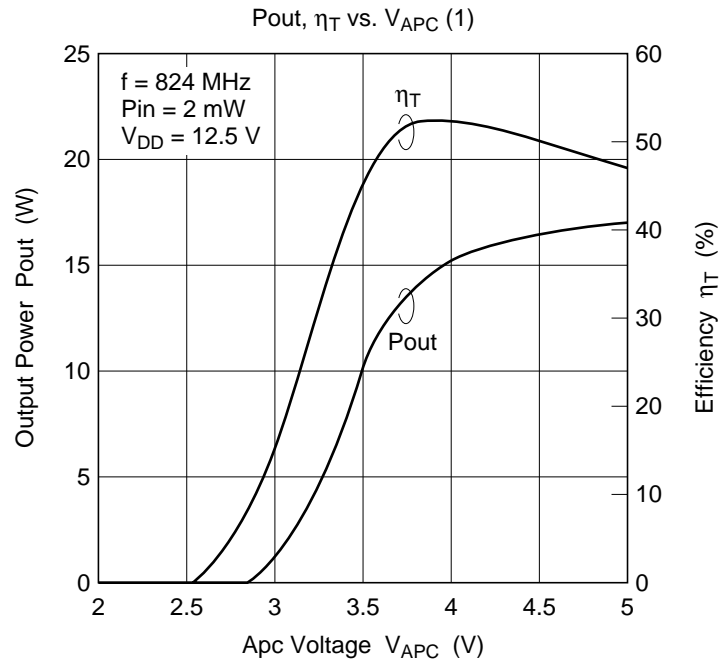


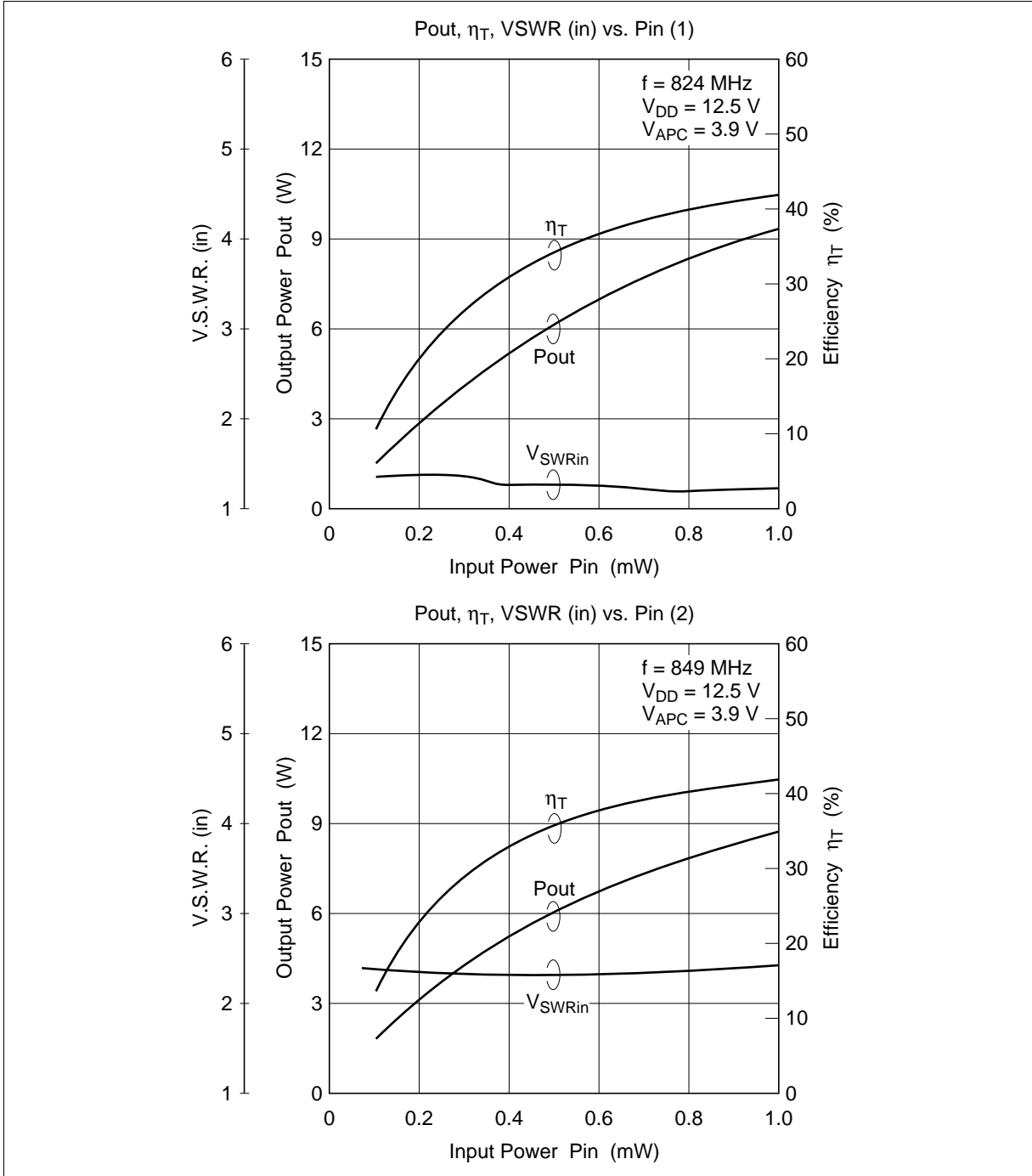




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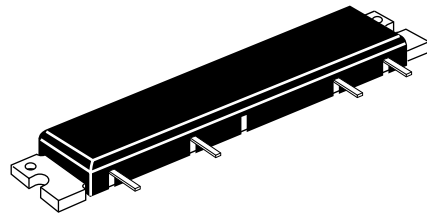
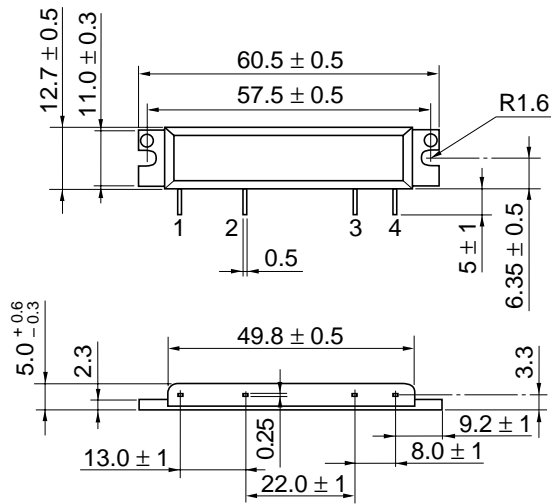






Package Dimensions

Unit: mm



Hitachi Code	RF-B2
JEDEC	—
EIAJ	—
Weight (reference value)	16 g

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