
PF0313 Series

MOS FET Power Amplifier Module for VHF Band

HITACHI

ADE-208-342A (Z)

2nd Edition

July 1996

Features

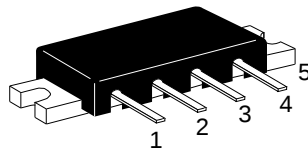
- Small package: $30 \times 10 \times 5.9$ mm
- Low operation voltage: 7 W at 7.2 V
- High efficiency: 55% Typ
- Low power control current: 0.5 mA Max

Ordering Information

Type. Name	Operating Frequency
PF0313	135 to 150 MHz
PF0314	150 to 175 MHz

Pin Arrangement

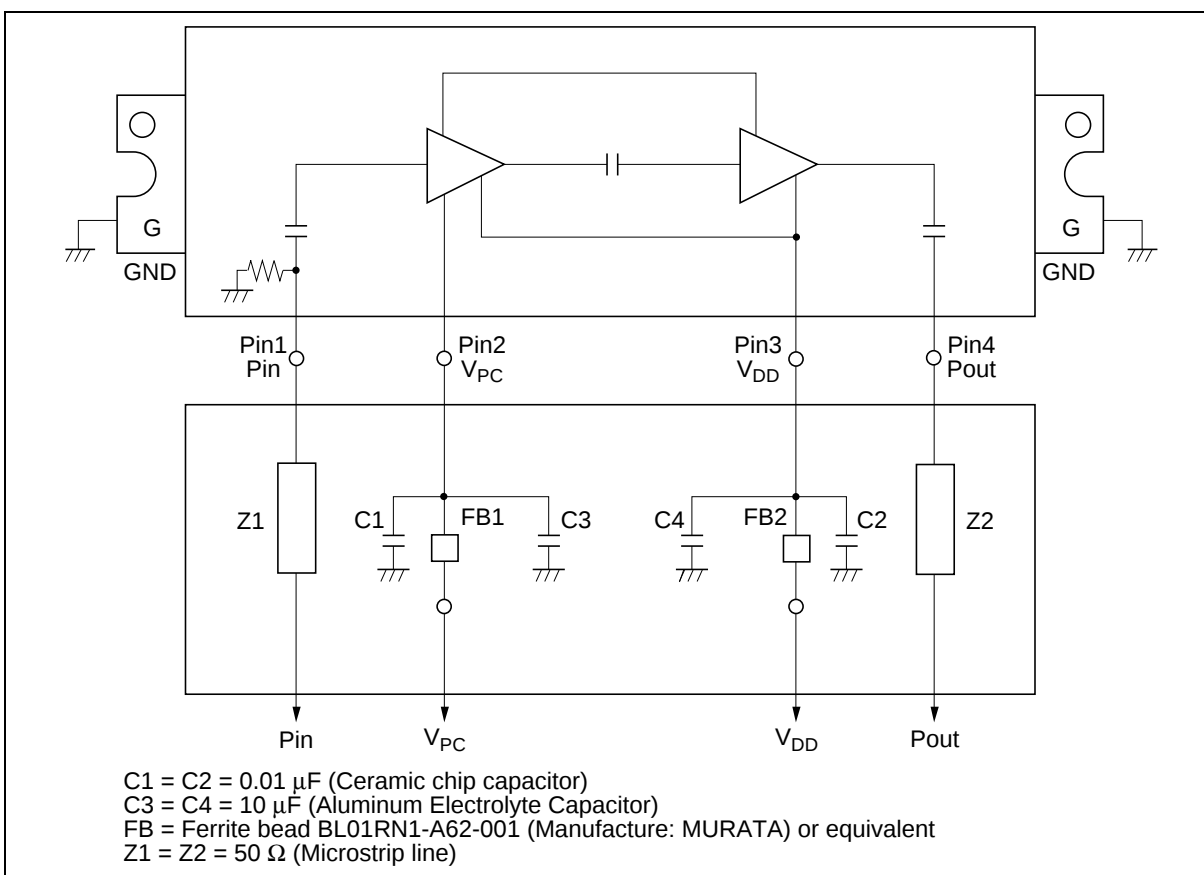
• RF-J



- 1: Pin
- 2: V_{PC}
- 3: V_{DD}
- 4: Pout
- 5: GND (Flange)

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Internal Diagram and External Circuit



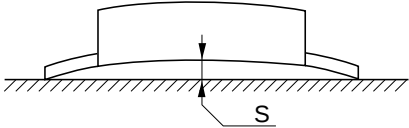
Absolute Maximum Ratings ($T_c = 25^\circ\text{C}$)

Item	Symbole	Rating	Unit
Supply voltage	V_{DD}	17	V
Supply current	I_{DD}	3	A
PC voltage	V_{PC}	7	V
Input power	Pin	100	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°C)

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Drain cutoff current	I _{DS}	—	—	100	μA	V _{DD} = 17 V, V _{PC} = 0 V, R _L = R _g = 50 Ω,
Total efficiency	η _T	45	55	—	%	Pin = 50 mW, V _{DD} = 7.2 V, Pout = 7 W (at V _{PC} controlled), R _L = R _g = 50 Ω, T _c = 25°C
2nd harmonic distortion	2nd H.D.	—	−25	−20	dBc	
3rd harmonic distortion	3rd H.D.	—	−35	−30	dBc	
4th harmonic distortion	4th H.D.	—	−40	−30	dBc	
Input VSWR	VSWR (in)	—	1.5	3.0	—	
Output power (1)	Pout (1)	7	8	—	W	Pin = 50 mW, V _{DD} = 7.2 V, V _{PC} = 6 V, R _L = R _g = 50 Ω
Output power (2)	Pout (2)	4	5	—	W	Pin = 50 mW, V _{DD} = 6 V, V _{PC} = 5.5 V, R _L = R _g = 50 Ω
Load VSWR tolerance	—	No degradation			—	Pin = 50 mW, V _{DD} = 15 V, Pout ≤ 7 W, (at V _{PC} controlled), Output VSWR = 6:1 All phases
Stability	—	No parasitic oscillation			—	Pin = 50 mW, V _{DD} = 6 to 15 V, Pout ≤ 7 W, (at V _{PC} controlled), Output VSWR = 3:1 All phases

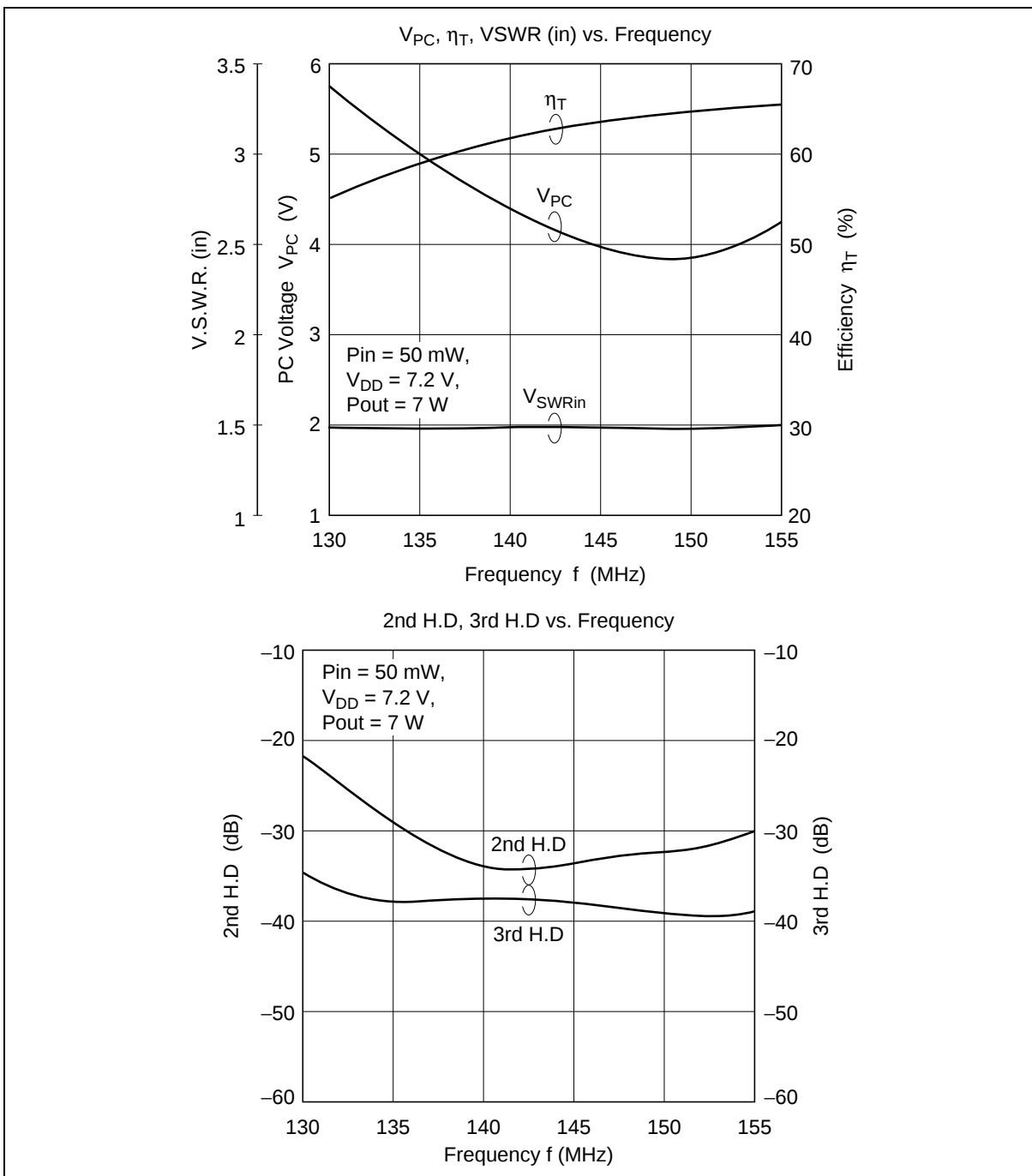
Mechanical Characteristics

Item	Measuring Conditions	Spec
Torque for screw up the heatsink flange	M2.6 Screw Bolts	1.5 to 3.5 kg•cm
Warp size of the heatsink flange: S		S = 0
		+0.1/−0 mm

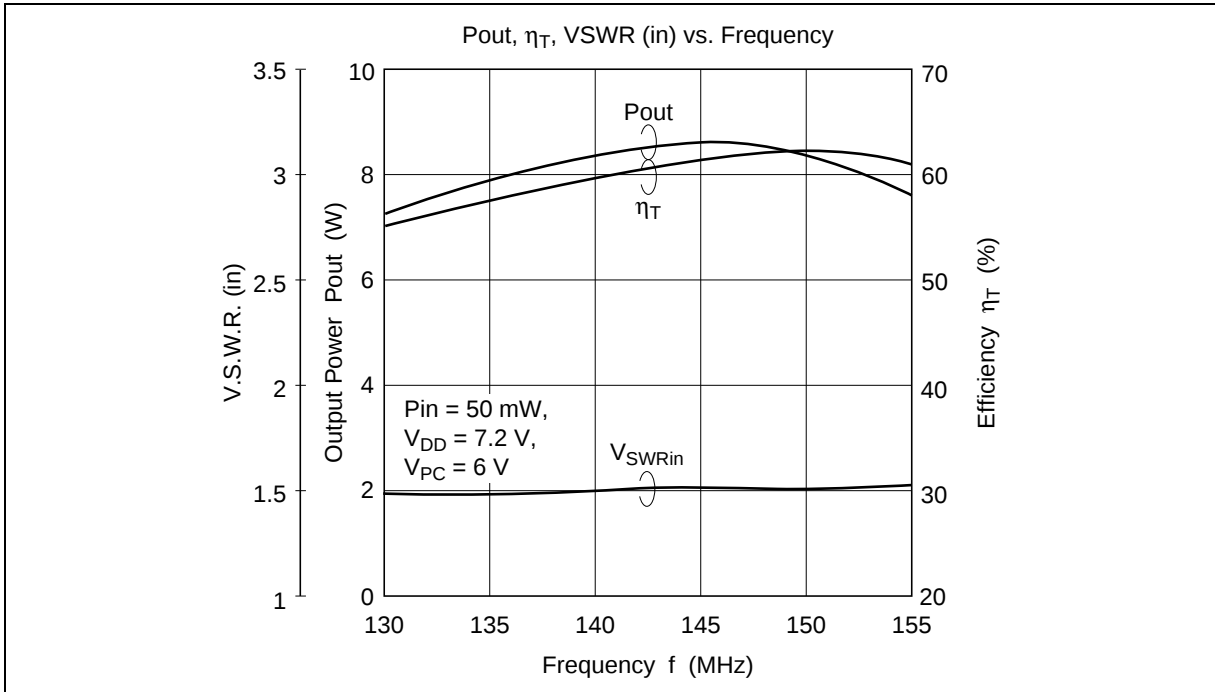
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Characteristic Curves

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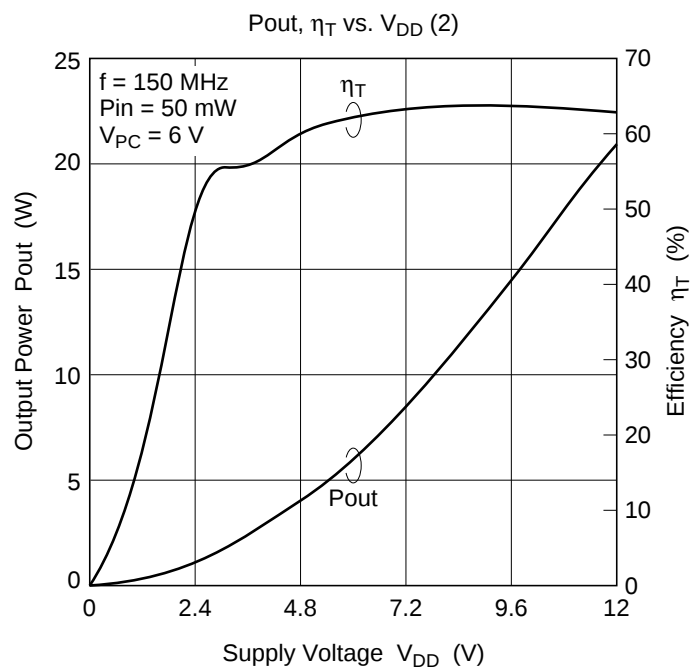
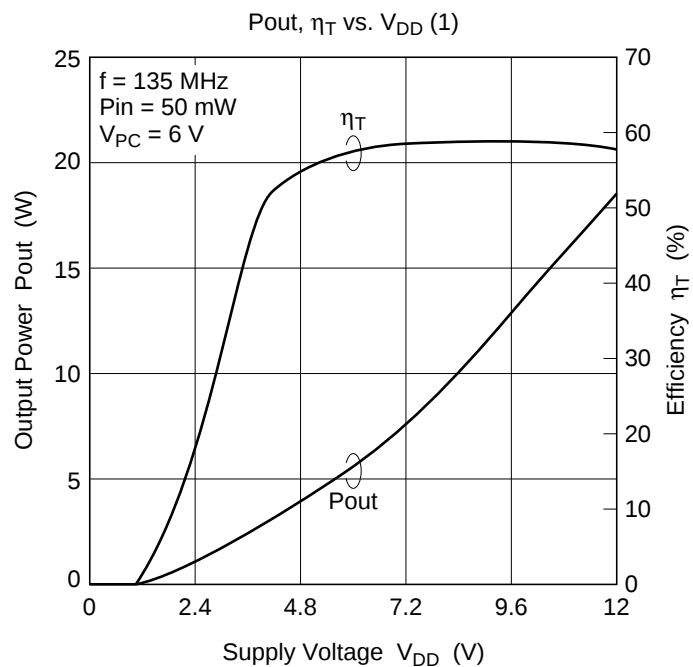


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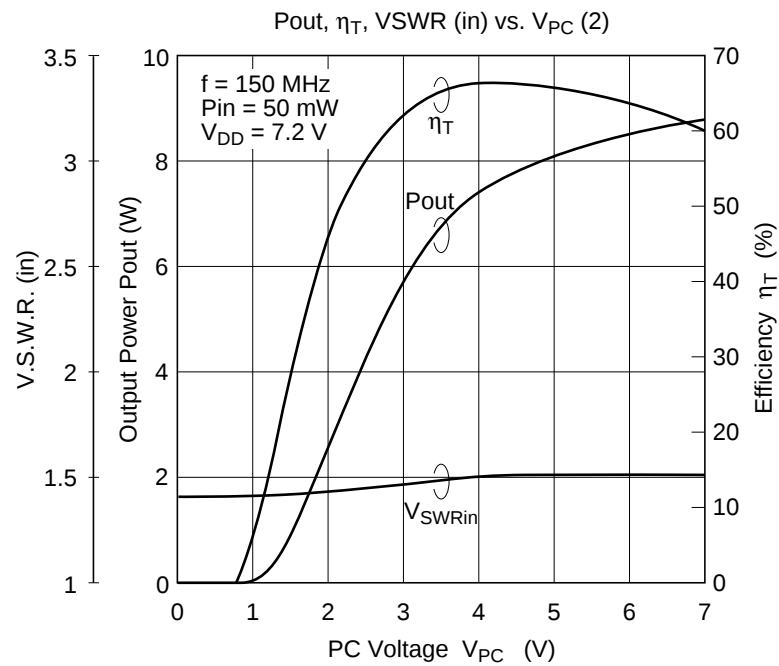
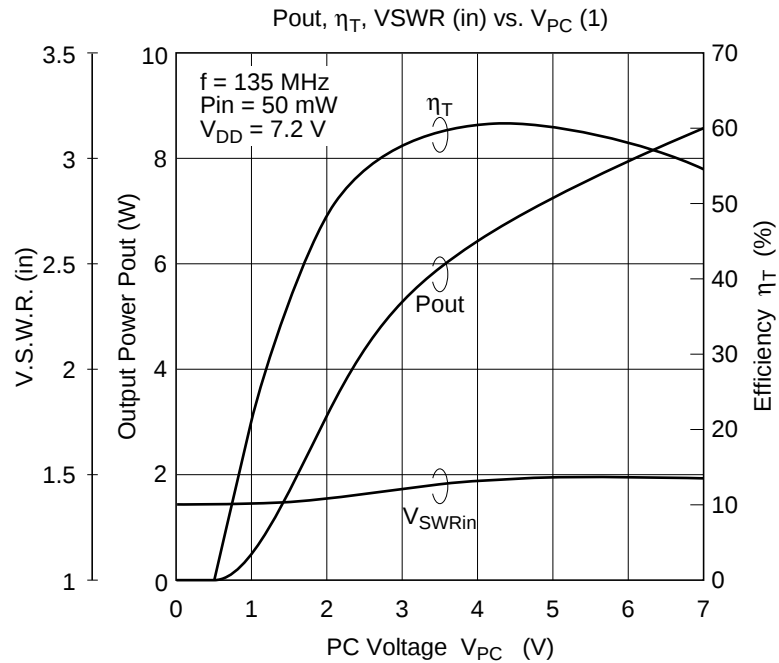


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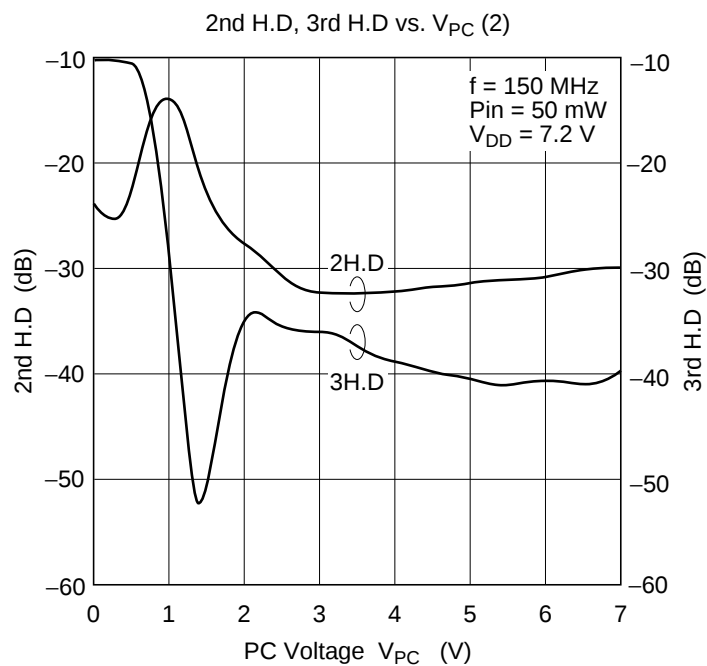
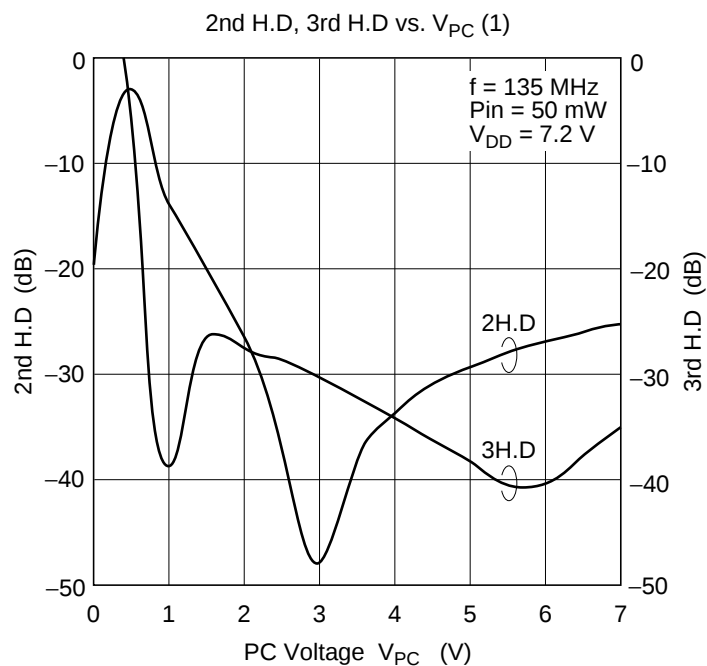


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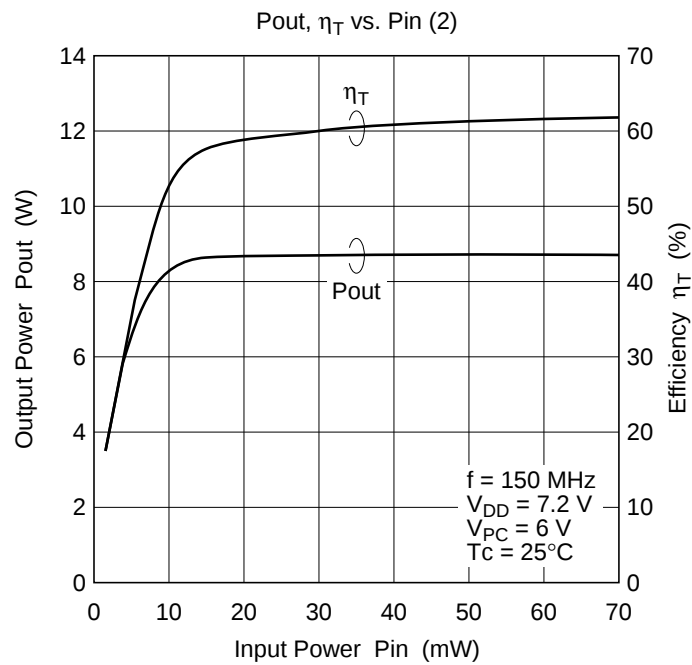
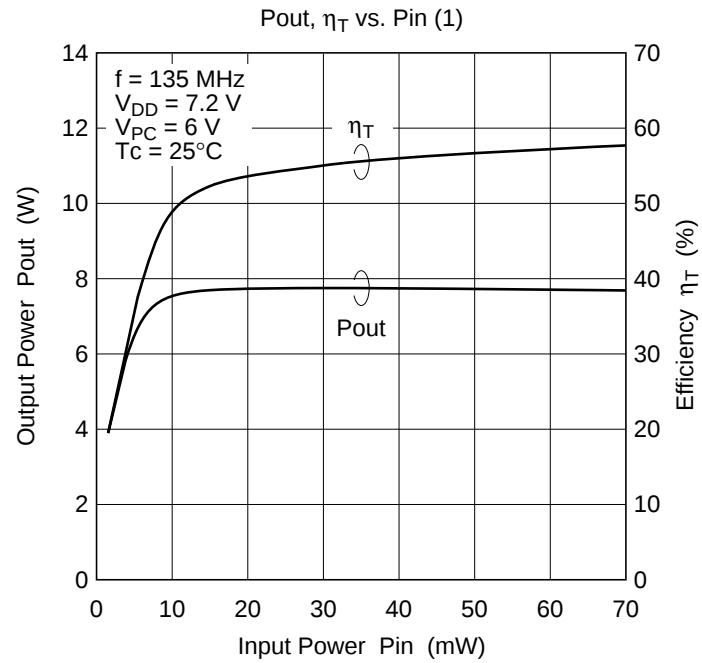


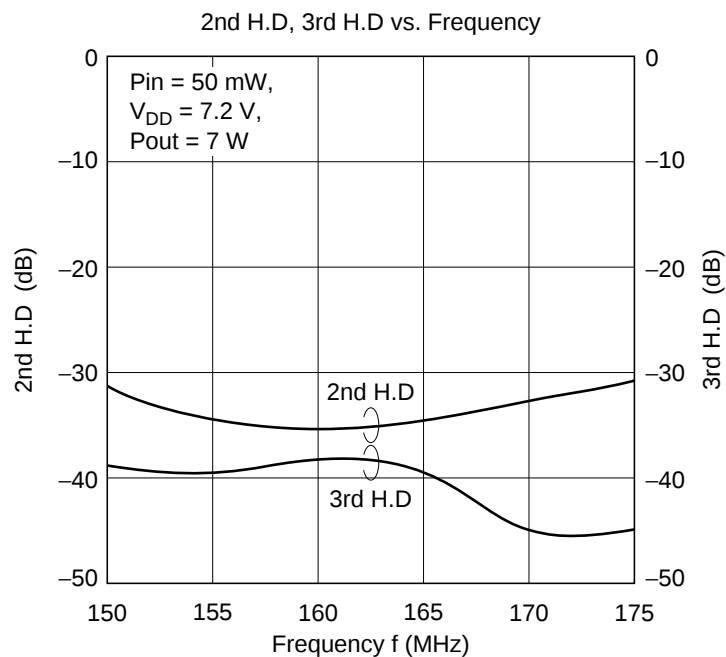
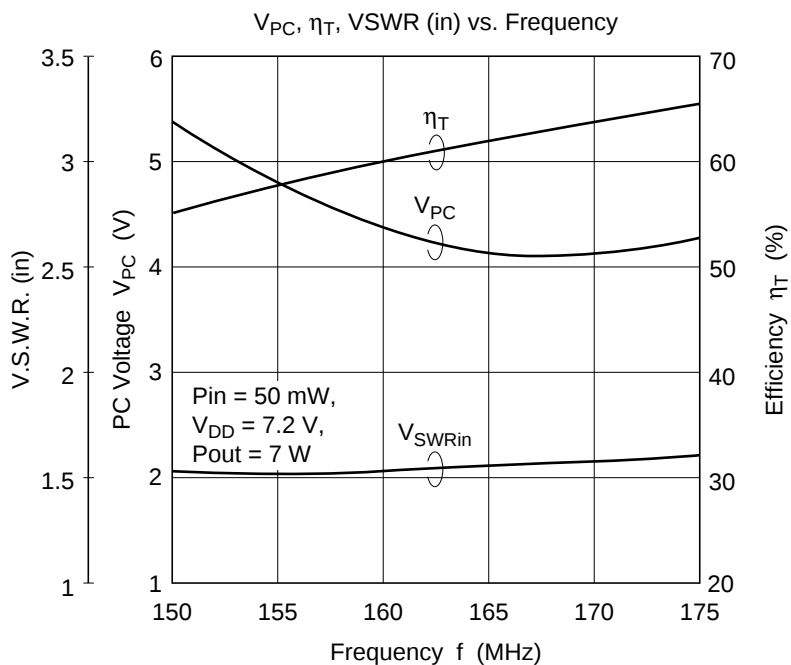
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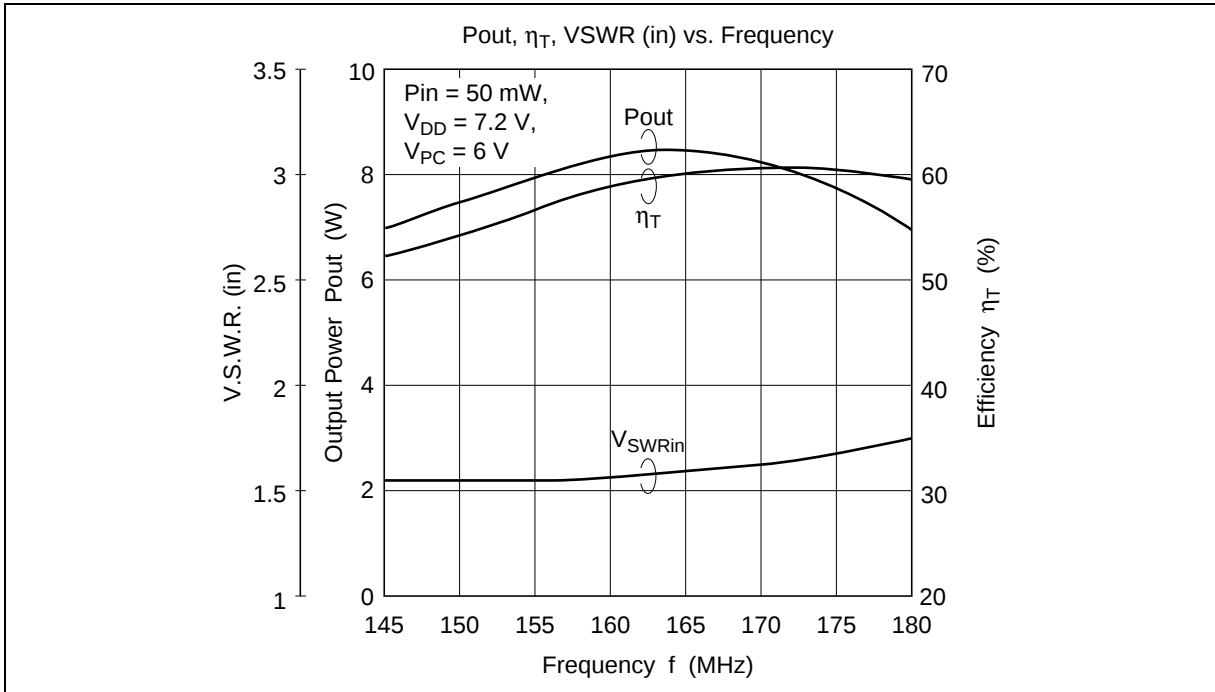


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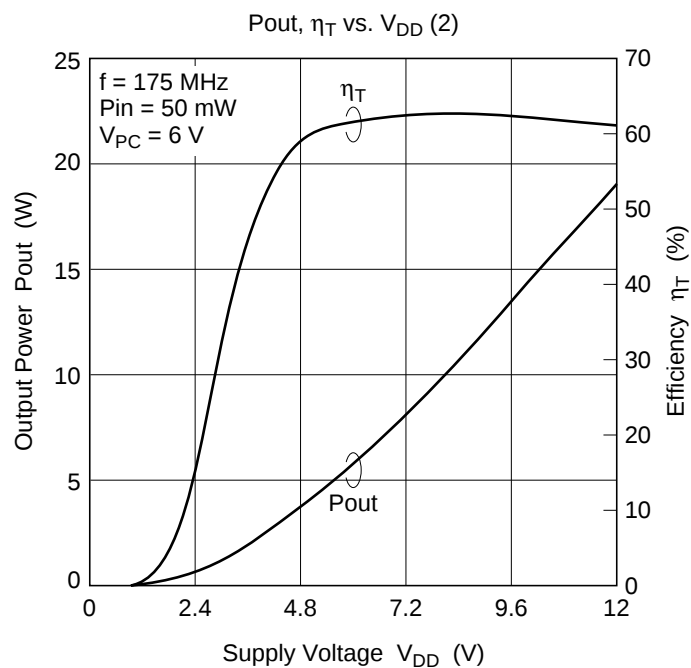
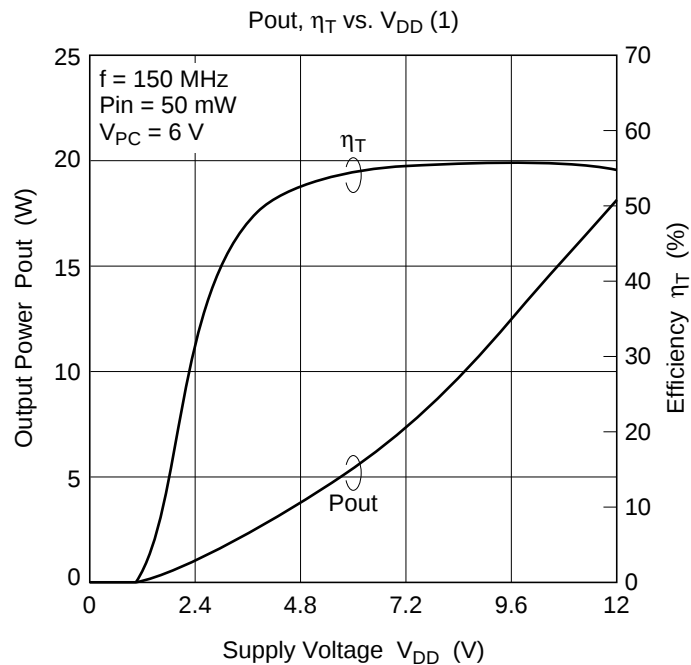


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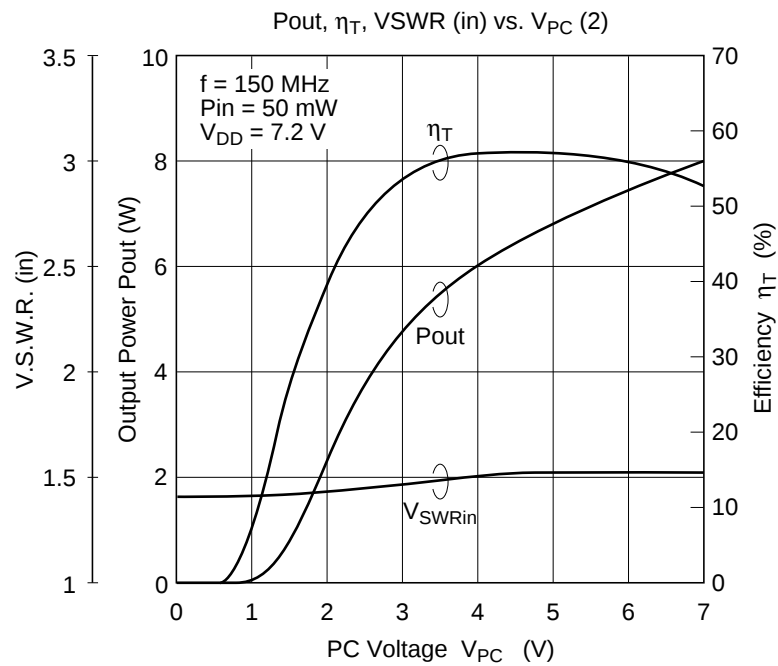
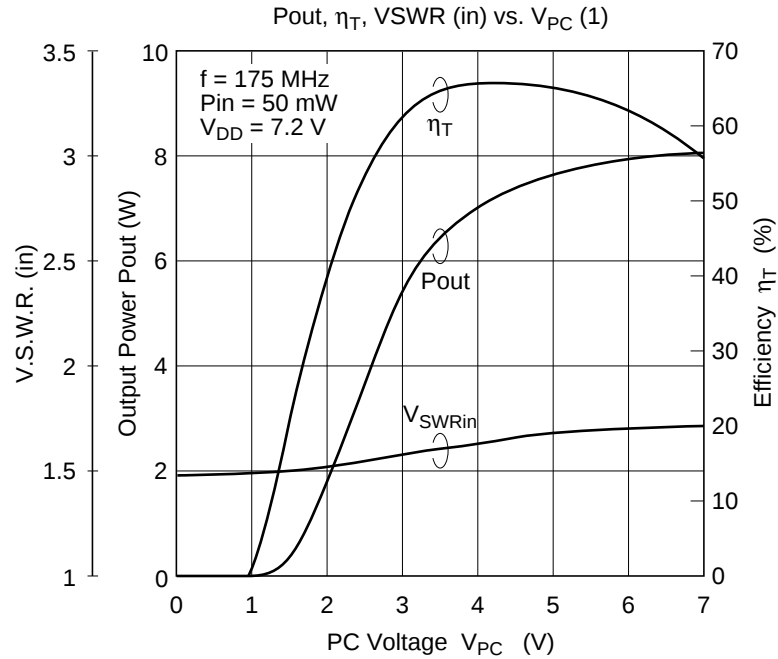


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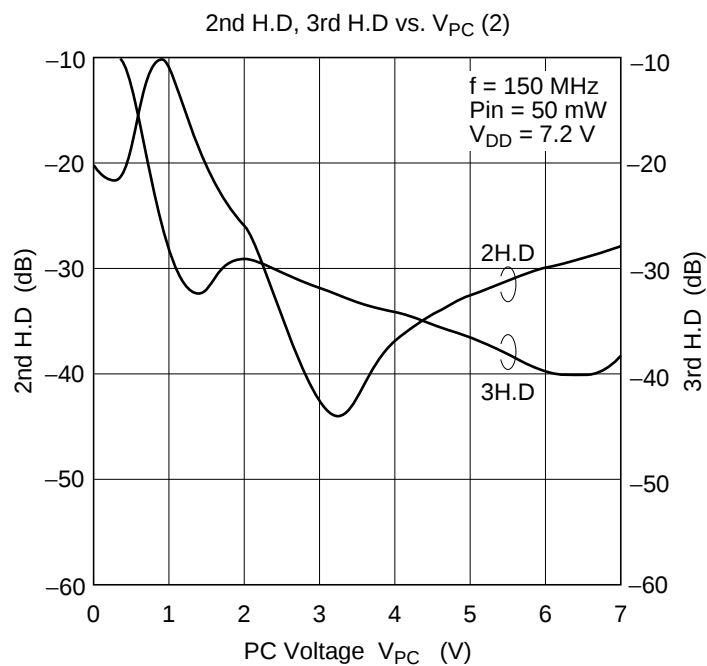
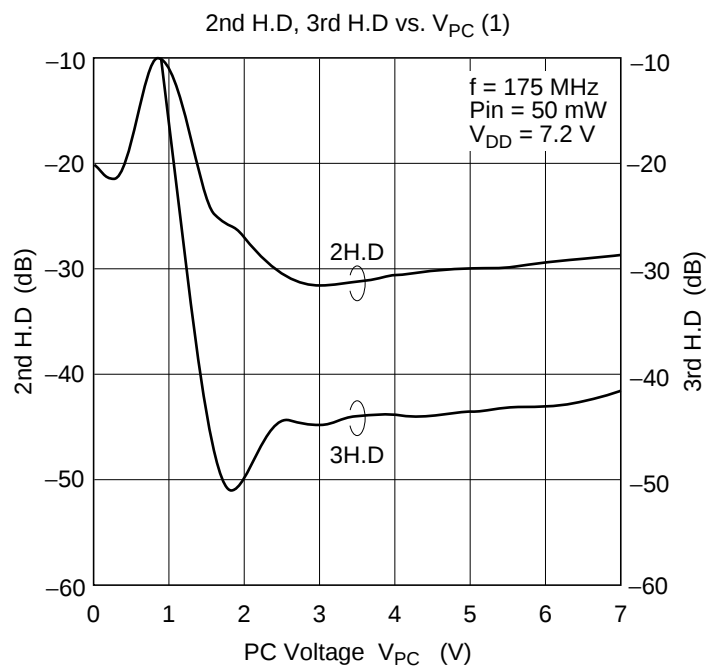


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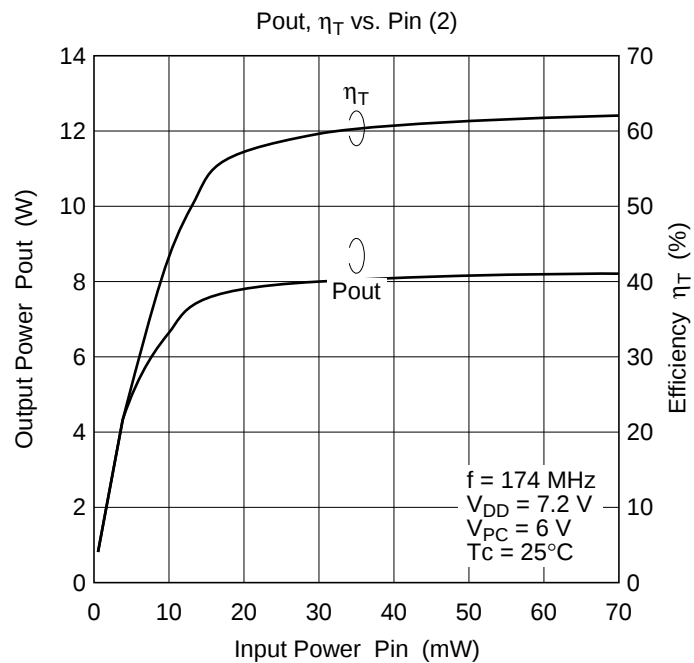
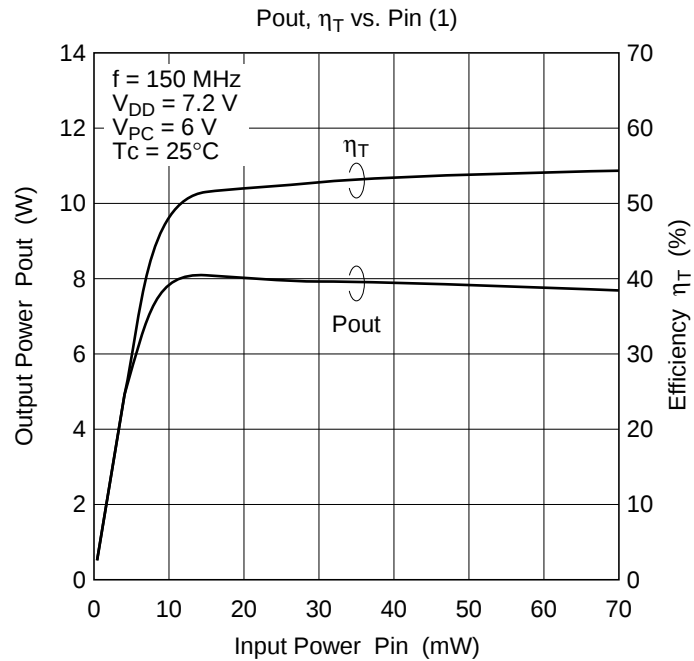


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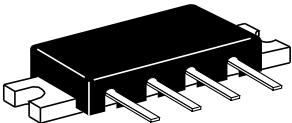
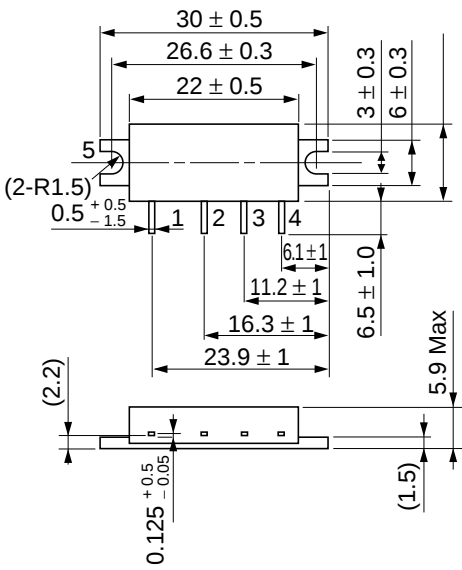
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Package Dimensions

Unit: mm



Hitachi Code	RF-J
JEDEC	—
EIAJ	—
Weight (reference value)	—

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