
PF0341A Series

MOS FET Power Amplifier Module for UHF Band

HITACHI

ADE-208-338C (Z)
4th. Edition
July 1996

Features

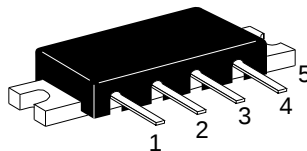
- Small package: $30 \times 10 \times 5.9$ mm
- High output power at low voltage: 2 W Typ at 4.8 V
- Low power control current: 200 μ A Typ

Ordering Information

Type Name	Operating frequency
PF0341A	400 to 430 MHz
PF0342A	440 to 470 MHz
PF0343A	470 to 490 MHz
PF0344A	490 to 512 MHz
PF0345A	380 to 400 MHz

Pin Arrangement

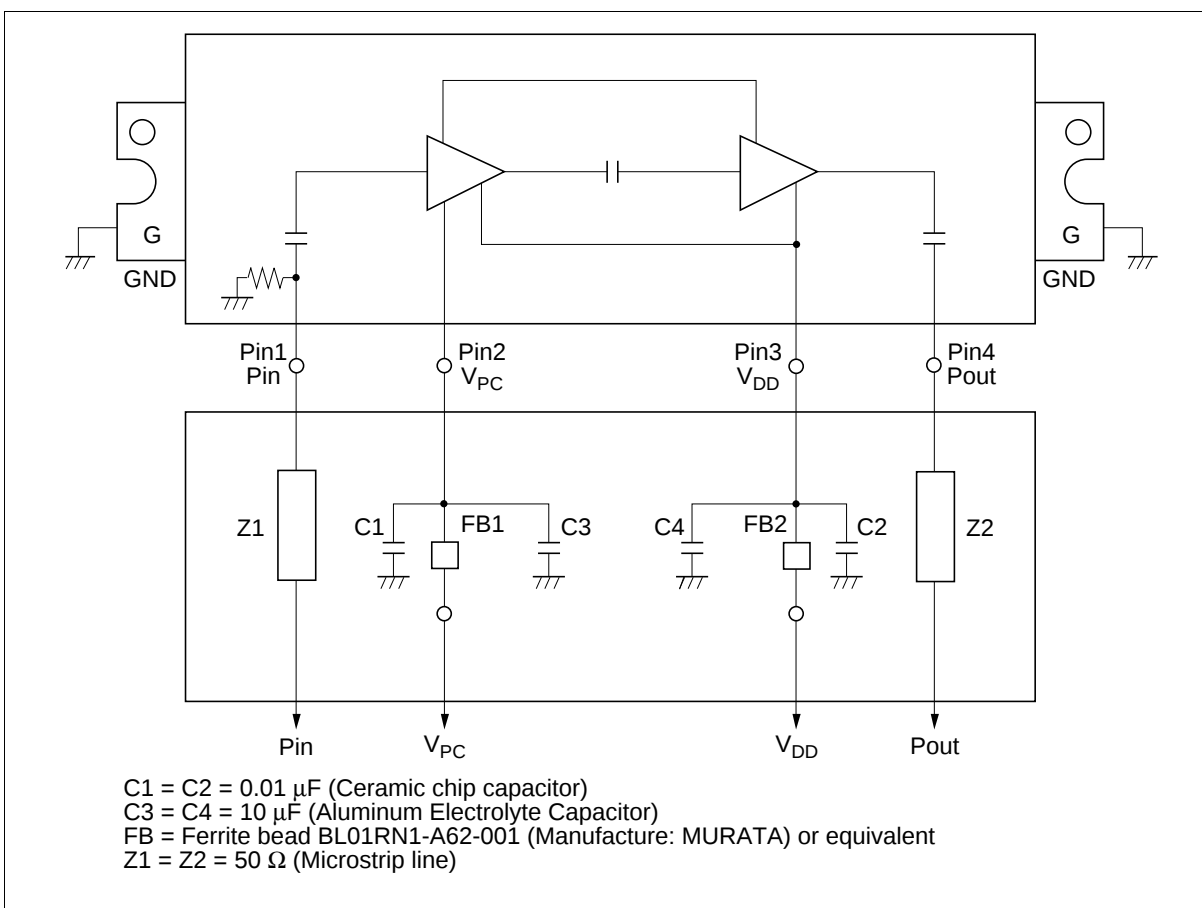
• RF-J1



1: Pin
2: V_{PC}
3: V_{DD}
4: Pout
5: GND

PF0341A Series

Internal Diagram and External Circuit



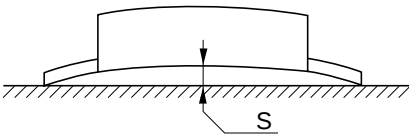
Absolute Maximum Ratings ($T_c = 25^\circ\text{C}$)

Item	Symbol	Rating	Unit
Supply voltage	V_{DD}	17	V
Supply current	I_{DD}	3	A
PC voltage	V_{PC}	4.5	V
Input power	Pin	50	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)

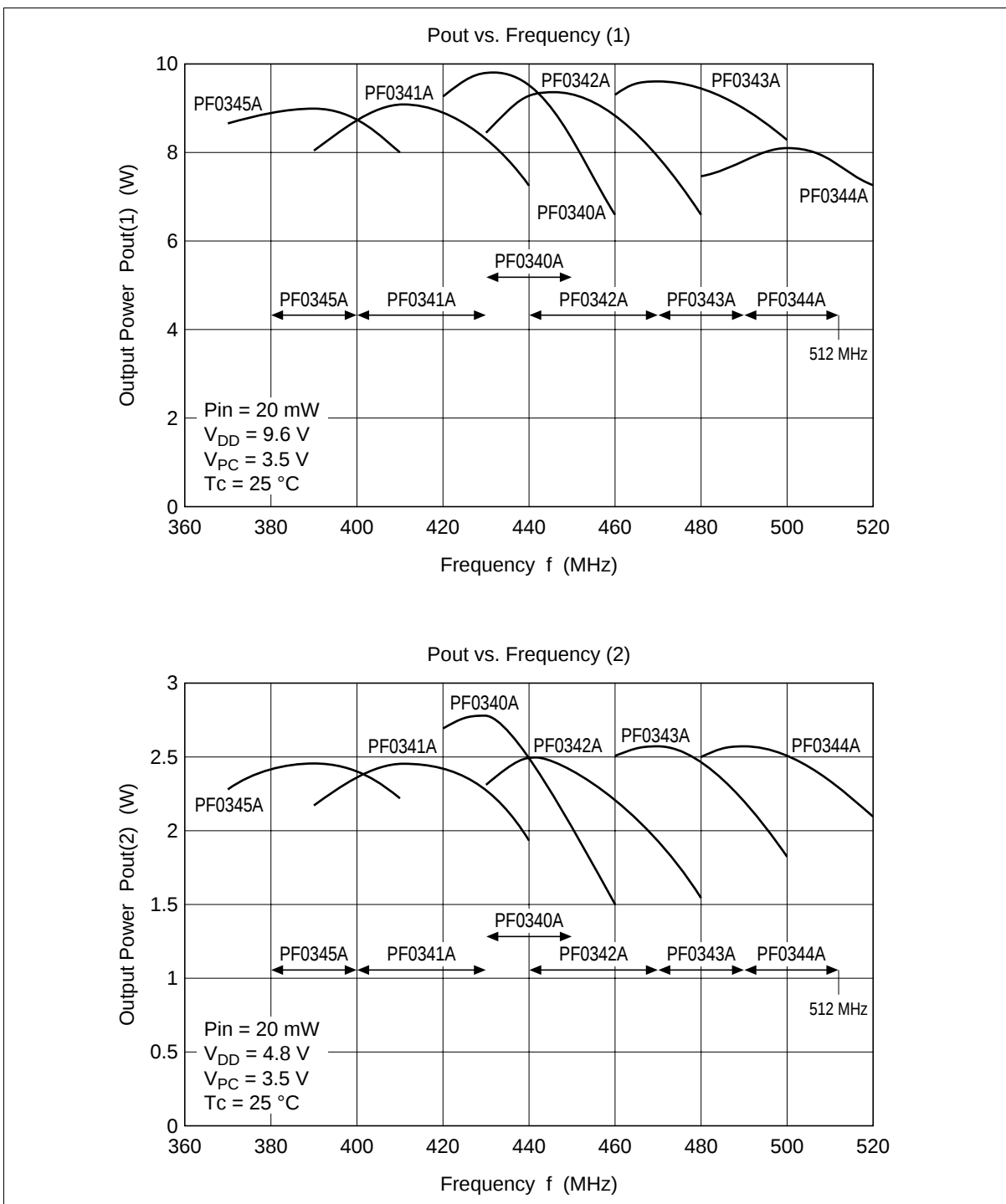
Item	Symbol	Min	Typ	Max	Unit	Test Condition
Drain cutoff current	I _{DS}	—	—	100	μA	V _{DD} = 17 V, V _{PC} = 0 V, R _L = R _g = 50 Ω,
Total efficiency	η _T	35	38	—	%	Pin = 20 mW, V _{DD} = 9.6 V,
2nd harmonic distortion	2nd H.D.	—	−30	−25	dBc	Pout = 7 W (at V _{PC} controlled),
3rd harmonic distortion	3rd H.D.	—	−60	−40	dBc	R _L = R _g = 50 Ω, T _c = 25°C
Input VSWR	VSWR (in)	—	2.0	3.0	—	
Output power (1)	Pout (1)	7	8	—	W	Pin = 20 mW, V _{DD} = 9.6 V, V _{PC} = 3.5 V, R _L = R _g = 50 Ω
Output power (2)	Pout (2)	1.8	2	—	W	Pin = 20 mW, V _{DD} = 4.8 V, V _{PC} = 3.5 V, R _L = R _g = 50 Ω
Load VSWR tolerance	—	No degradation			—	Pin = 20 mW, V _{DD} = 15 V, Pout ≤ 7 W, (at V _{PC} controlled), Output VSWR = 6:1 All phases
Stability	—	No parasitic oscillation			—	Pin = 20 mW, V _{DD} = 4.8 to 15 V, Pout ≤ 7 W, (at V _{PC} controlled), Output VSWR = 6:1 All phases

Mechanical Characteristics

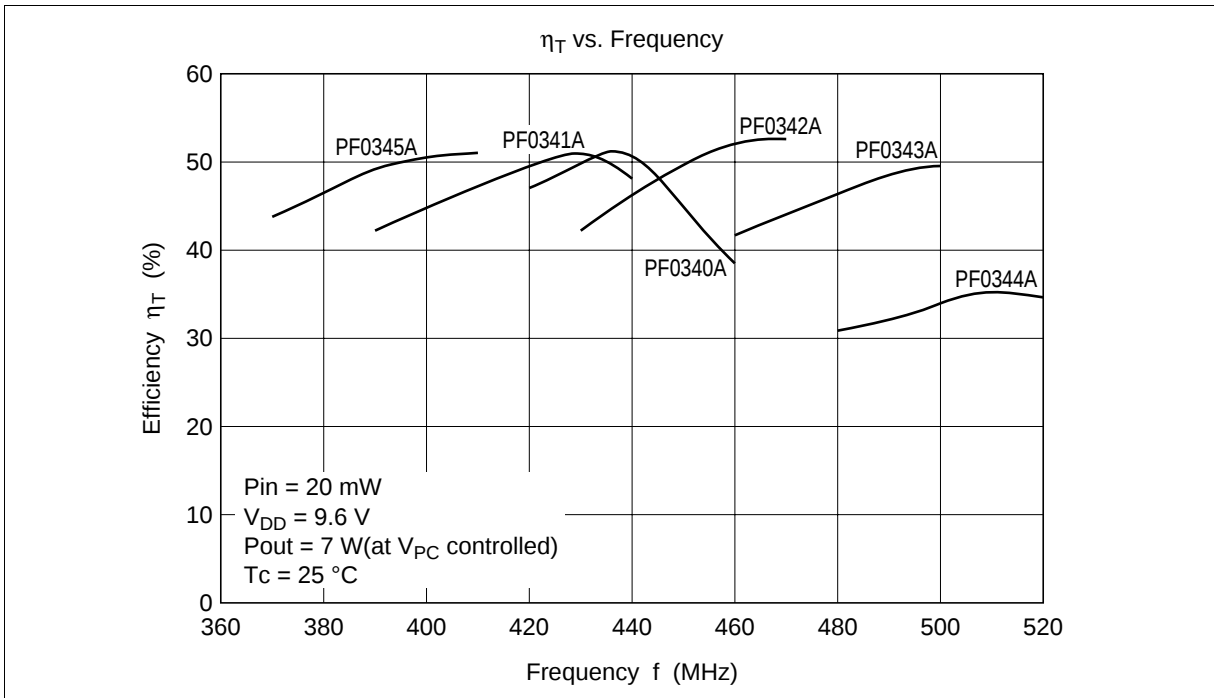
Item	Measuring Conditions	Spec
Torque for screw up the heatsink flange	M2.6 Screw Bolts	1.5 to 3.5 kg•cm
Warp size of the heatsink flange: S		S = 0
		+0.1/−0 mm

PF0341A Series

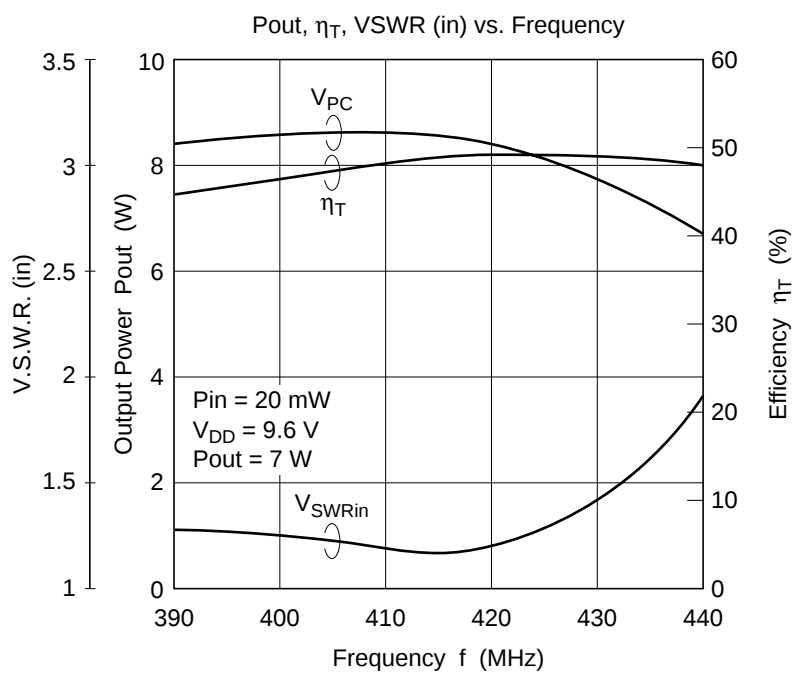
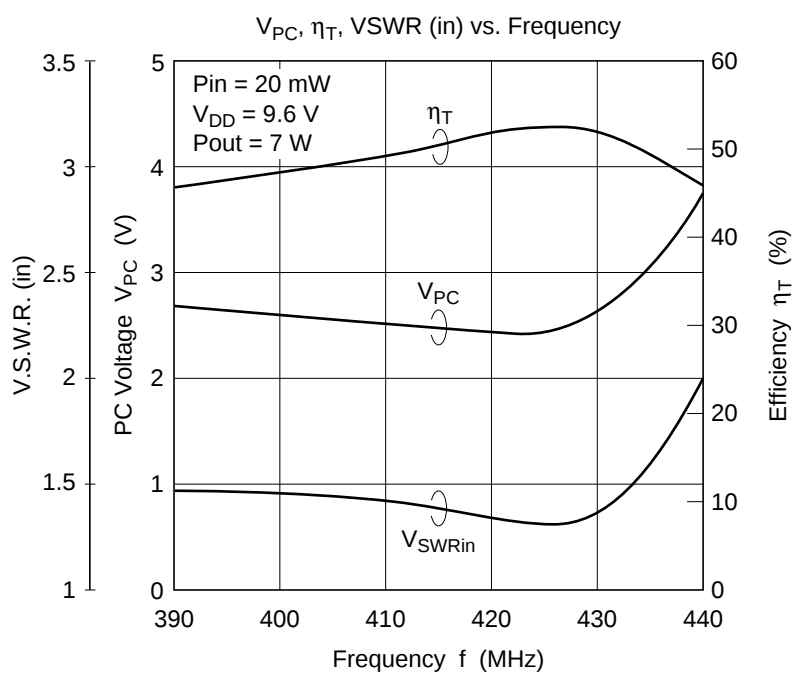
Characteristics Curve

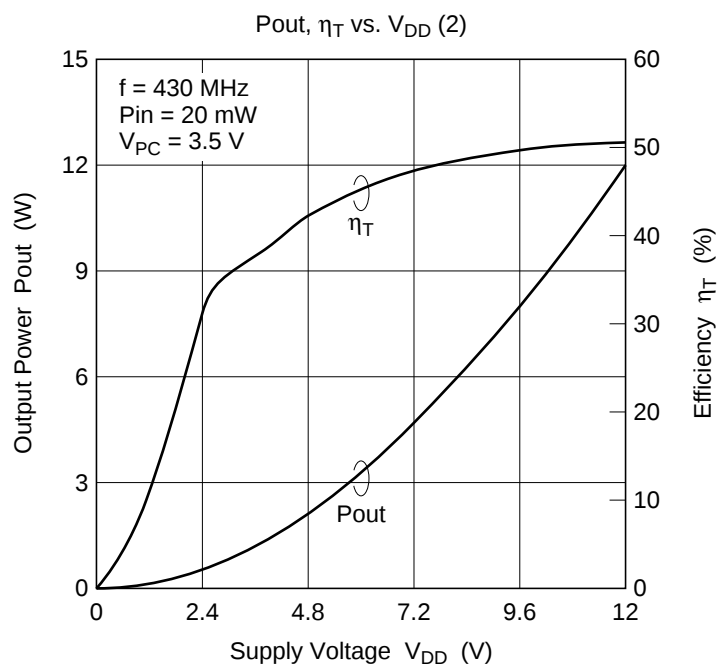
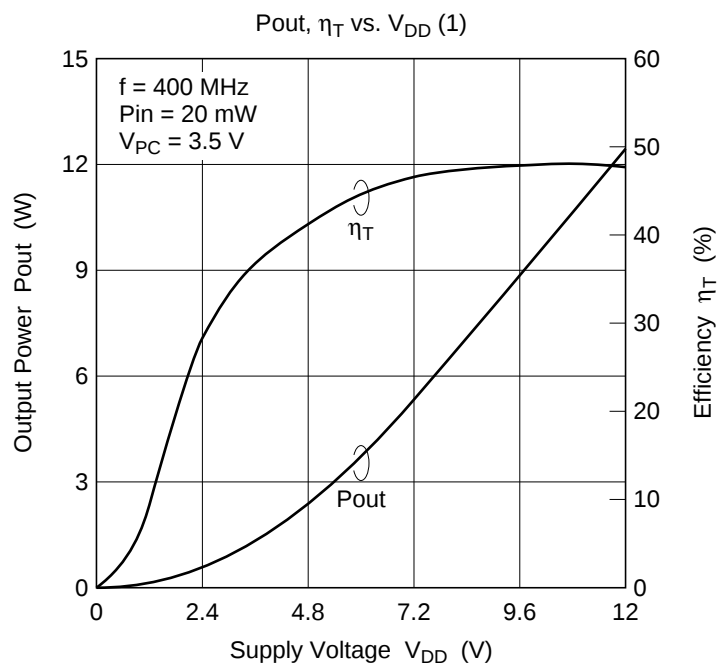


PF0341A Series

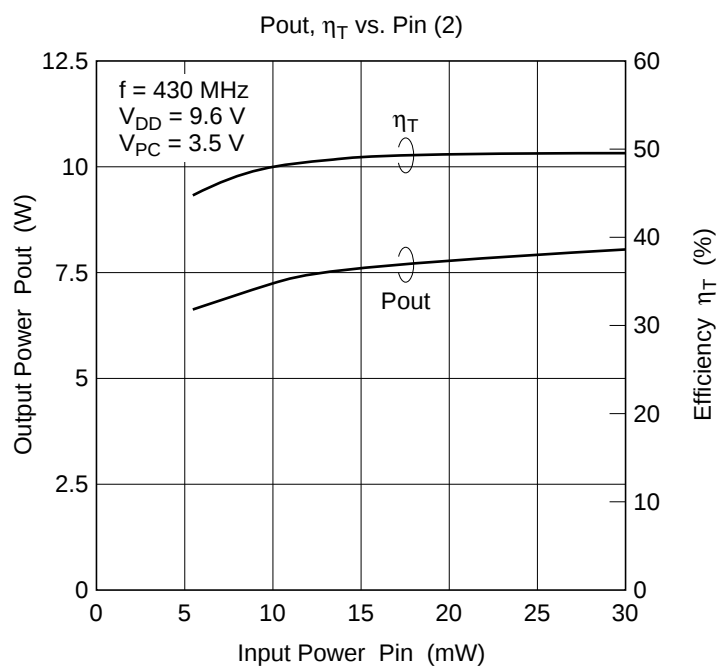
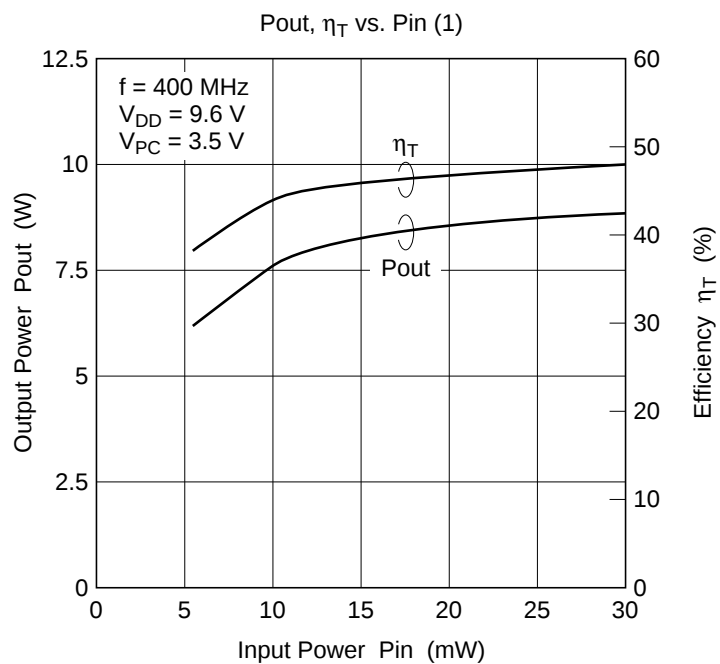


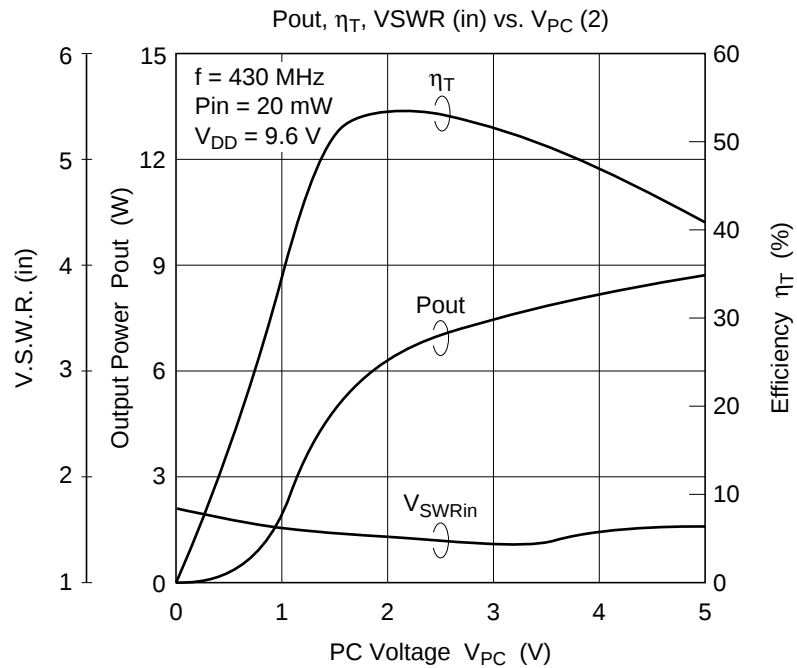
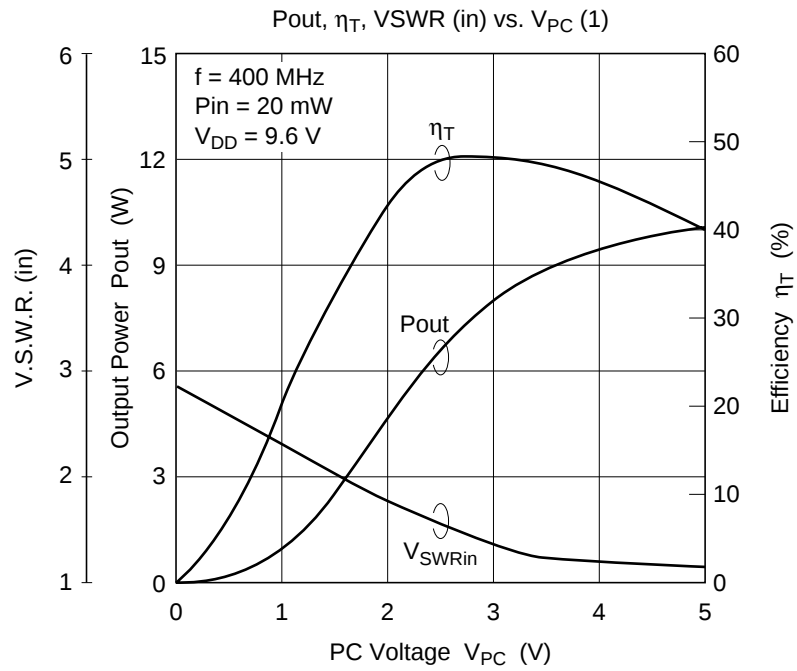
PF0341A Series

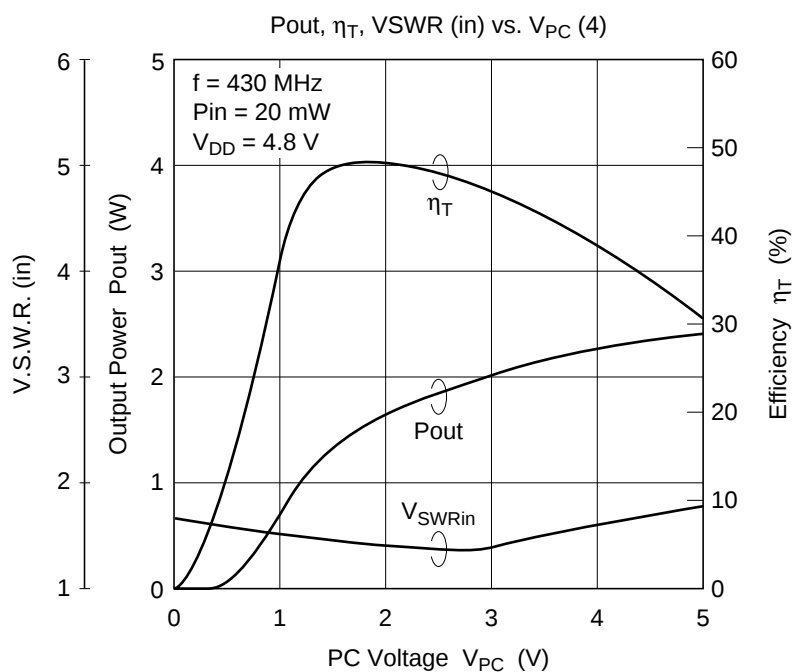
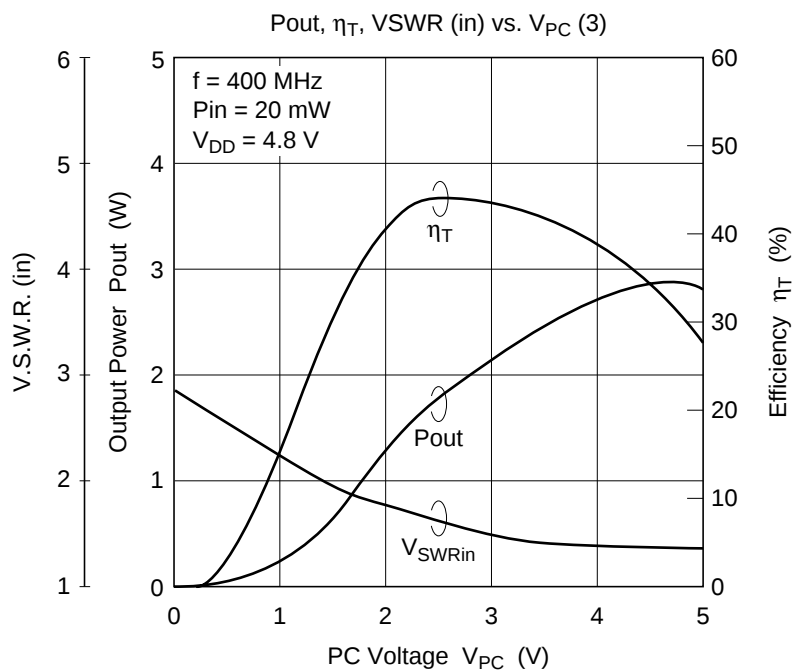




PF0341A Series

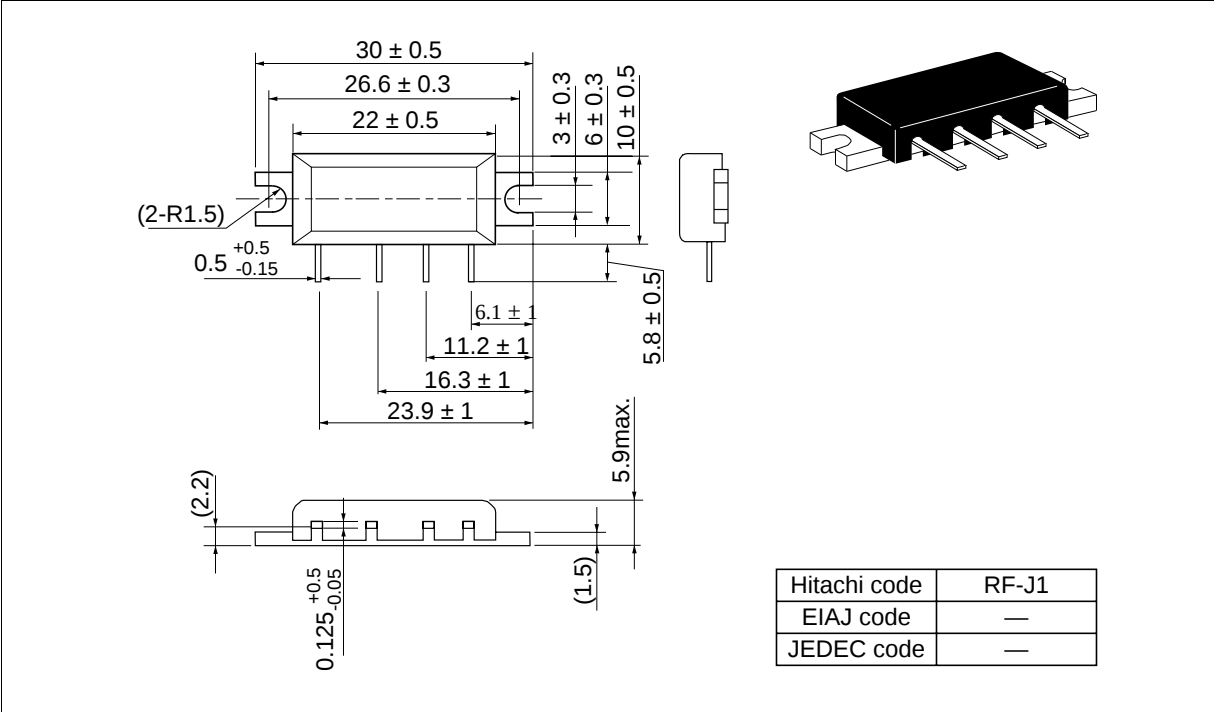






Package Dimensions

Unit: mm



Cautions

1. Hitachi neither warrants nor grants licenses of any rights of Hitachi's or any third party's patent, copyright, trademark, or other intellectual property rights for information contained in this document. Hitachi bears no responsibility for problems that may arise with third party's rights, including intellectual property rights, in connection with use of the information contained in this document.
2. Products and product specifications may be subject to change without notice. Confirm that you have received the latest product standards or specifications before final design, purchase or use.
3. Hitachi makes every attempt to ensure that its products are of high quality and reliability. However, contact Hitachi's sales office before using the product in an application that demands especially high quality and reliability or where its failure or malfunction may directly threaten human life or cause risk of bodily injury, such as aerospace, aeronautics, nuclear power, combustion control, transportation, traffic, safety equipment or medical equipment for life support.
4. Design your application so that the product is used within the ranges guaranteed by Hitachi particularly for maximum rating, operating supply voltage range, heat radiation characteristics, installation conditions and other characteristics. Hitachi bears no responsibility for failure or damage when used beyond the guaranteed ranges. Even within the guaranteed ranges, consider normally foreseeable failure rates or failure modes in semiconductor devices and employ systemic measures such as fail-safes, so that the equipment incorporating Hitachi product does not cause bodily injury, fire or other consequential damage due to operation of the Hitachi product.
5. This product is not designed to be radiation resistant.
6. No one is permitted to reproduce or duplicate, in any form, the whole or part of this document without written approval from Hitachi.
7. Contact Hitachi's sales office for any questions regarding this document or Hitachi semiconductor products.

HITACHI

Hitachi, Ltd.

Semiconductor & IC Div.
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL	North America	: http://semiconductor.hitachi.com/
	Europe	: http://www.hitachi-eu.com/hel/ecg
	Asia (Singapore)	: http://www.has.hitachi.com.sg/grp3/sicd/index.htm
	Asia (Taiwan)	: http://www.hitachi.com.tw/E/Product/SICD_Frame.htm
	Asia (HongKong)	: http://www.hitachi.com.hk/eng/bo/grp3/index.htm
	Japan	: http://www.hitachi.co.jp/Sicd/indx.htm

For further information write to:

Hitachi Semiconductor
(America) Inc.
2000 Sierra Point Parkway
Brisbane, CA 94005-1897
Tel: <1> (800) 285-1601
Fax: <1> (303) 297-0447

Hitachi Europe GmbH
Electronic components Group
Dornacher Straße 3
D-85622 Feldkirchen, Munich
Germany
Tel: <49> (89) 9 9180-0
Fax: <49> (89) 9 29 30 00

Hitachi Europe Ltd.
Electronic Components Group.
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA, United Kingdom
Tel: <44> (1628) 585000
Fax: <44> (1628) 778322

Hitachi Asia Pte. Ltd.
16 Collyer Quay #20-00
Hitachi Tower
Singapore 049318
Tel: 535-2100
Fax: 535-1533

Hitachi Asia Ltd.
Taipei Branch Office
3F, Hung Kuo Building. No.167,
Tun-Hwa North Road, Taipei (105)
Tel: <886> (2) 2718-3666
Fax: <886> (2) 2718-8180

Hitachi Asia (Hong Kong) Ltd.
Group III (Electronic Components)
7/F., North Tower, World Finance Centre,
Harbour City, Canton Road, Tsim Sha Tsui,
Kowloon, Hong Kong
Tel: <852> (2) 735 9218
Fax: <852> (2) 730 0281
Telex: 40815 HITEC HX

Copyright © Hitachi, Ltd., 1998. All rights reserved. Printed in Japan.

HITACHI