
PF0310A

MOS FET Power Amplifier Module for VHF Band

HITACHI

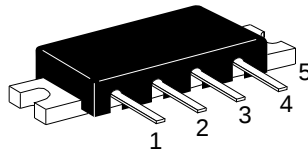
ADE-208-315A (Z)
2nd. Edition
July 1996

Features

- Small package: $30 \times 10 \times 5.9$ mm
- High efficiency: 55% Typ
- Low power control current: 0.5 mA Max

Pin Arrangement

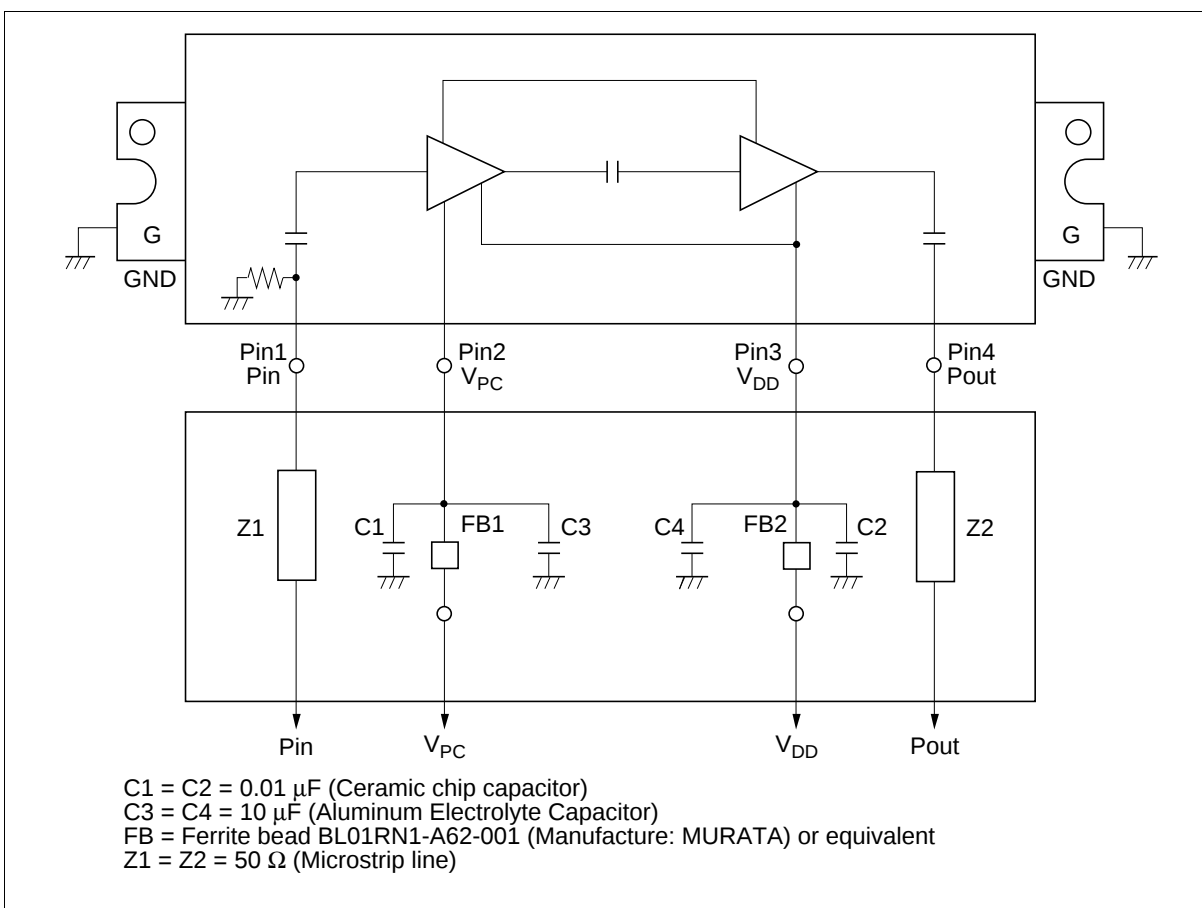
• RF-J



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

PF0310A

Internal Diagram and External Circuit



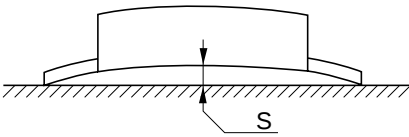
Absolute Maximum Ratings ($T_c = 25^\circ C$)

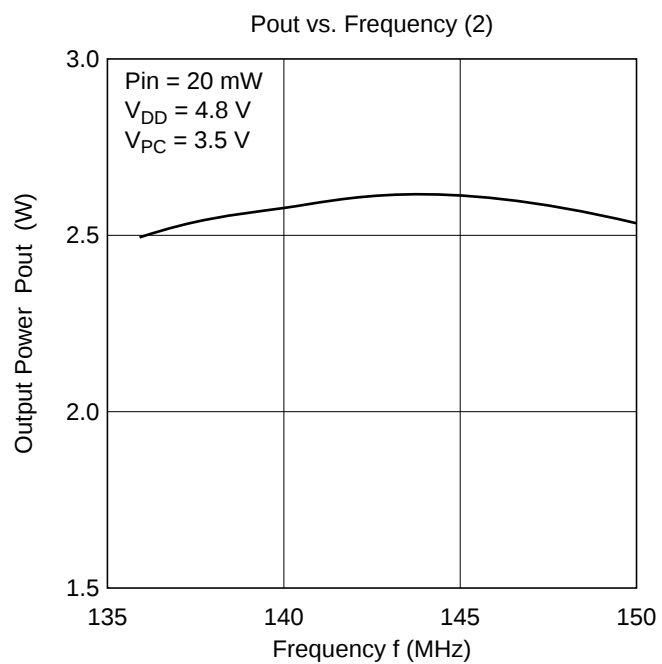
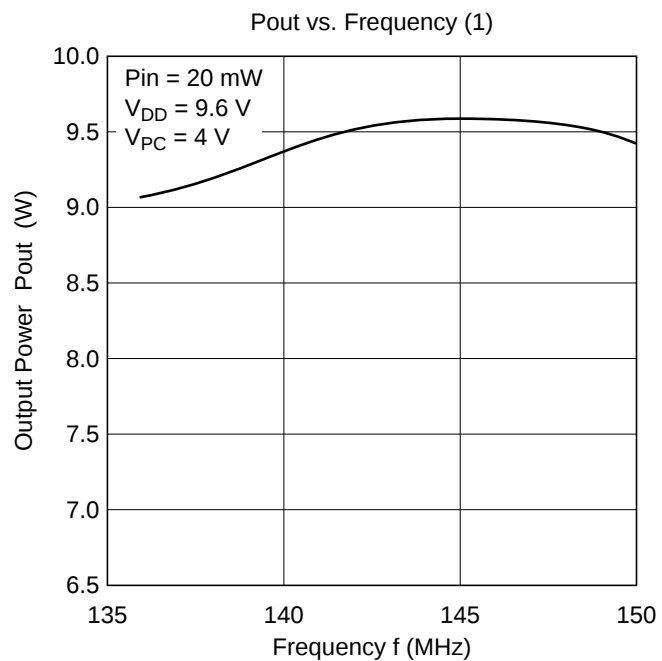
Item	Symbol	Rating	Unit
Supply voltage	V_{DD}	17	V
Supply current	I_{DD}	3	A
PC voltage	V_{PC}	4.5	V
Input power	Pin	100	mW
Operating case temperature	$T_c (op)$	-30 to +100	$^\circ C$
Storage temperature	T_{stg}	-40 to +110	$^\circ C$

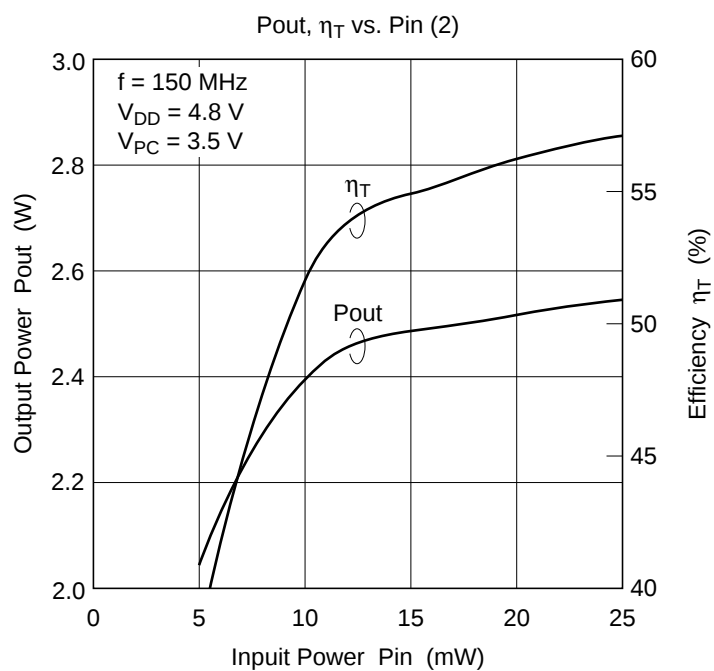
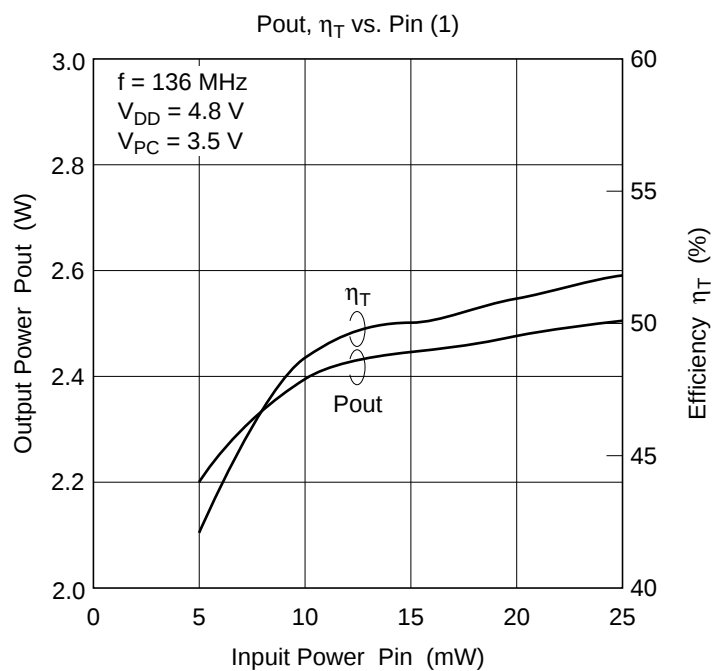
Electrical Characteristics (T_c = 25°C)

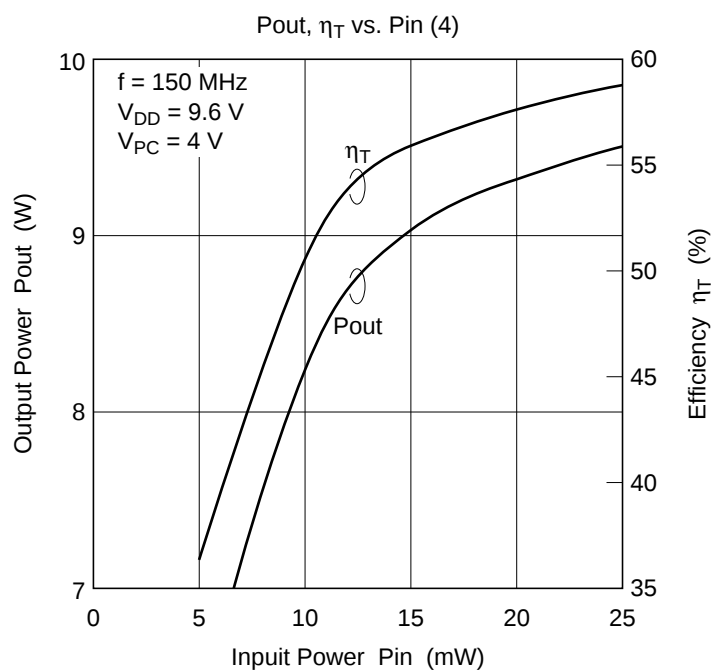
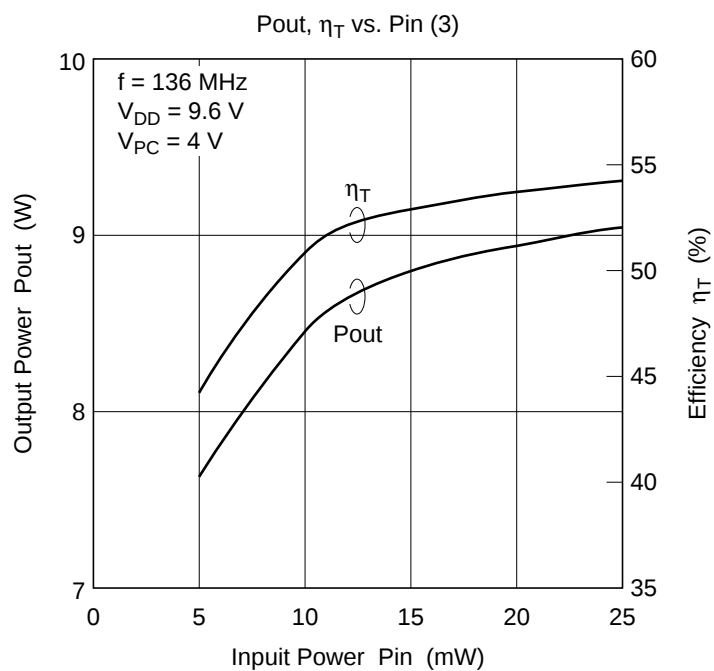
Item	Symbol	Min	Typ	Max	Unit	Test Condition
Frequency range	f	136	—	150	MHz	—
Drain cutoff current	I _{DS}	—	—	100	μA	V _{DD} = 17 V, V _{PC} = 0 V
Total efficiency	η _T	45	55	—	%	Pin = 20 mW, V _{DD} = 9.6 V,
2nd harmonic distortion	2nd H.D.	—	−25	−20	dBc	P _{out} = 7 W (at V _{PC} controlled),
3rd harmonic distortion	3rd H.D.	—	−35	−30	dBc	R _L = R _g = 50 Ω, T _c = 25°C
4th harmonic distortion	4rd H.D.	—	−40	−30	dBc	
Input VSWR	VSWR (in)	—	1.5	3.0	—	
Output VSWR	VSWR (out)	—	1.5	—	—	
Output power (1)	P _{out} (1)	7	9	—	W	Pin = 20 mW, V _{DD} = 9.6 V, V _{PC} = 4 V, R _L = R _g = 50 Ω
Output power (2)	P _{out} (2)	2.5	3.5	—	W	Pin = 20 mW, V _{DD} = 6 V, V _{PC} = 3.7 V, R _L = R _g = 50 Ω
Load VSWR tolerance	—	No degradation			—	Pin = 20 mW, V _{DD} = 15 V, P _{out} ≤ 7 W, (at V _{PC} controlled), Output VSWR = 6:1 All phases
Stability	—	No parasitic oscillation			—	Pin = 20 mW, V _{DD} = 6 to 15 V, P _{out} ≤ 7 W, (at V _{PC} controlled), Output VSWR = 3:1 All phases

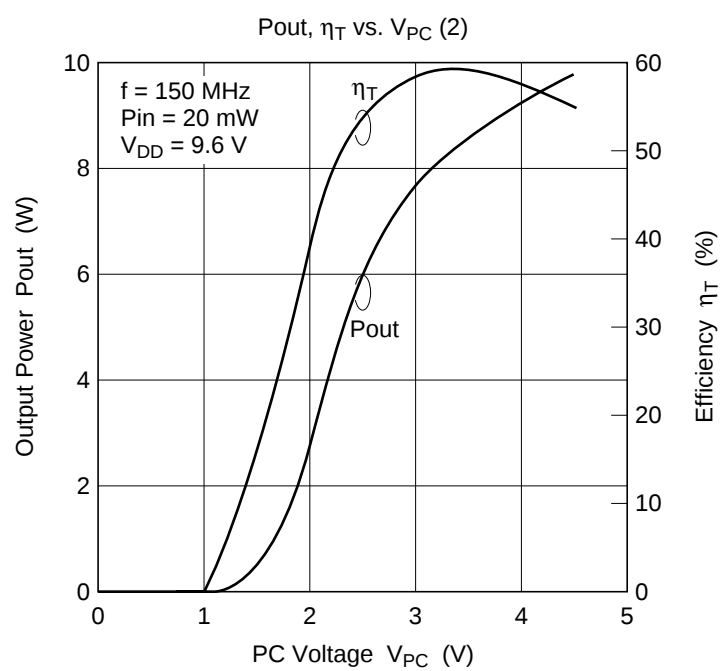
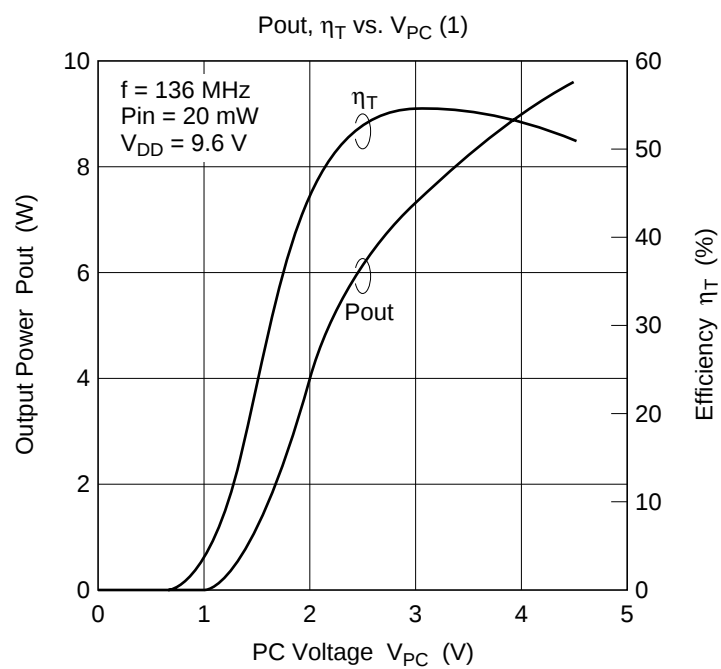
Mechanical Characteristics

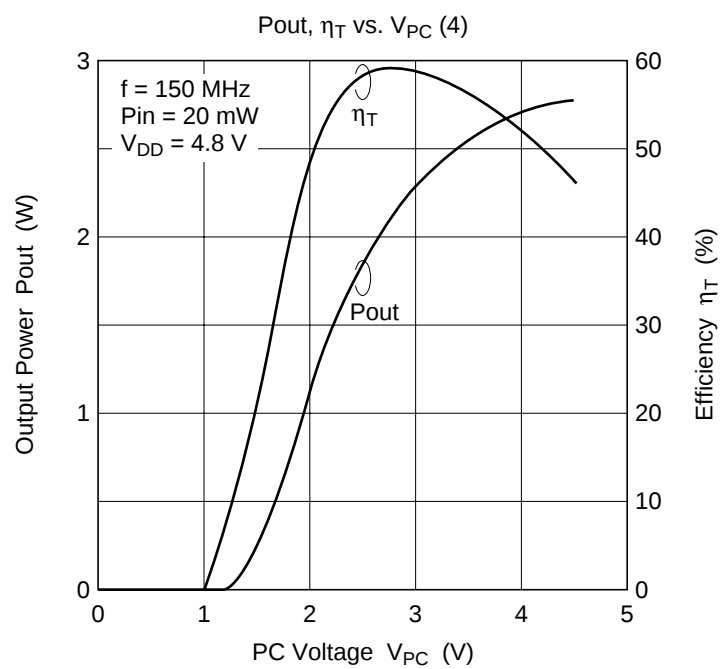
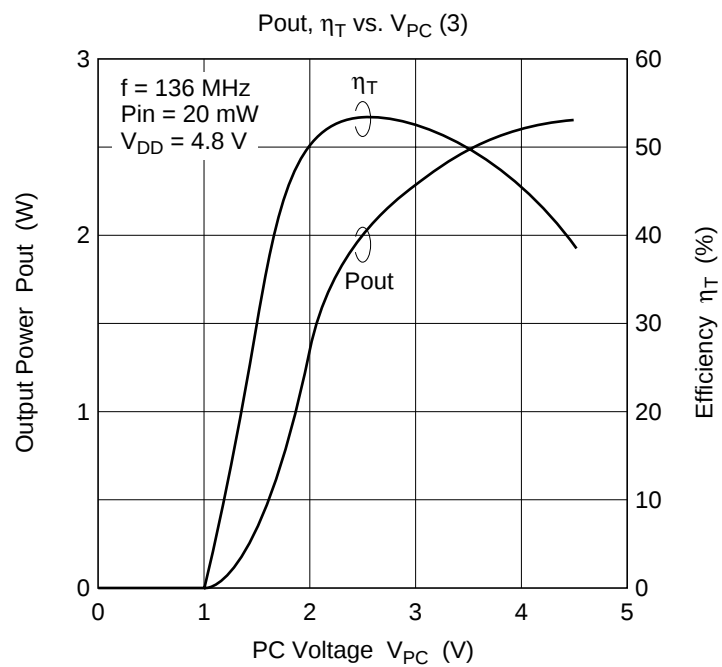
Item	Conditions	Spec
Torque for screw up the heatsink flange	M2.6 Screw Bolts	1.5 to 3.5 kg•cm
Warp size of the heatsink flange: S		S = 0 +0.1/−0 mm

Characteristics Curve









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