
PF0313 Series

MOS FET Power Amplifier Module for VHF Band

HITACHI

ADE-208-342A (Z)

2nd. Edition

July 1996

Features

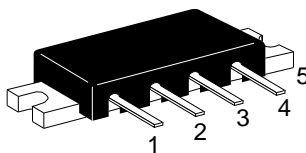
- Small package: 30 × 10 × 5.9 mm
- Low operation voltage: 7 W at 7.2 V
- High efficiency: 55% Typ
- Low power control current: 0.5 mA Max

Ordering Information

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

Pin Arrangement

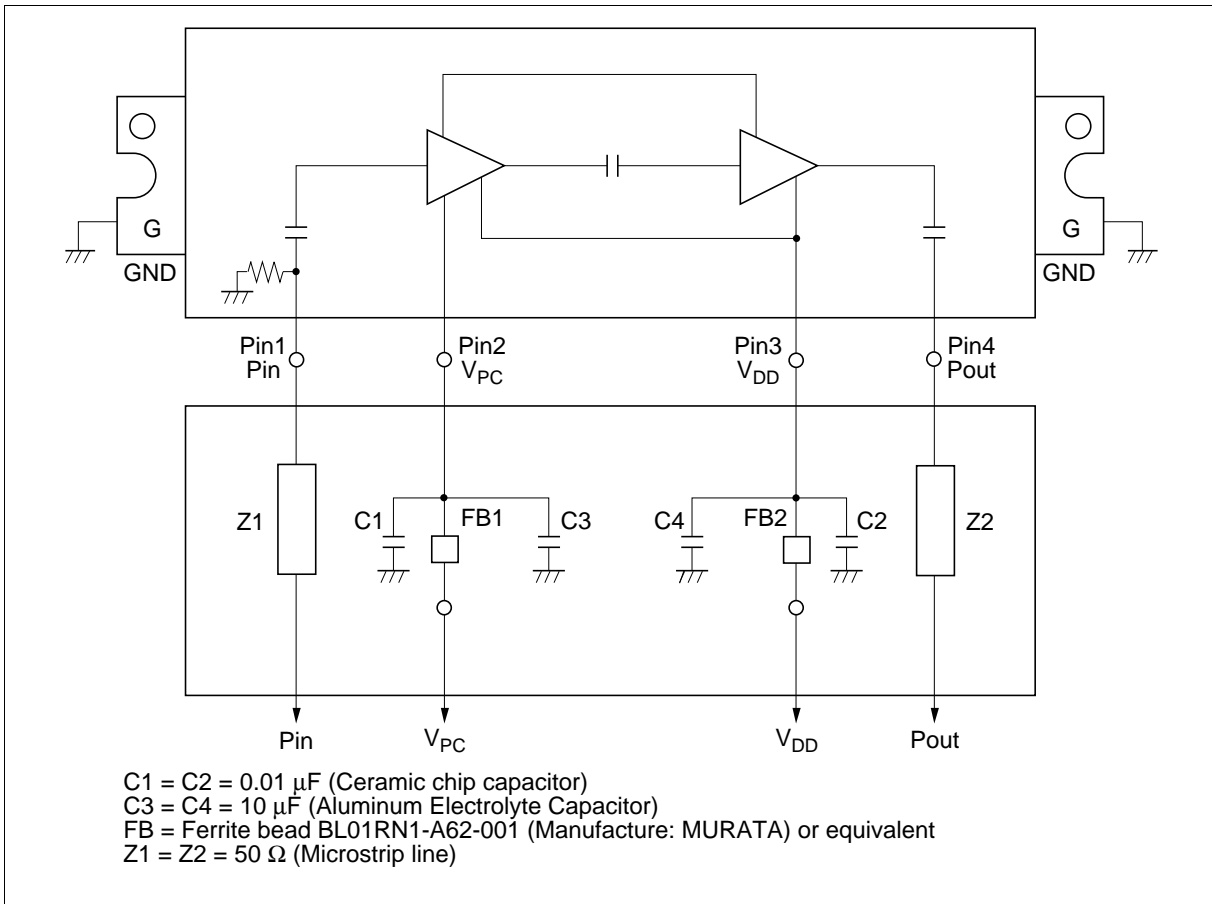
• RF-J



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

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Internal Diagram and External Circuit



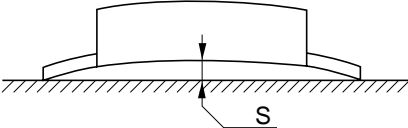
Absolute Maximum Ratings ($T_c = 25^\circ\text{C}$)

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

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Drain cutoff current	I_{DS}	—	—	100	μA	$V_{DD} = 17\text{ V}$, $V_{PC} = 0\text{ V}$, $R_L = R_g = 50\ \Omega$,
Total efficiency	η_T	45	55	—	%	$P_{in} = 50\text{ mW}$, $V_{DD} = 7.2\text{ V}$,
2nd harmonic distortion	2nd H.D.	—	-25	-20	dBc	$P_{out} = 7\text{ W}$ (at V_{PC} controlled),
3rd harmonic distortion	3rd H.D.	—	-35	-30	dBc	$R_L = R_g = 50\ \Omega$, $T_c = 25^\circ\text{C}$
4th harmonic distortion	4th H.D.	—	-40	-30	dBc	
Input VSWR	VSWR (in)	—	1.5	3.0	—	
Output power (1)	P_{out} (1)	7	8	—	W	$P_{in} = 50\text{ mW}$, $V_{DD} = 7.2\text{ V}$, $V_{PC} = 6\text{ V}$, $R_L = R_g = 50\ \Omega$
Output power (2)	P_{out} (2)	4	5	—	W	$P_{in} = 50\text{ mW}$, $V_{DD} = 6\text{ V}$, $V_{PC} = 5.5\text{ V}$, $R_L = R_g = 50\ \Omega$
Load VSWR tolerance	—	No degradation			—	$P_{in} = 50\text{ mW}$, $V_{DD} = 15\text{ V}$, $P_{out} \leq 7\text{ W}$, (at V_{PC} controlled), Output VSWR = 6:1 All phases
Stability	—	No parasitic oscillation			—	$P_{in} = 50\text{ mW}$, $V_{DD} = 6\text{ to }15\text{ V}$, $P_{out} \leq 7\text{ W}$, (at V_{PC} controlled), Output VSWR = 3:1 All phases

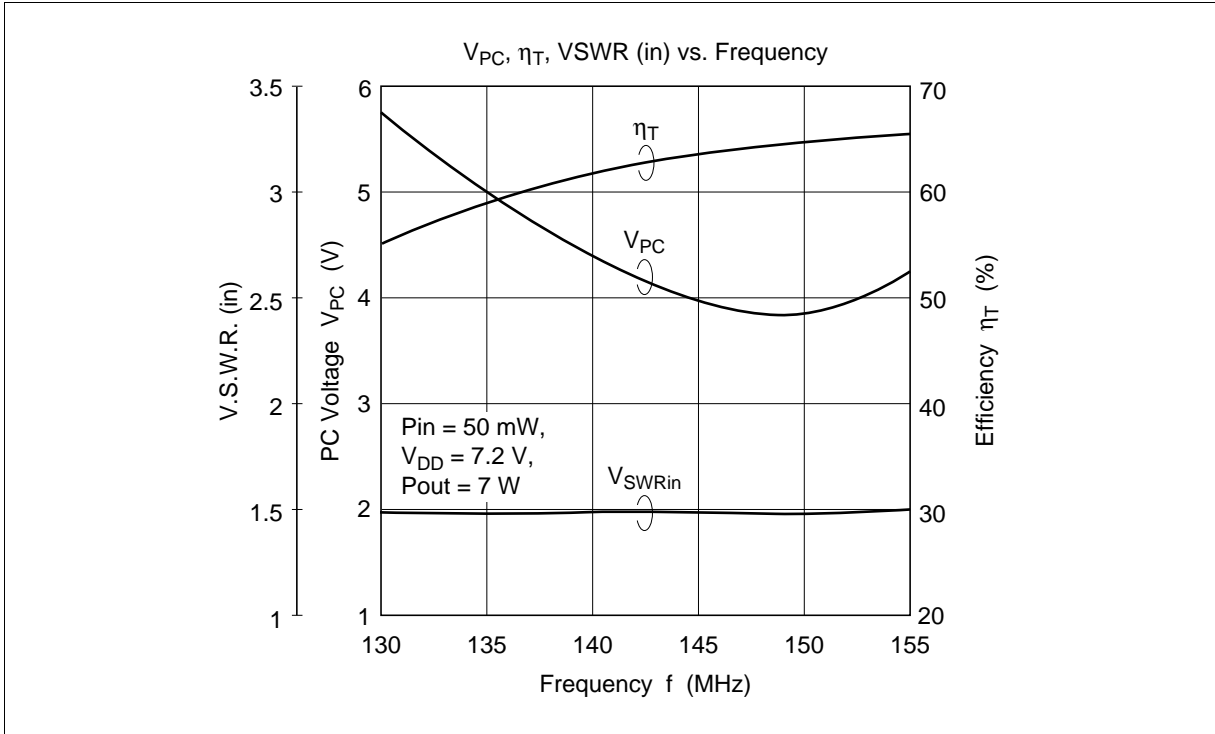
Mechanical Characteristics

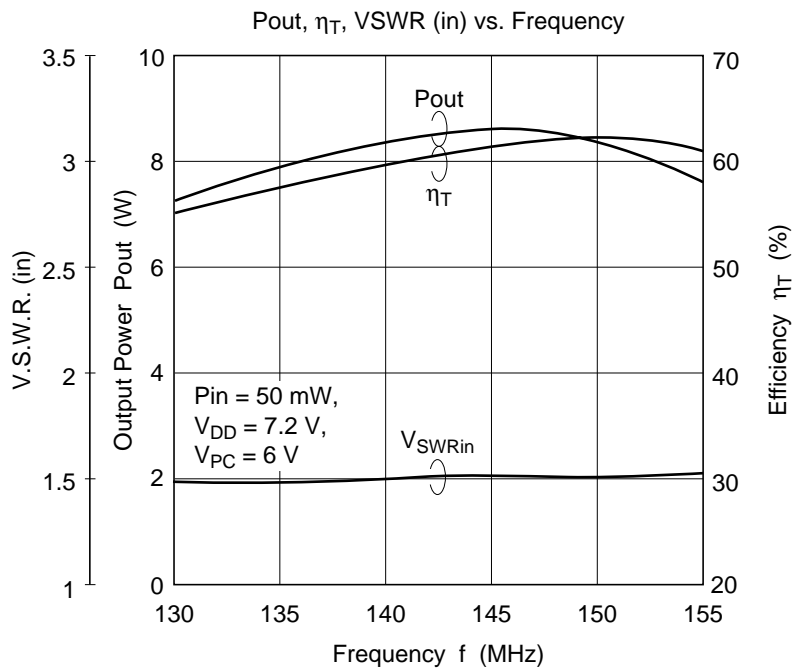
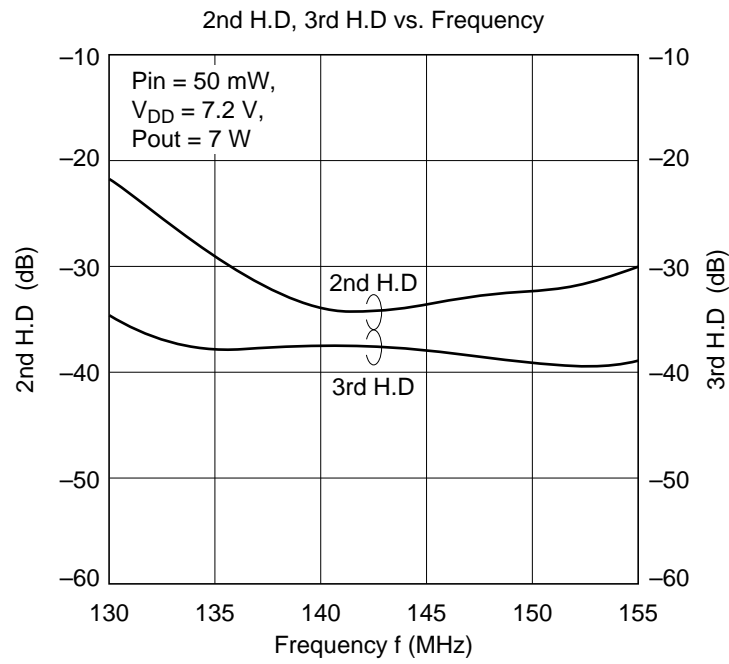
Item	Measuring Conditions	Spec
Torque for screw up the heatsink flange	M2.6 Screw Bolts	1.5 to 3.5 kg \cdot cm
Warp size of the heatsink flange: S		$S = 0$ $+0.1/-0\text{ mm}$

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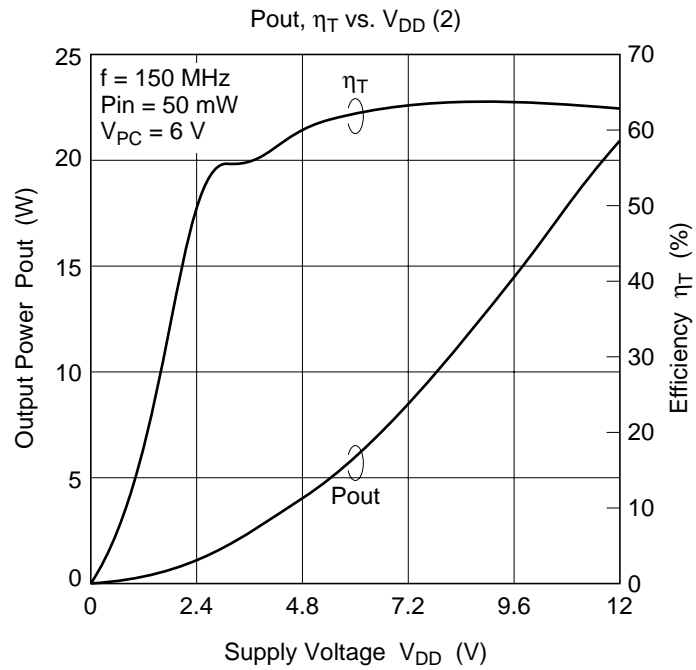
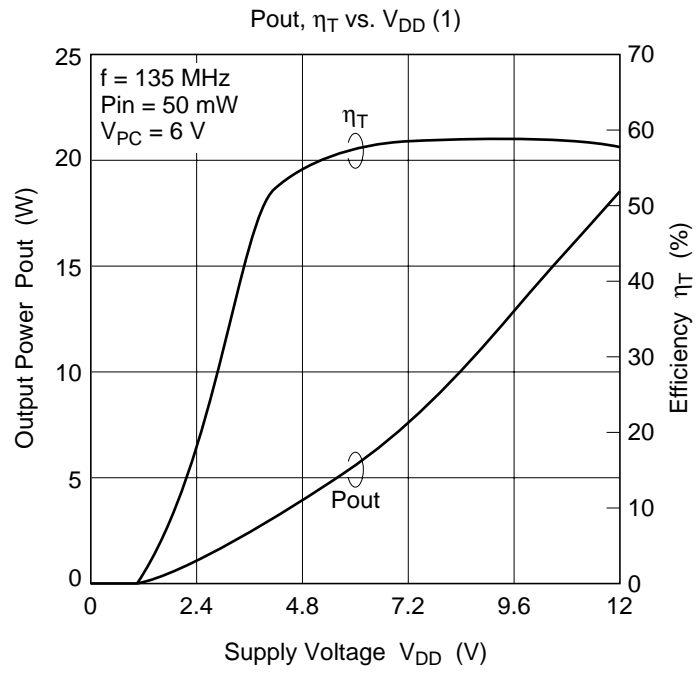
Characteristics Curve

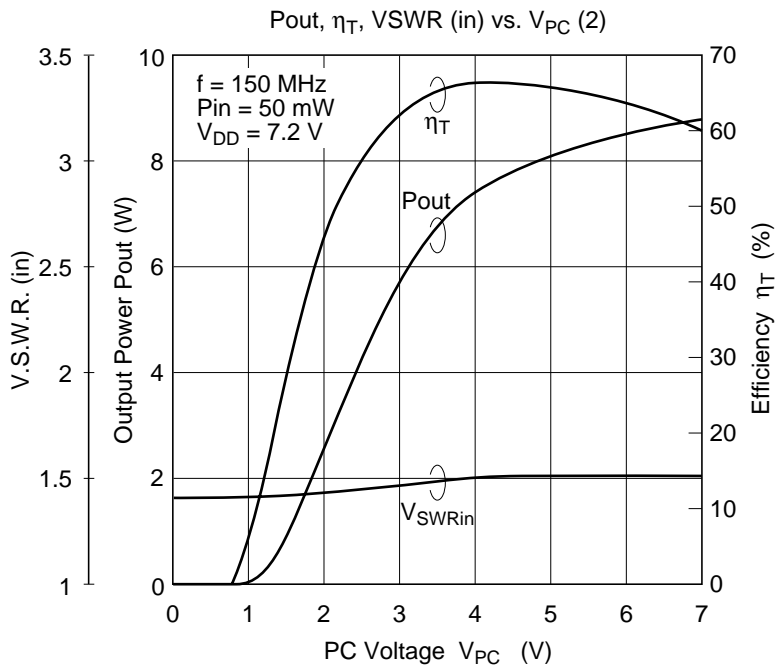
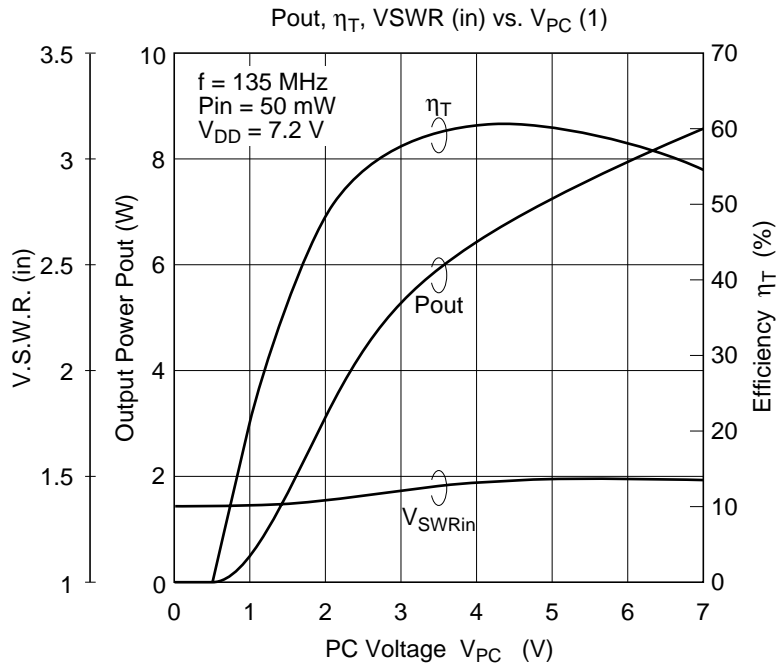
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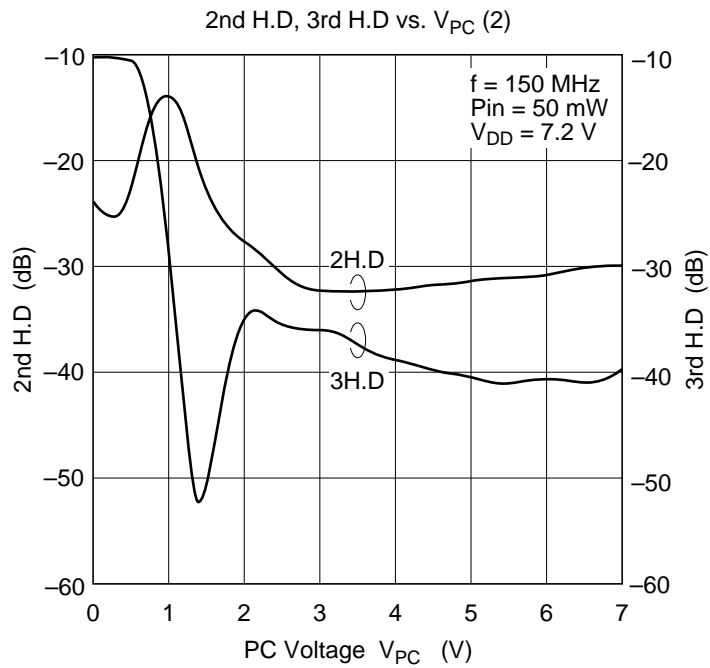
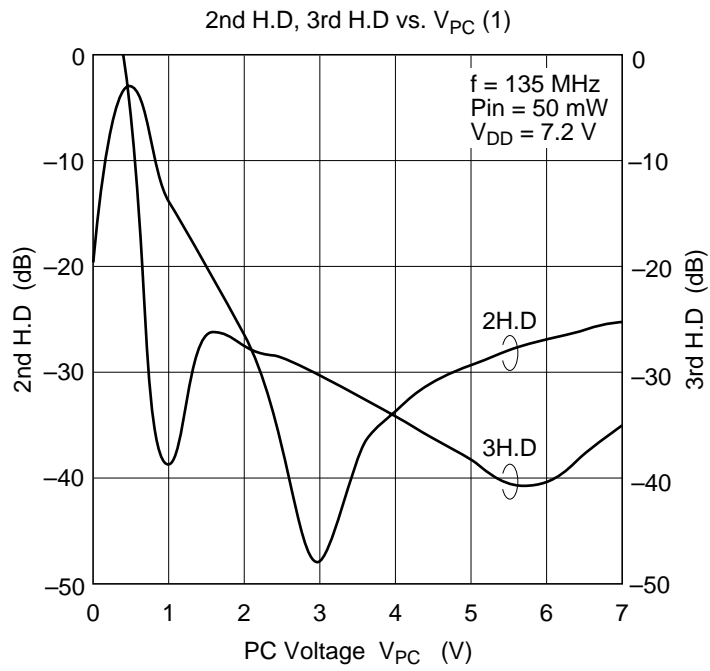


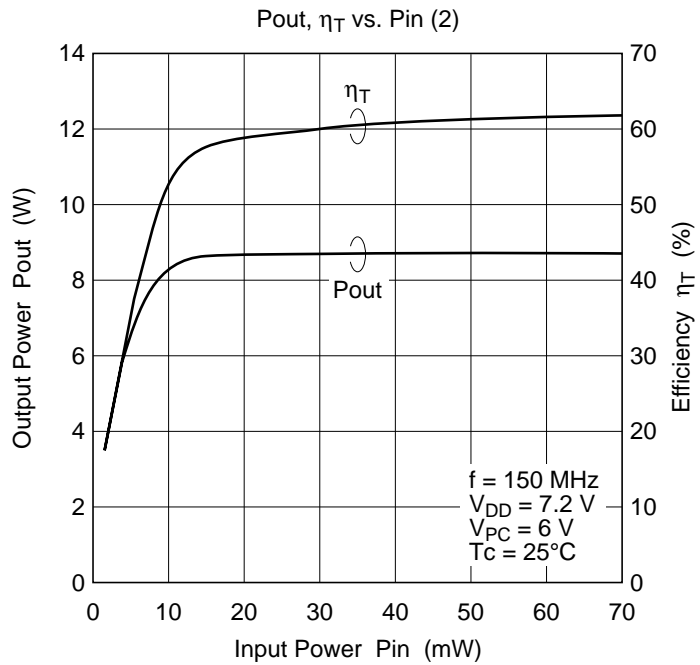
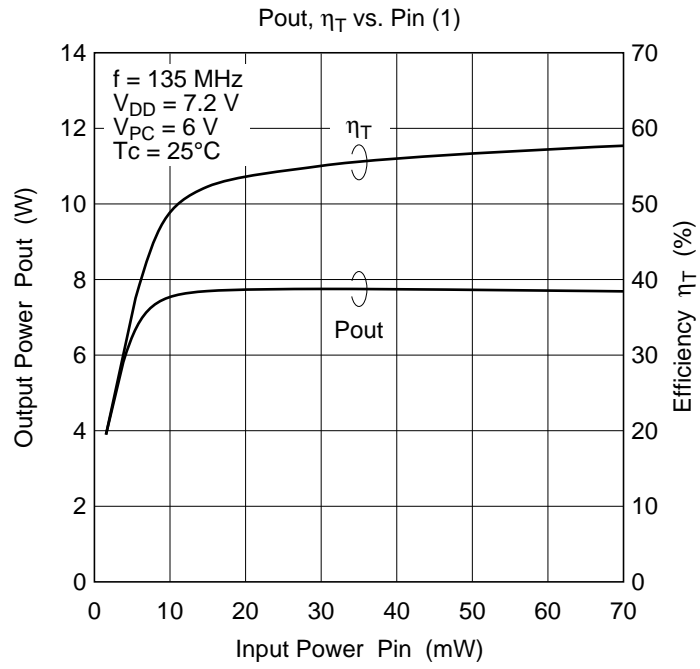
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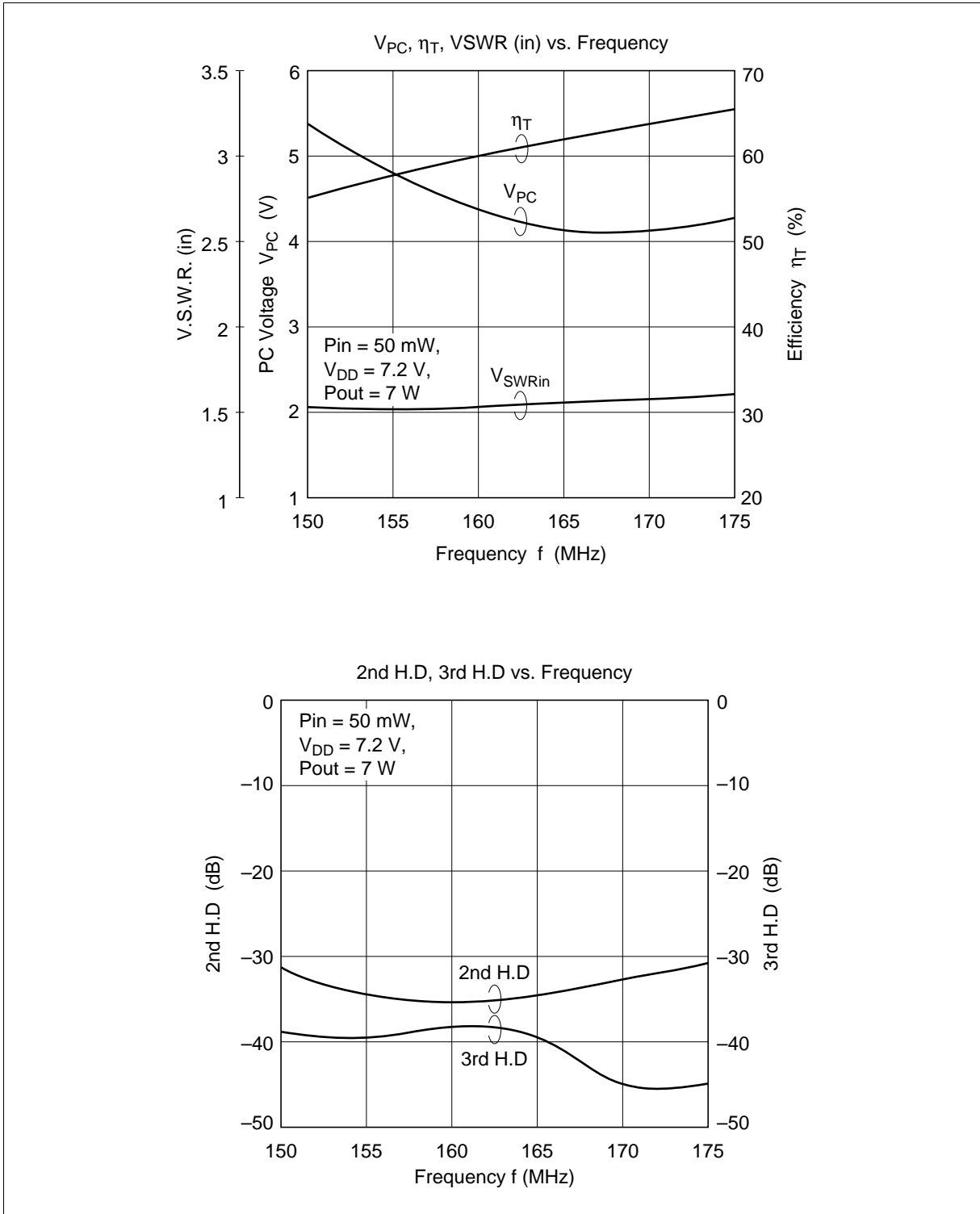
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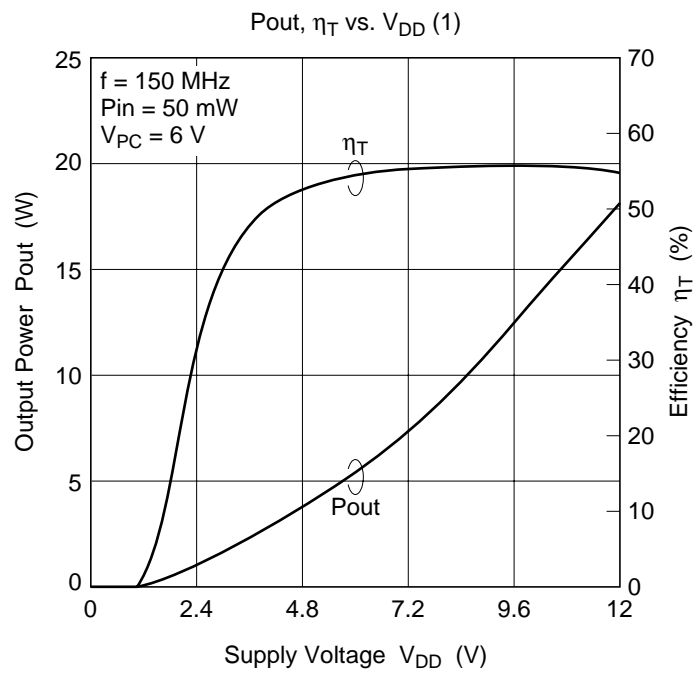
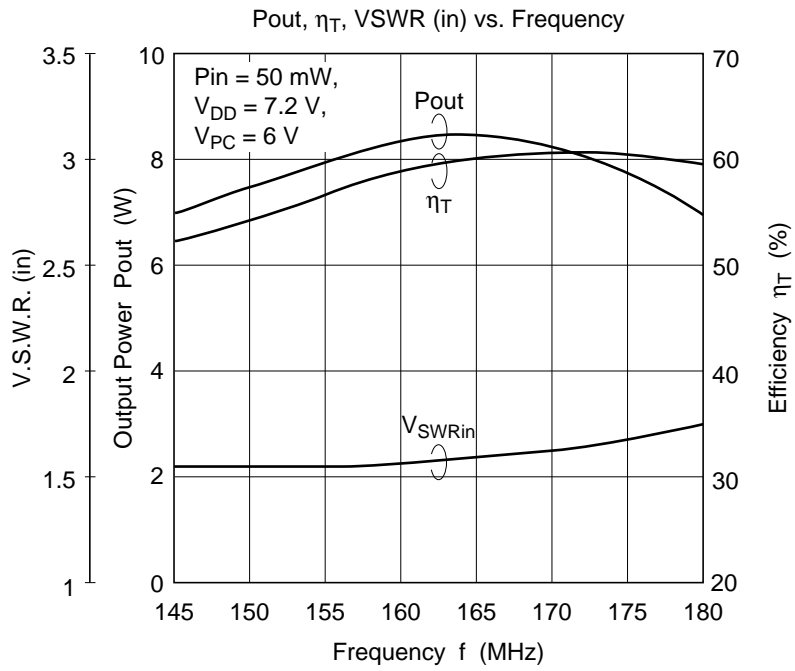




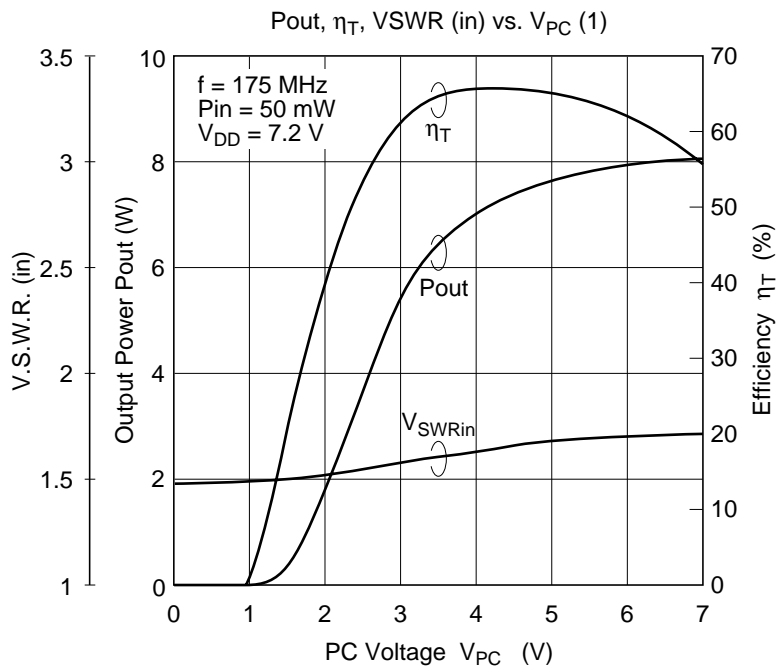
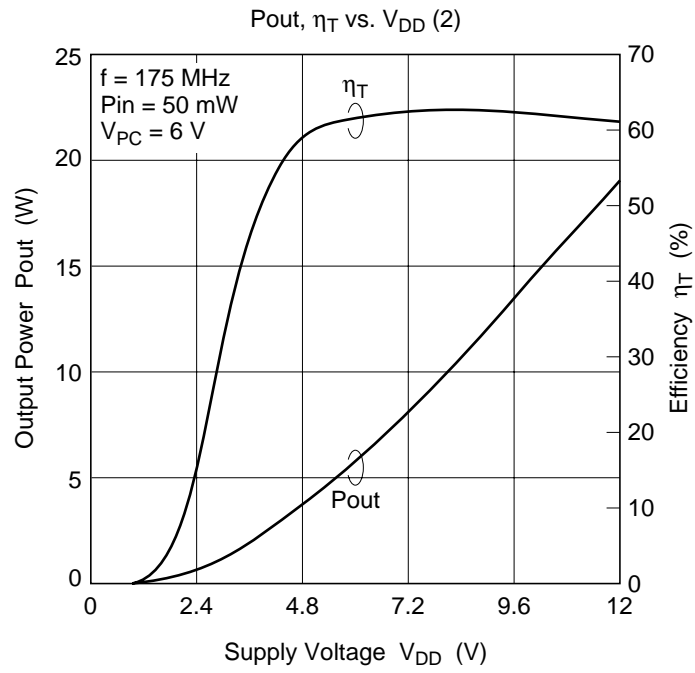
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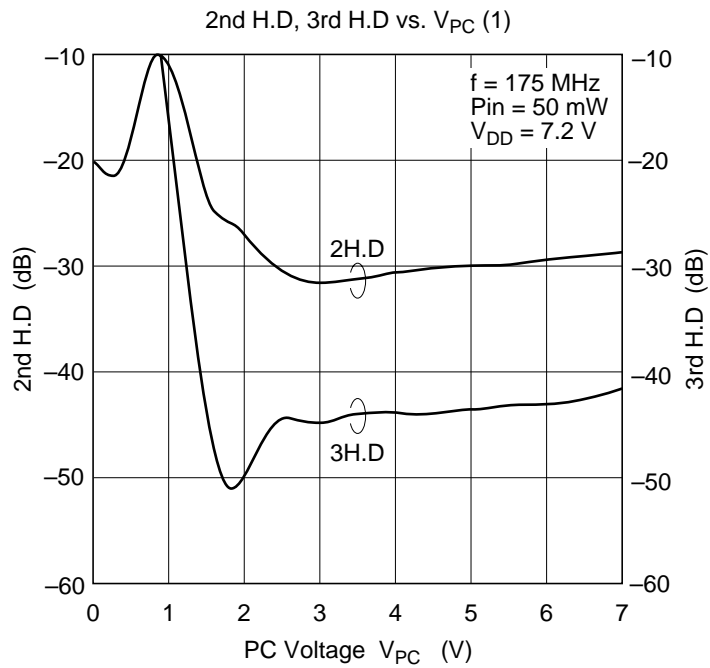
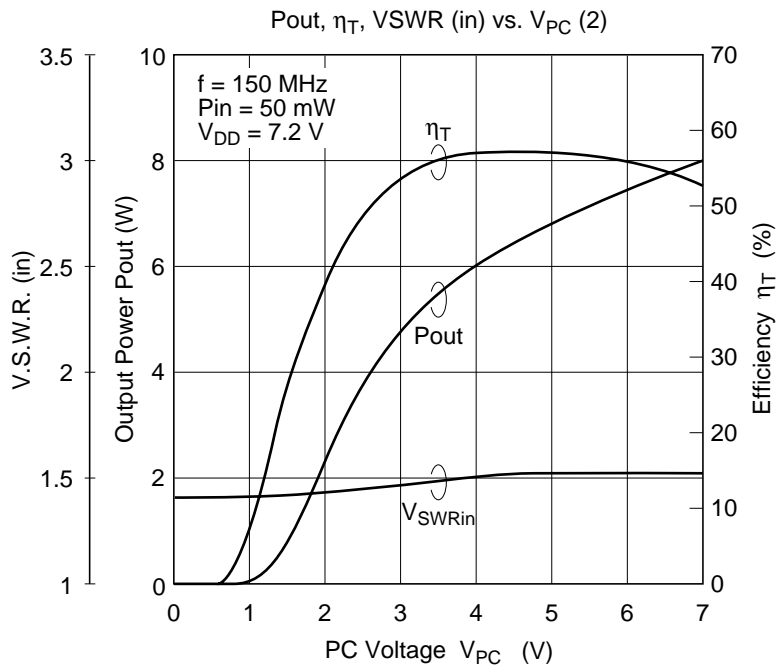
PF0314





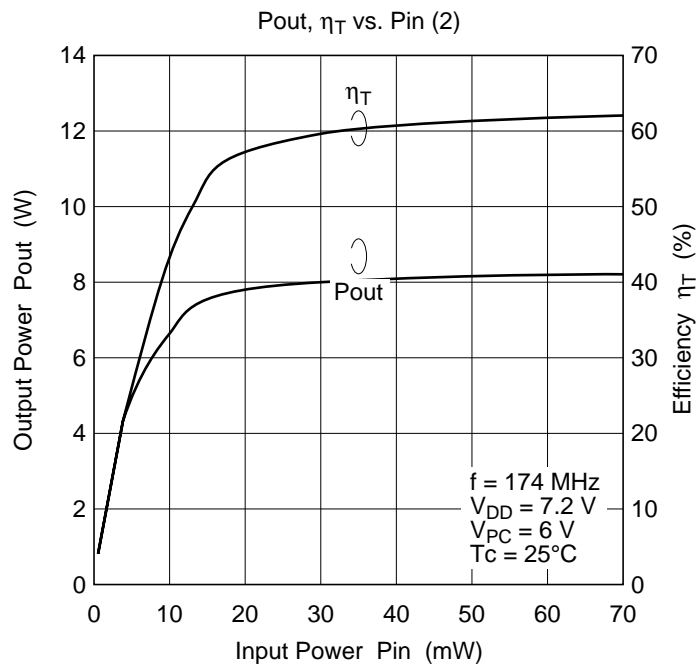
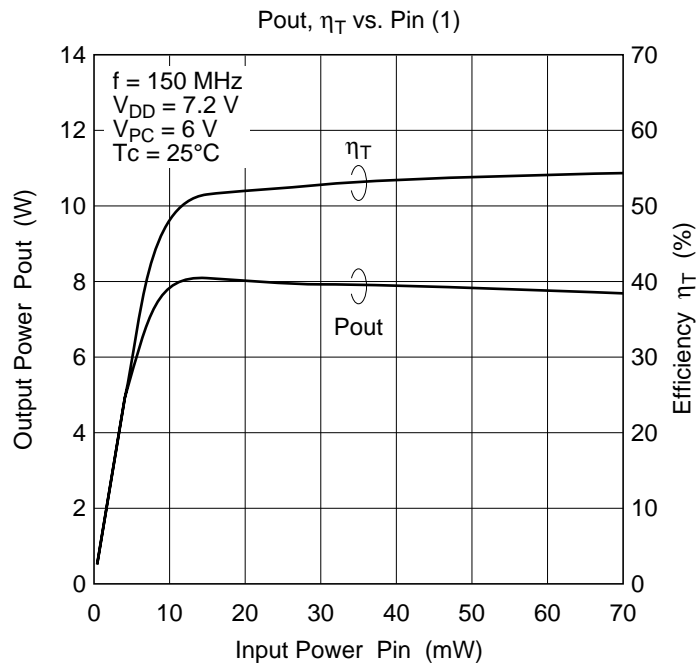
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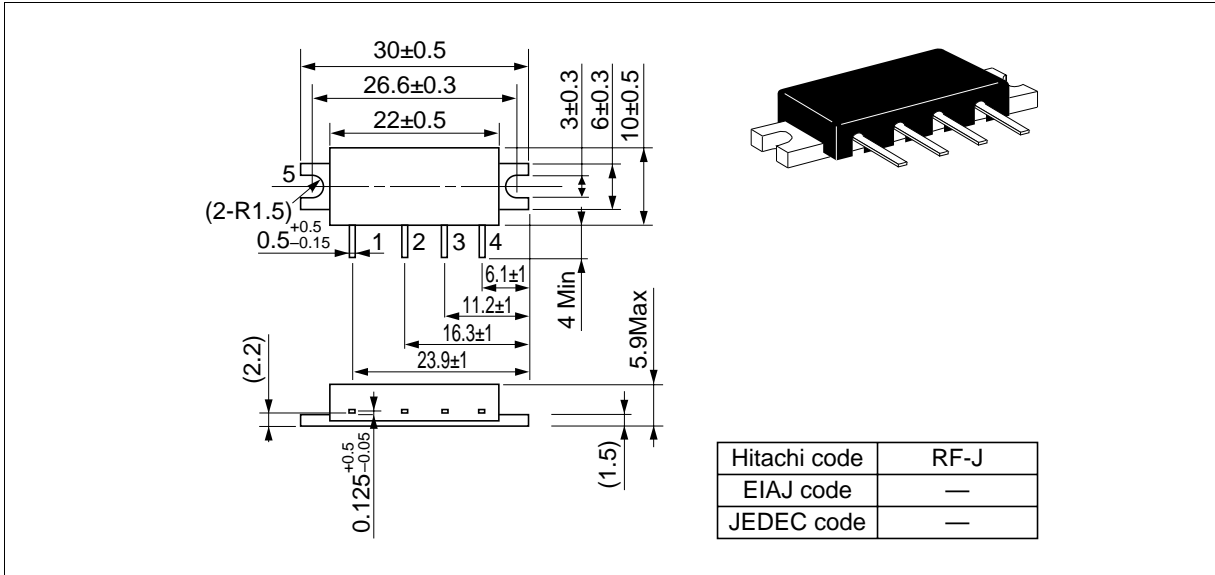
0 1 2 3 4 5 6 7
PC Voltage V_{PC} (V)

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Package Dimensions

Unit: mm



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