
PF0030 Series

MOS FET Power Amplifier

HITACHI

ADE-208-460 (Z)

1st. Edition

July 1996

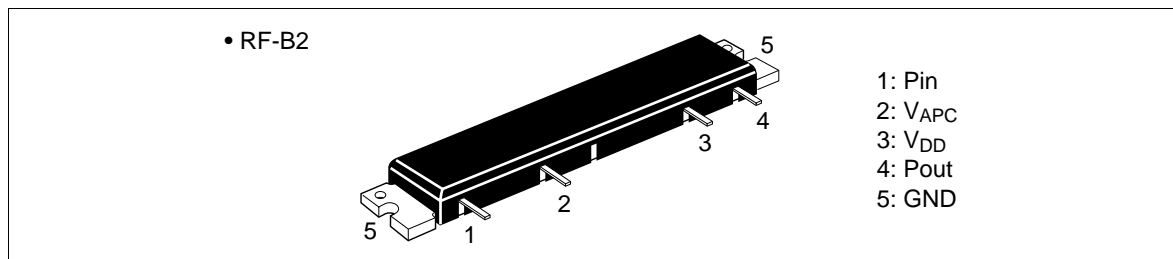
Features

- • High stability: Load VSWR = 20 : 1
- • Low power control current: 400 μ A
- • Thin package: 5 mm

Ordering Information

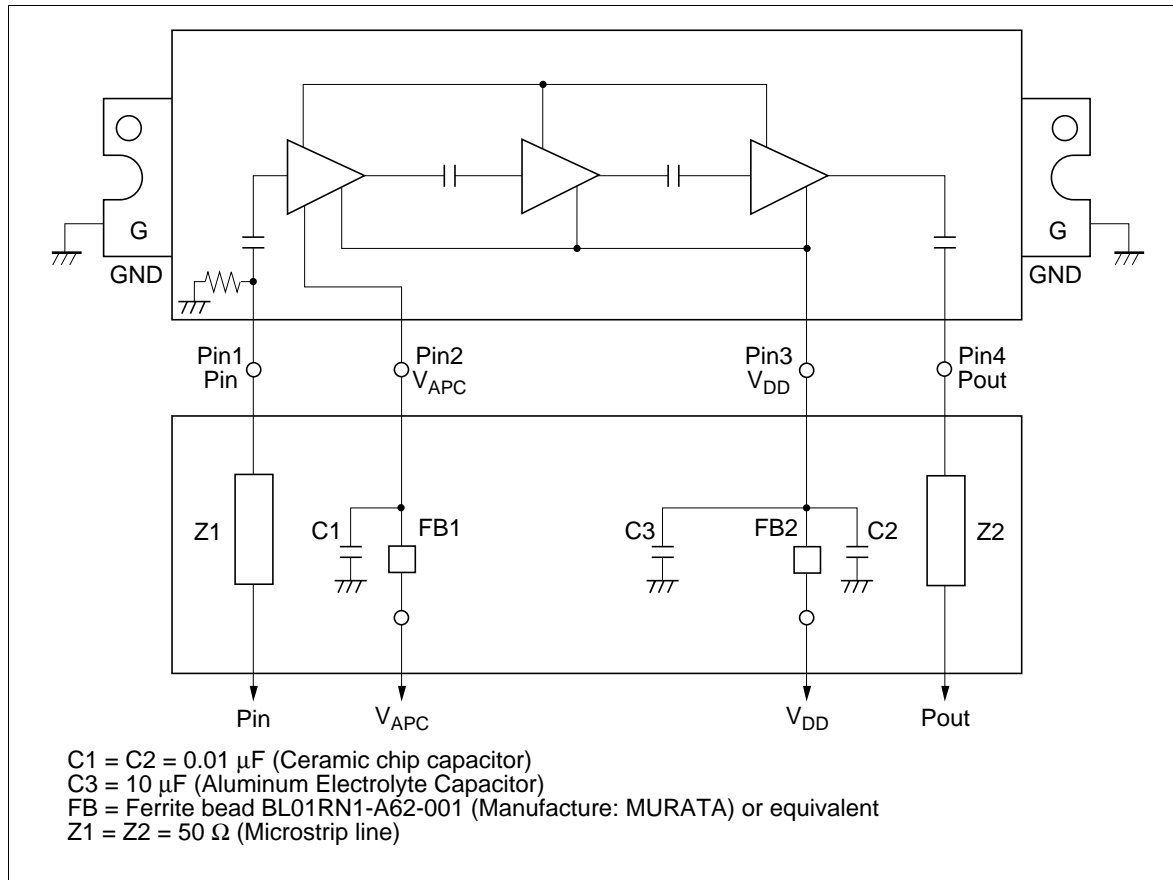
Type No	Operating Frequency	Application
PF0030	824 to 849 MHz	AMPS
PF0032	872 to 905 MHz	E-TACS

Pin Arrangement



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Internal Diagram and External Circuit



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

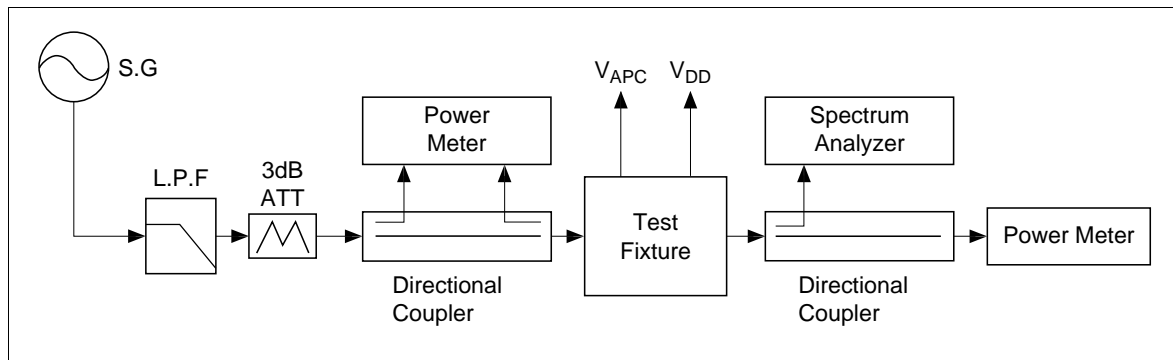
Item	Symbol	Rating	Unit
Supply voltage	VDD	17	V
Supply current \hat{A} @	IDD	3	A
APC voltage	VAPC	± 8	V
Input power	Pin	20	mW
Operating case temperature	Tc (op)	-30 to +110	$^\circ\text{C}$
Storage temperature	Tstg	-40 to +110	$^\circ\text{C}$

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Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Drain cutoff current	IDS	—	—	500	μA	VDD = 17 V, VAPC = 0 V
Total efficiency	η_T	35	40	—	%	Pin = 2 mW,
2nd harmonic distortion	2nd H.D.	—	-50	-30	dB	VDD = 12.5 V,
3rd harmonic distortion	3rd H.D.	—	-50	-30	dB	Pout = 6 W (at APC controlled)
Input VSWR	VSWR (in)	—	1.5	3	—	Zin = Zout = 50 Ω
Output VSWR	VSWR (out)	—	1.5	—	—	
Stability	—	No parasitic oscillation			—	Pin = 2 mW, VDD = 12.5 V, Pout = 6 W (at APC controlled), Zin = 50 Ω, Output VSWR = 20:1 All phases, t = 20 sec

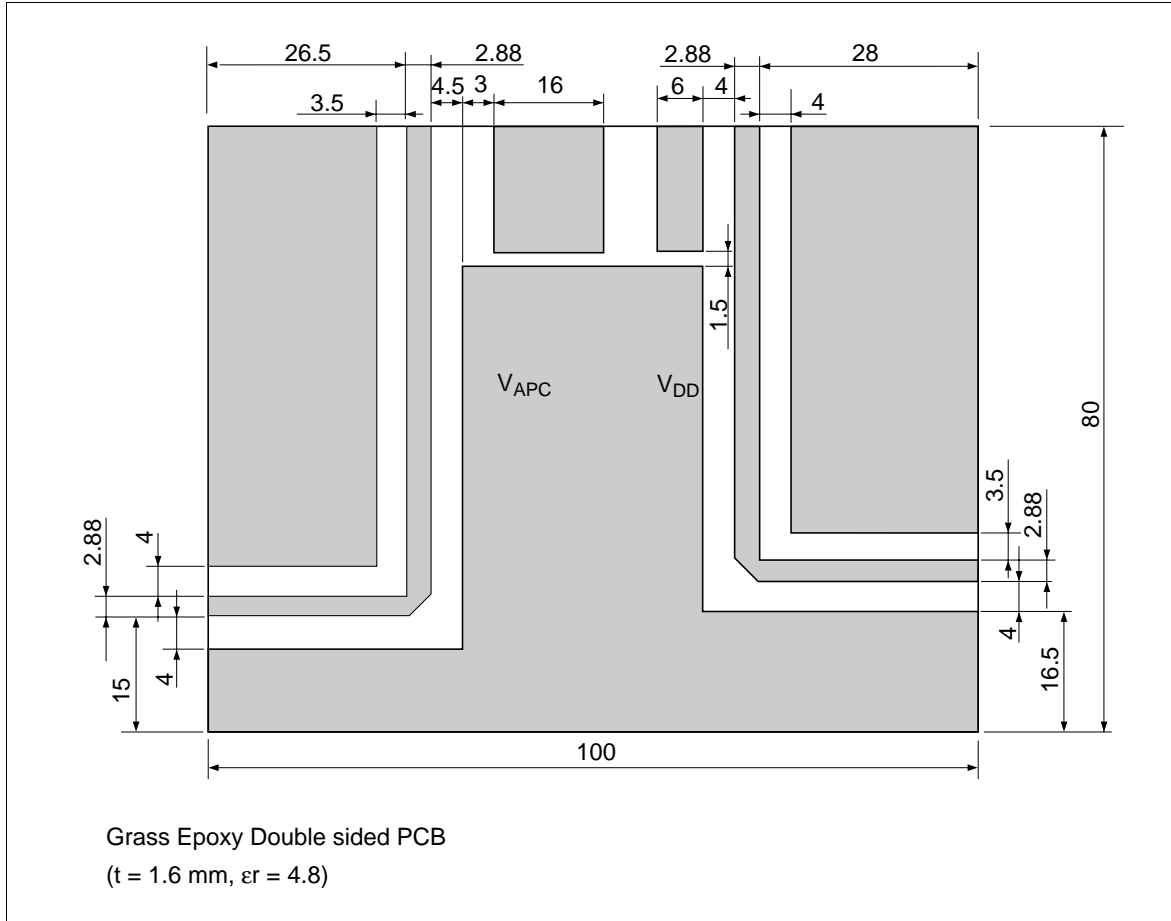
Test System Diagram



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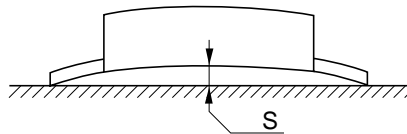
Test Fixture Pattern

Unit: mm



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



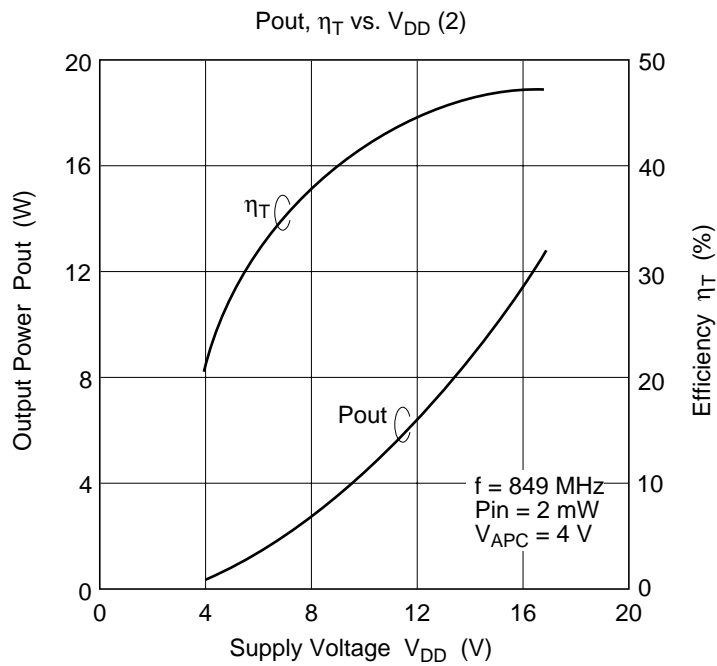
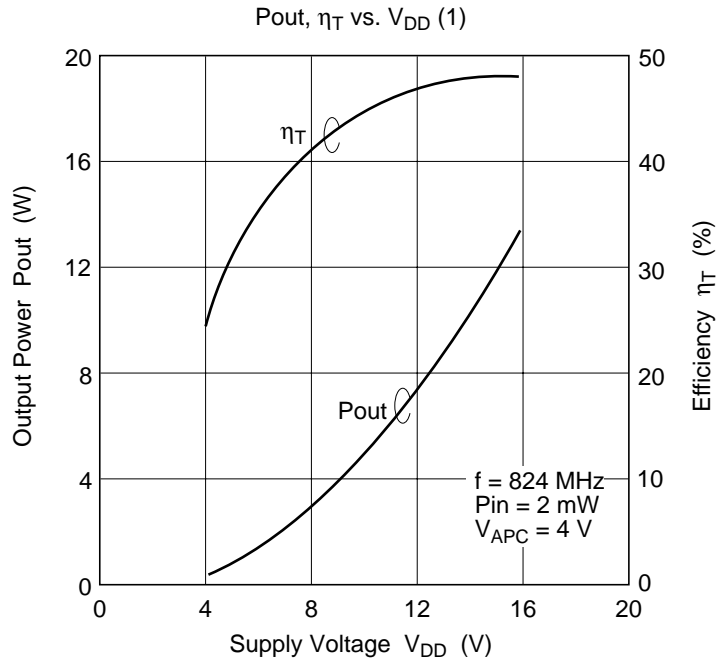
Note for Use

- • Unevenness and distortion at the surface of the heatsink attached module should be less than 0.05 mm.
- • It should not be existed any dust between module and heatsink.
- • MODULE should be separated from PCB less than 1.5 mm.
- • Soldering temperature and soldering time should be less than 230°C, 10 sec.
(Soldering position spaced from the root point of the lead frame: 2 mm)
- • Recommendation of thermal joint compounds is TYPE G746.
(Manufacturer: Shin-Etsu Chemical, Co., Ltd.)
- • To protect devices from electro-static damage, soldering iron, measuring-equipment and human body etc. should be grounded.
- • Torque for screw up the heatsink flange should be 4 to 6 kg · cm with M3 screw bolts.
- • Don't solder the flange directly.
- • It should make the lead frame as straight as possible.
- • The module should be screwed up before lead soldering.
- • It should not be given mechanical and thermal stress to lead and flange of the module.
- • When the external parts (Isolator, Duplexer, etc.) of the module are changed, the electrical characteristics should be evaluated enough.
- • Don't washing the module except lead pins.
- • To get good stability, ground impedance between the module GND flange and PCB GND pattern should be designed as low as possible.

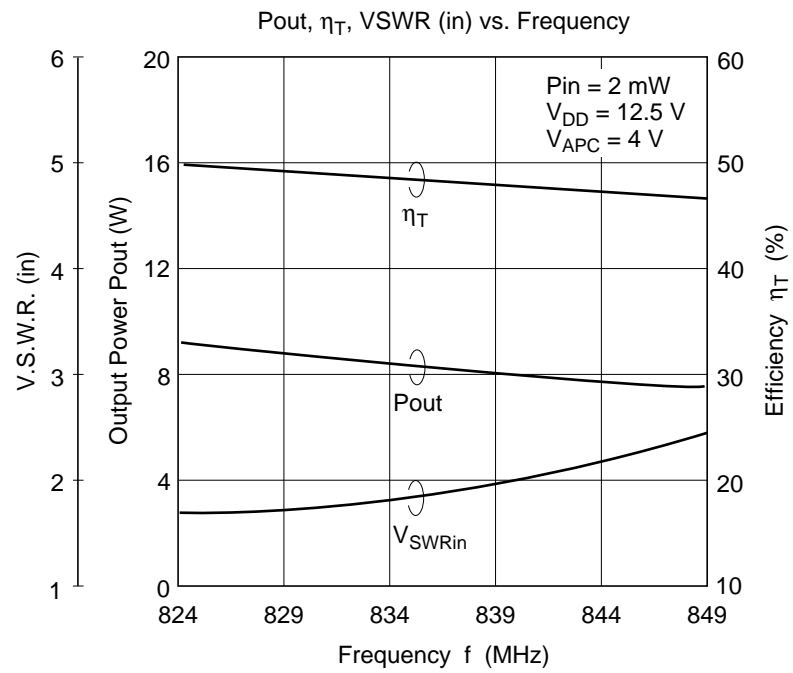
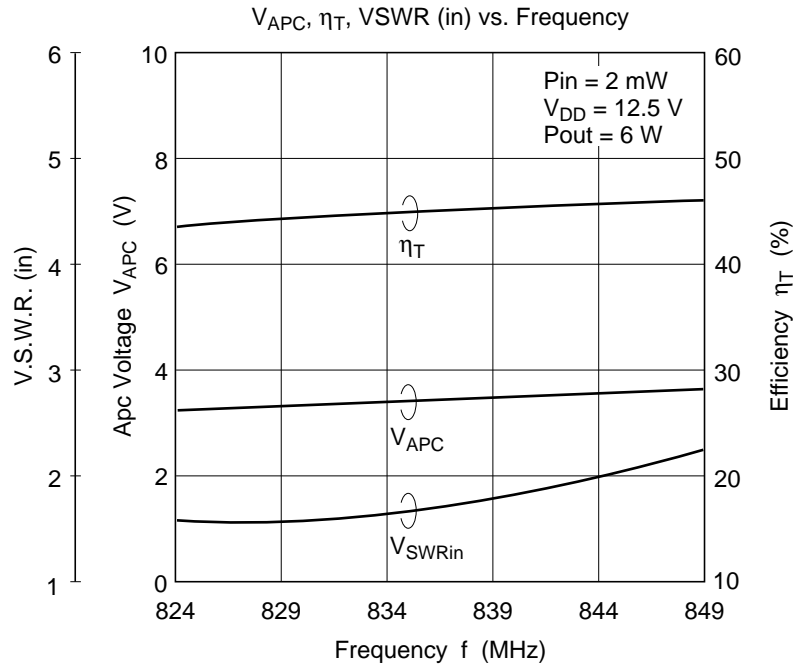
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Characteristics Curve

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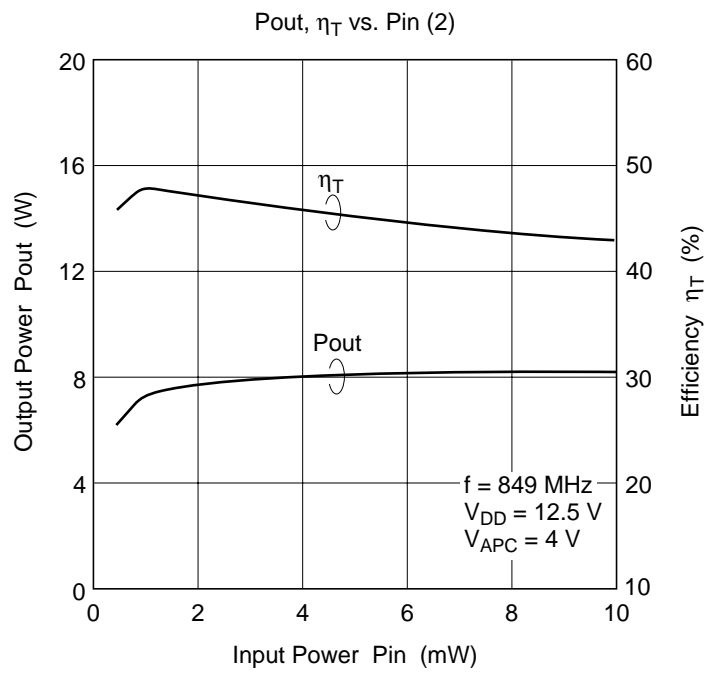
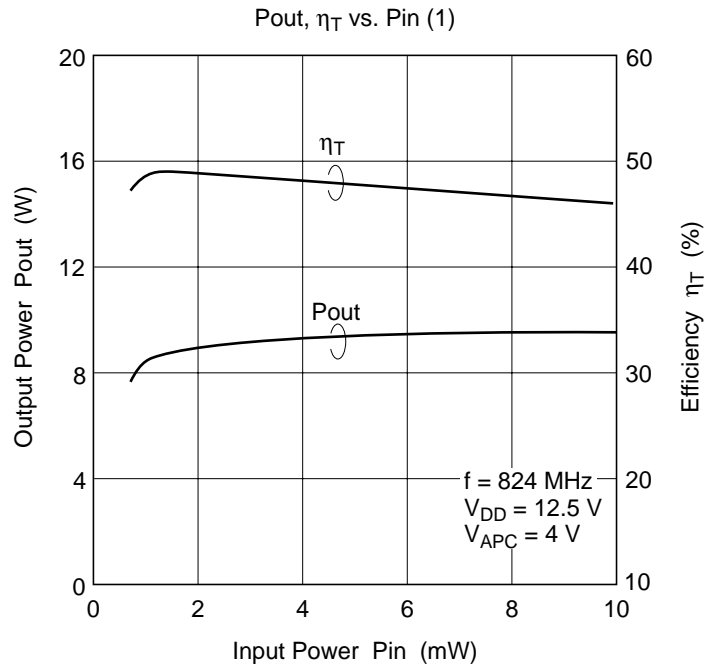


PF0030 (cont)

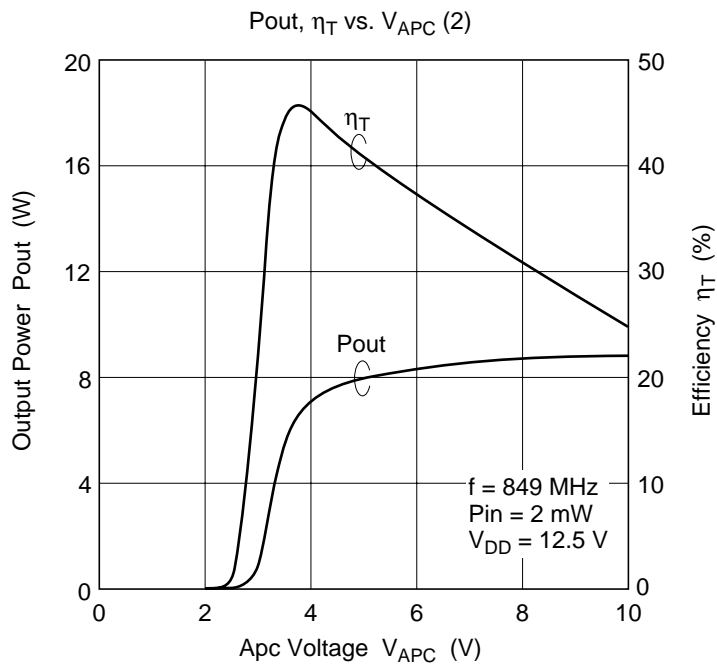
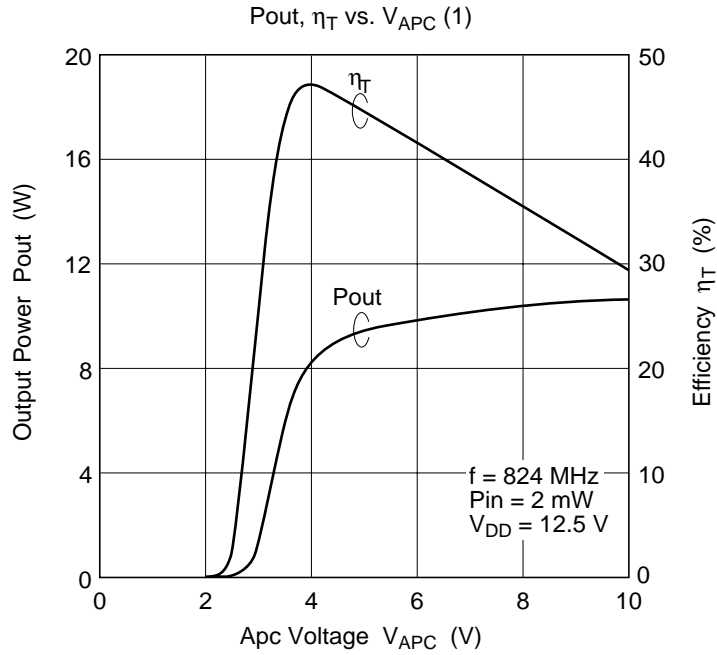


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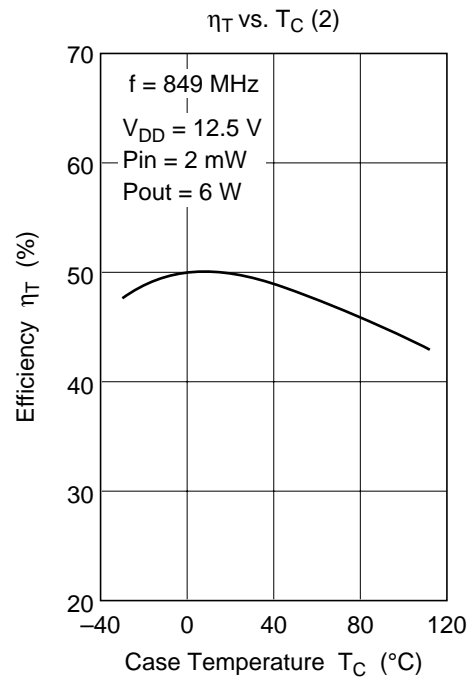
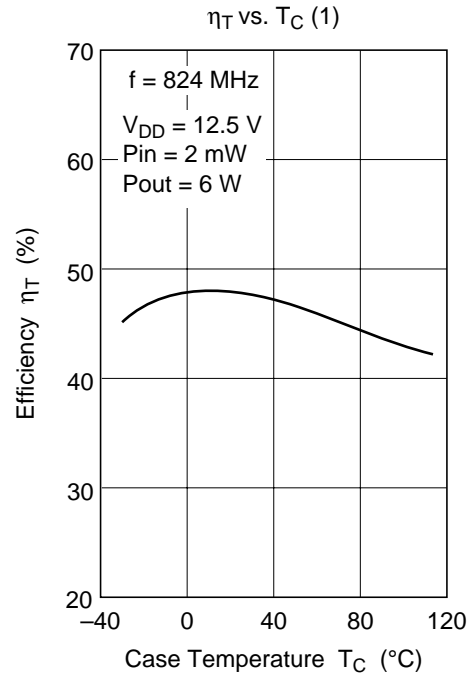


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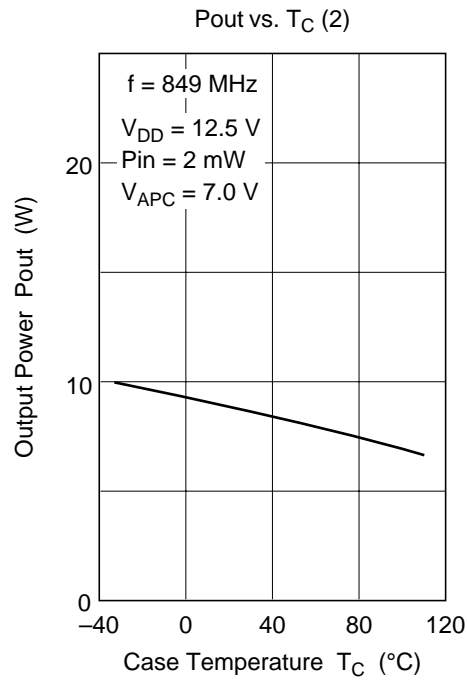
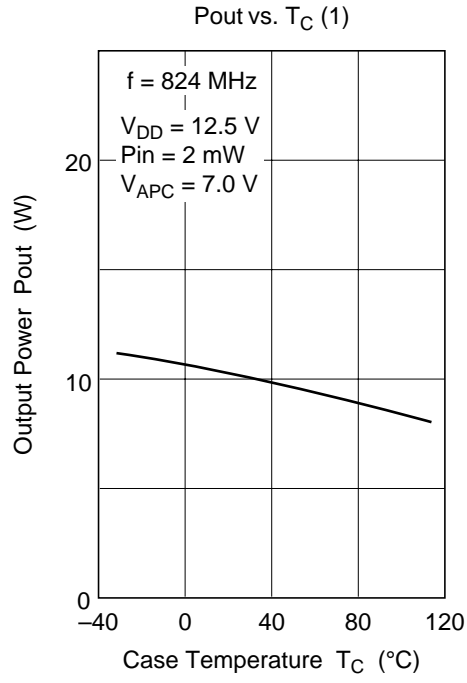


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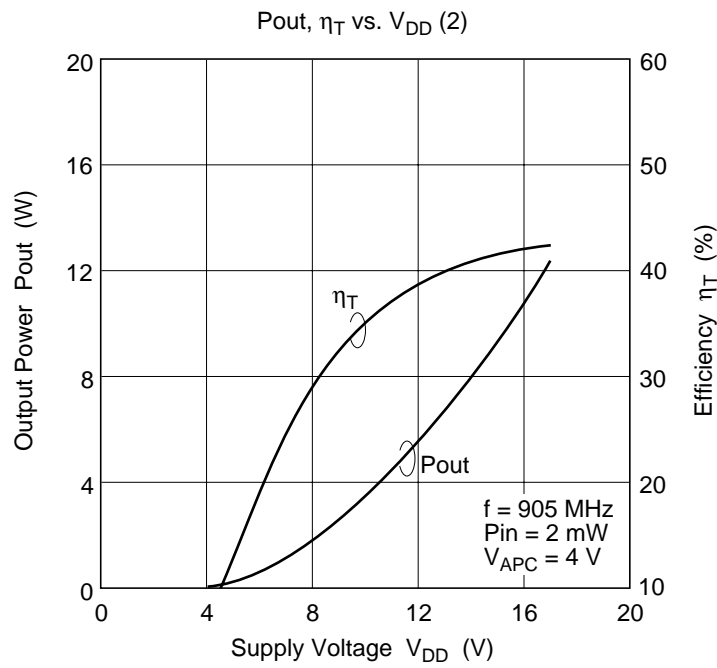
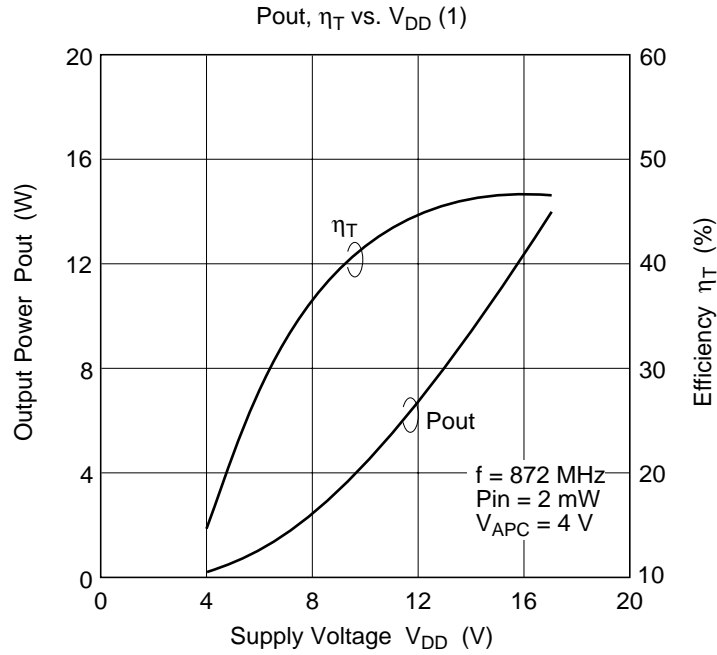


PF0030 (cont)

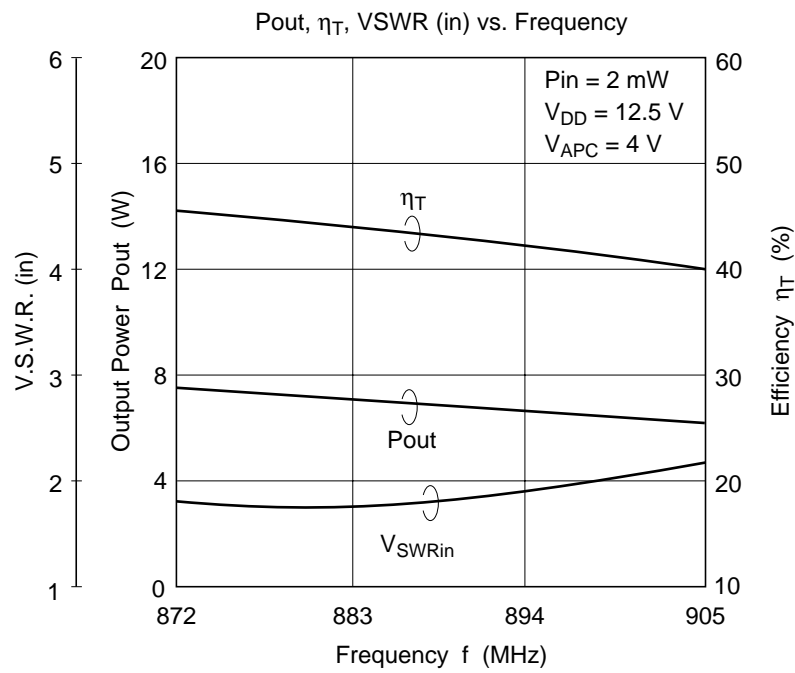
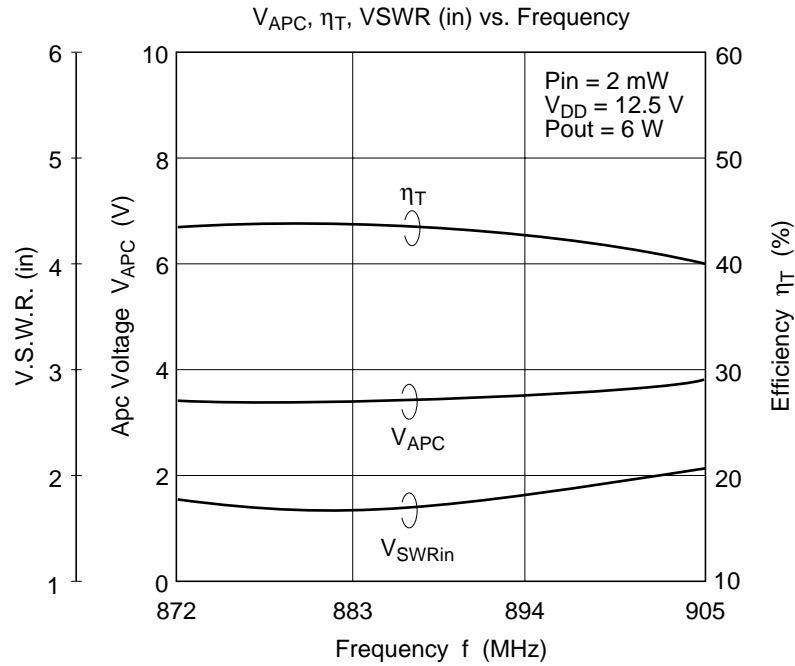


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PF0032

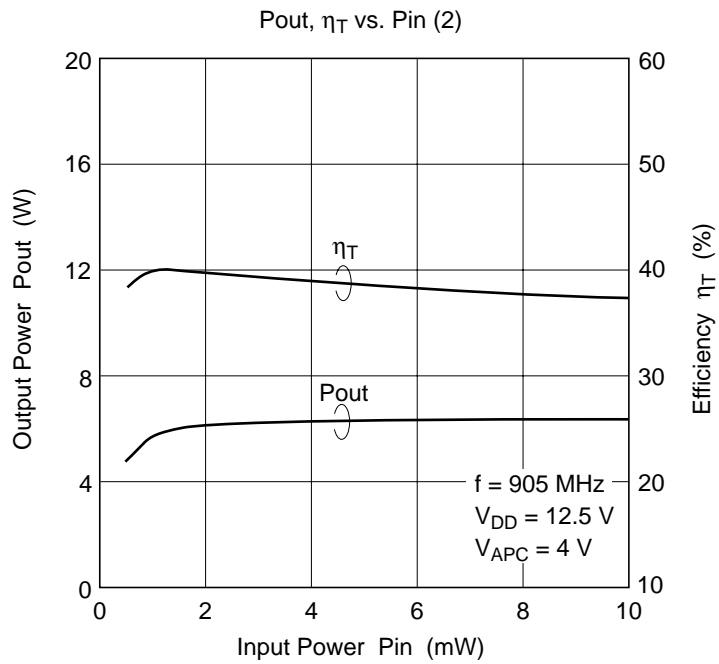
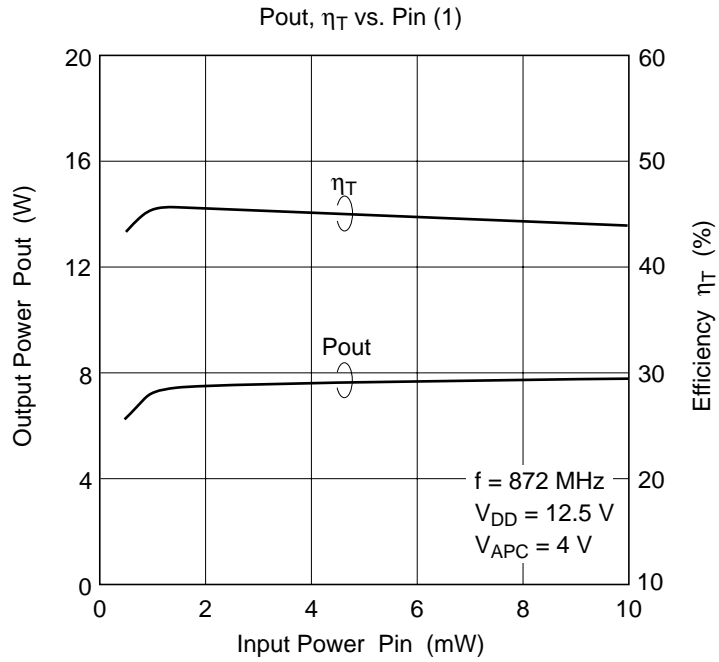


PF0032 (cont)

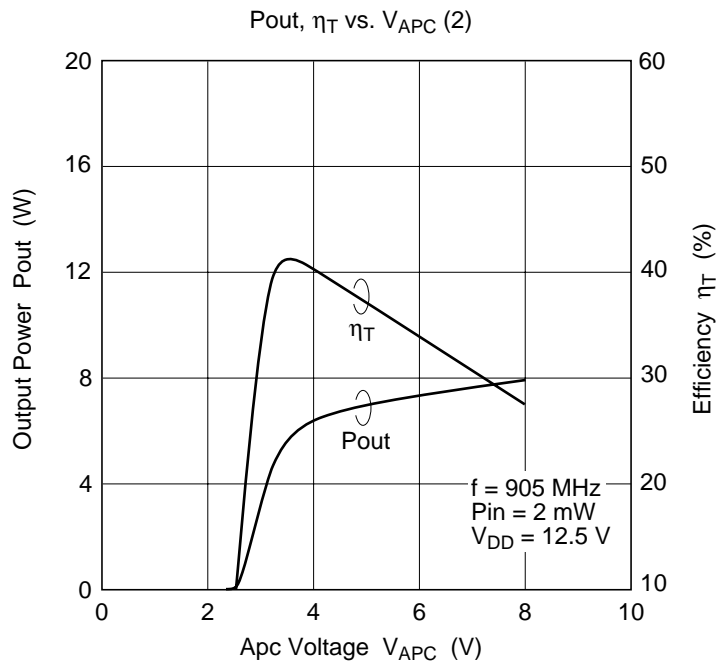
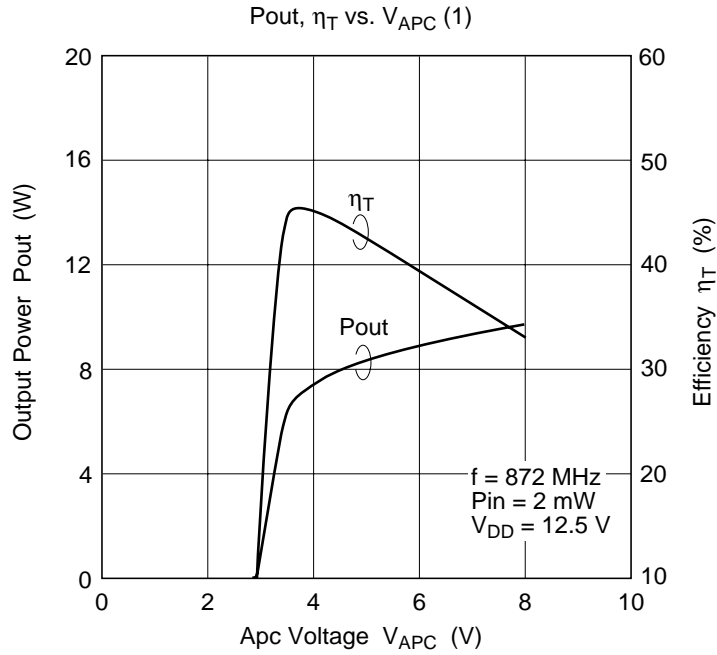


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PF0032 (cont)

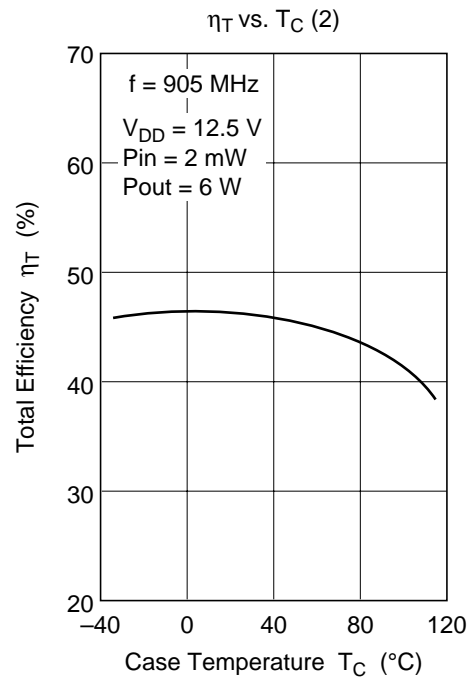
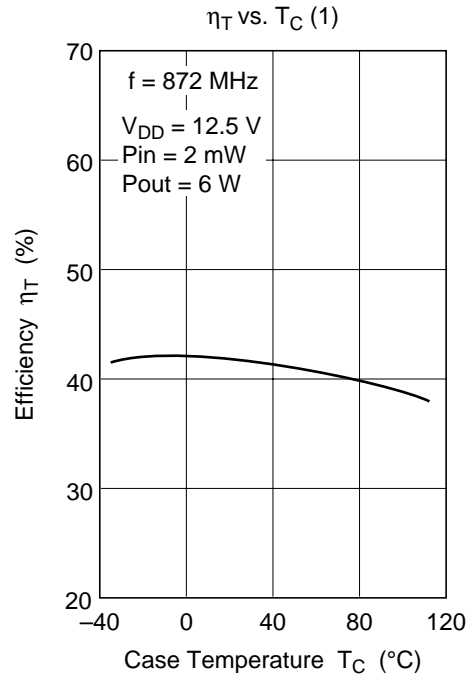


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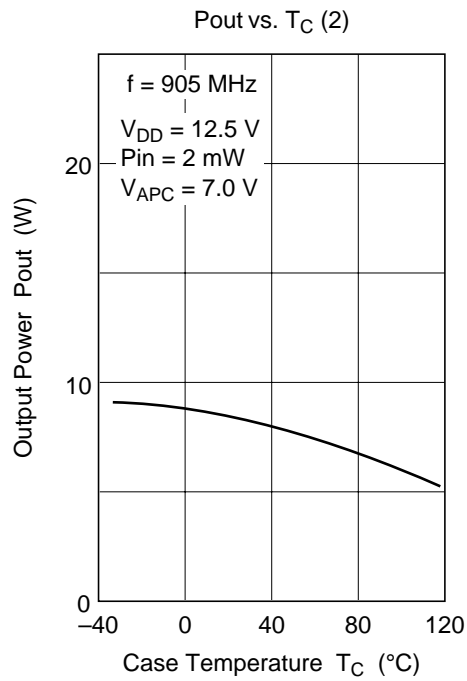
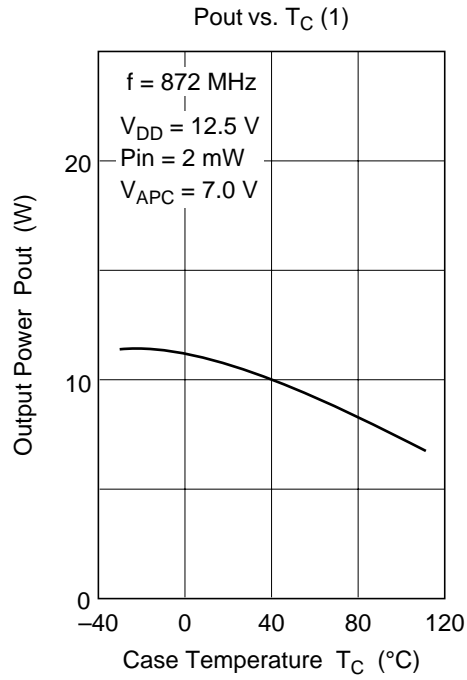


PF0030 Series

PF0032 (cont)



PF0032 (cont)



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Package Dimensions

Unit: mm

