

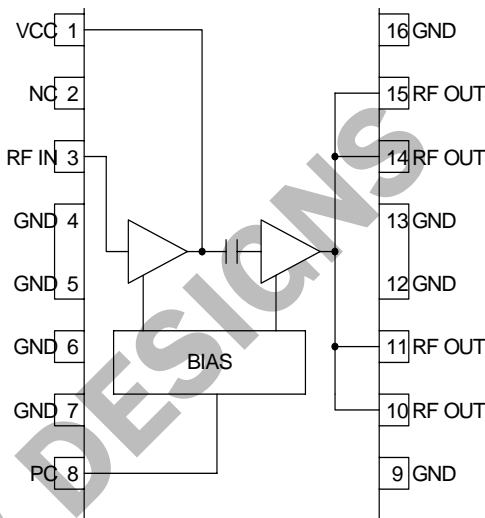
RoHS Compliant & Pb-Free Product
Package Style: Standard Batwing

Features

- Single 4.2V to 5.0V Supply
- Up to 29 dBm Linear Output Power
- 29dB Gain With Analog Gain Control
- 45% Linear Efficiency
- On-board Power Down Mode
- 800MHz to 950MHz Operation

Applications

- 4.8V AMPS Cellular Handsets
- 4.8V CDMA/AMPS Handsets
- 4.8V JCDMA/TACS Handsets
- Driver Amplifier in Cellular Base Stations
- Portable Battery-Powered Equipment



Functional Block Diagram

Product Description

The RF2132 is a high power, high efficiency linear amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in dual-mode 4-cell CDMA/AMPS handheld digital cellular equipment, spread-spectrum systems, and other applications in the 800MHz to 950MHz band. The device is self-contained with 50Ω input and the output can be easily matched to obtain optimum power, efficiency, and linearity characteristics over varying supply and control voltages.

Ordering Information

RF2132	Linear Power Amplifier
RF2132PCBA-41X	Fully Assembled Evaluation Board

Optimum Technology Matching® Applied

- | | | | |
|--|--------------------------------------|-------------------------------------|-----------------------------------|
| <input checked="" type="checkbox"/> GaAs HBT | <input type="checkbox"/> SiGe BiCMOS | <input type="checkbox"/> GaAs pHEMT | <input type="checkbox"/> GaN HEMT |
| <input type="checkbox"/> GaAs MESFET | <input type="checkbox"/> Si BiCMOS | <input type="checkbox"/> Si CMOS | <input type="checkbox"/> RF MEMS |
| <input type="checkbox"/> InGaP HBT | <input type="checkbox"/> SiGe HBT | <input type="checkbox"/> Si BJT | |

RF MICRO DEVICES®, RFMD®, Optimum Technology Matching®, Enabling Wireless Connectivity™, PowerStar®, POLARIS™ TOTAL RADIO™ and UltimateBlue™ are trademarks of RFMD, LLC. BLUETOOTH is a trademark owned by Bluetooth SIG, Inc., U.S.A. and licensed for use by RFMD. All other trade names, trademarks and registered trademarks are the property of their respective owners. ©2006, RF Micro Devices, Inc.

Absolute Maximum Ratings

Parameter	Rating	Unit
Supply Voltage (No RF)	-0.5 to +6.0	V _{DC}
Supply Voltage (P _{OUT} <30dBm)	-0.5 to +5.0	V _{DC}
Power Control Voltage (V _{PC})	-0.5 to +5.0 or V _{CC}	V
DC Supply Current	380	mA
Input RF Power	+12	dBm
Output Load VSWR	10:1	
Storage Temperature	-40 to +150	°C
Junction Temperature	160	°C



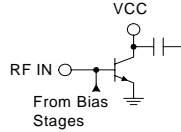
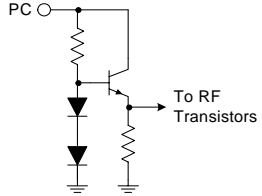
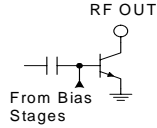
Caution! ESD sensitive device.

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability. Specified typical performance or functional operation of the device under Absolute Maximum Rating conditions is not implied.

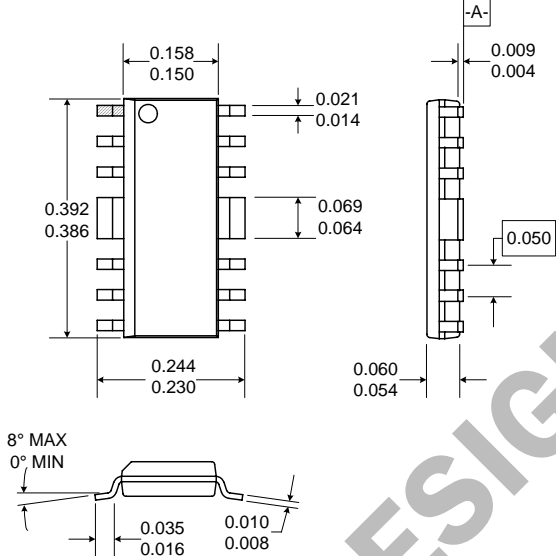
RoHS status based on EU Directive 2002/95/EC (at time of this document revision).

The information in this publication is believed to be accurate and reliable. However, no responsibility is assumed by RF Micro Devices, Inc. ("RFMD") for its use, nor for any infringement of patents, or other rights of third parties, resulting from its use. No license is granted by implication or otherwise under any patent or patent rights of RFMD. RFMD reserves the right to change component circuitry, recommended application circuitry and specifications at any time without prior notice.

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Overall					T=25 °C, V _{CC} =4.8V, V _{PC} =4.0V, Freq=824MHz to 849MHz
Usable Frequency Range	800	824 to 849	950	MHz	
Linear Gain	27	29	31	dB	
Total Linear Efficiency	40	45		%	
Efficiency at Max Output		52		%	
OFF Isolation	23	27		dB	V _{PC} =0V, P _{IN} =+6dBm
Second Harmonic		-30		dBc	Including Second Harmonic Trap
Maximum Linear Output Power		28.5	29		IS-95A CDMA Modulation
Adjacent Channel Power Rejection @ 885 kHz		-46	-44	dBc	P _{out} = 28 dBm ACPR can be improved by trading off efficiency.
Adjacent Channel Power Rejection @ 1.98 MHz		-58	-56	dBc	P _{out} = 28 dBm
Maximum CW Output Power		30		dBm	
Ambient Operating Temperature	-40		+85	°C	
Junction to Case Thermal Resistance				°C/W	(See graph on page 9.)
Input VSWR		<2:1			
Output Load VSWR			10:1		No oscillations
Power Down					
Turn On/Off Time			100	ns	
Total Current			10	μA	"OFF" State
V _{PC} "OFF" Voltage	0.2		0.5	V	
V _{PC} "ON" Voltage	3.6	4.0	V _{CC}	V	
Power Supply					
Power Supply Voltage	4.2	4.8	5.0	V	Operating voltage
Idle Current		40	100	mA	V _{PC} =4.0V
Current into VPC pin		15	20	mA	"ON" State

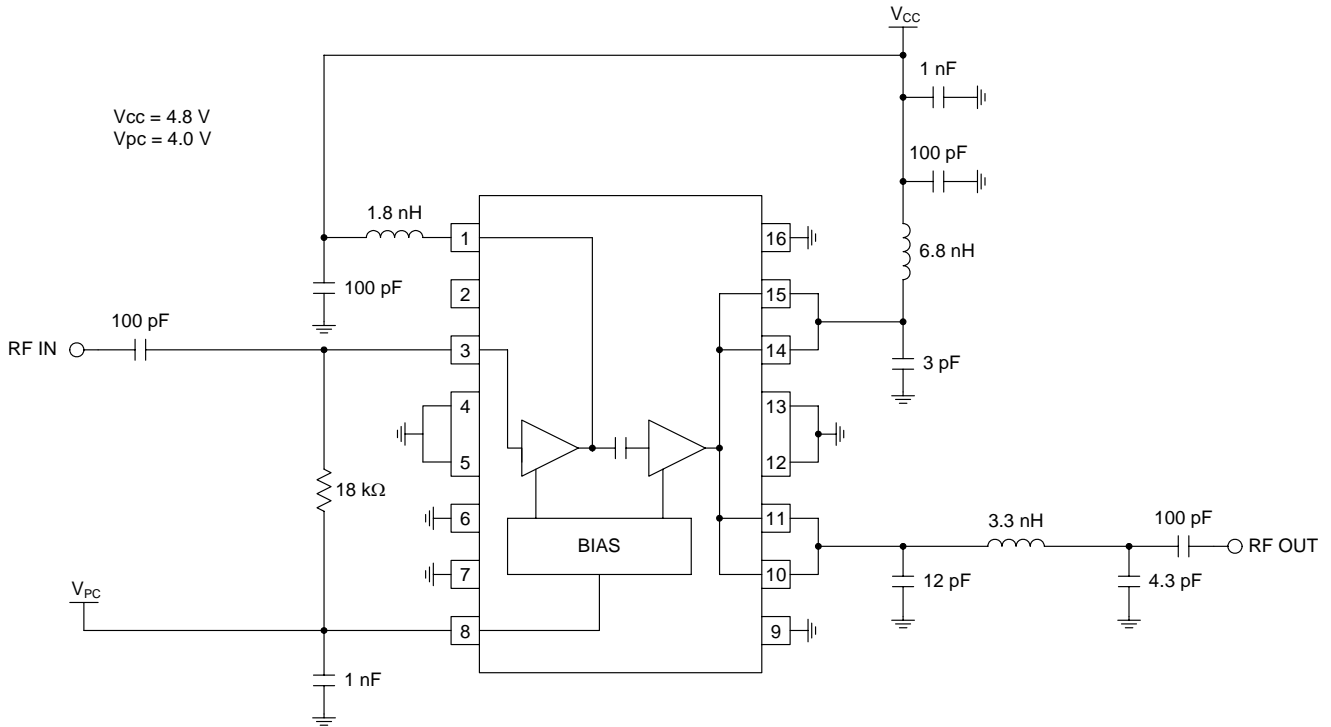
Pin	Function	Description	Interface Schematic
1	VCC1	Power supply for the driver stage, and interstage matching. Shunt inductance is required on this pin, which can be achieved by an inductor to V_{CC} , with a decoupling capacitor on the V_{CC} side. The value of the inductor is frequency dependent; 3.3nH is required for 830MHz, and 1.2nH for 950MHz. Instead of an inductor, a high impedance microstrip line can be used.	
2	NC	Not Connected.	
3	RF IN	RF input. This is a 50Ω input, but the actual input impedance depends on the interstage matching network connected to pin 1. An external DC blocking capacitor is required if this port is connected to a DC path to ground or a DC voltage.	See pin 1.
4	GND	Ground connection. Keep traces physically short and connect immediately to the ground plane for best performance.	
5	GND	Same as pin 4.	
6	GND	Ground for stage 1. Keep traces physically short and connect immediately to ground plane for best performance. This ground should be isolated from the batwing and other ground contacts. See evaluation board layout.	
7	GND	Same as pin 6.	
8	PC	Power Control. When this pin is "low", all circuits are shut off. A "low" is typically 0.5V or less at room temperature. During normal operation this pin is the power control. Control range varies from about 2V for 0dBm to V_{CC} for +30dBm RF output power. The maximum power that can be achieved depends on the actual output matching. PC should never exceed 5.0V or V_{CC} , whichever is the lowest.	
9	GND	Same as pin 4.	
10	RF OUT	RF Output and power supply for the output stage. The four output pins are combined, and bias voltage for the final stage is provided through these pins. The external path must be kept symmetric until combined to ensure stability. An external matching network is required to provide the optimum load impedance; see the application schematics for details.	
11	RF OUT	Same as pin 10.	See pin 10.
12	GND	Same as pin 4.	
13	GND	Same as pin 4.	
14	RF OUT	Same as pin 10.	See pin 10.
15	RF OUT	Same as pin 10.	See pin 10.
16	GND	Same as pin 4.	

Package Drawing

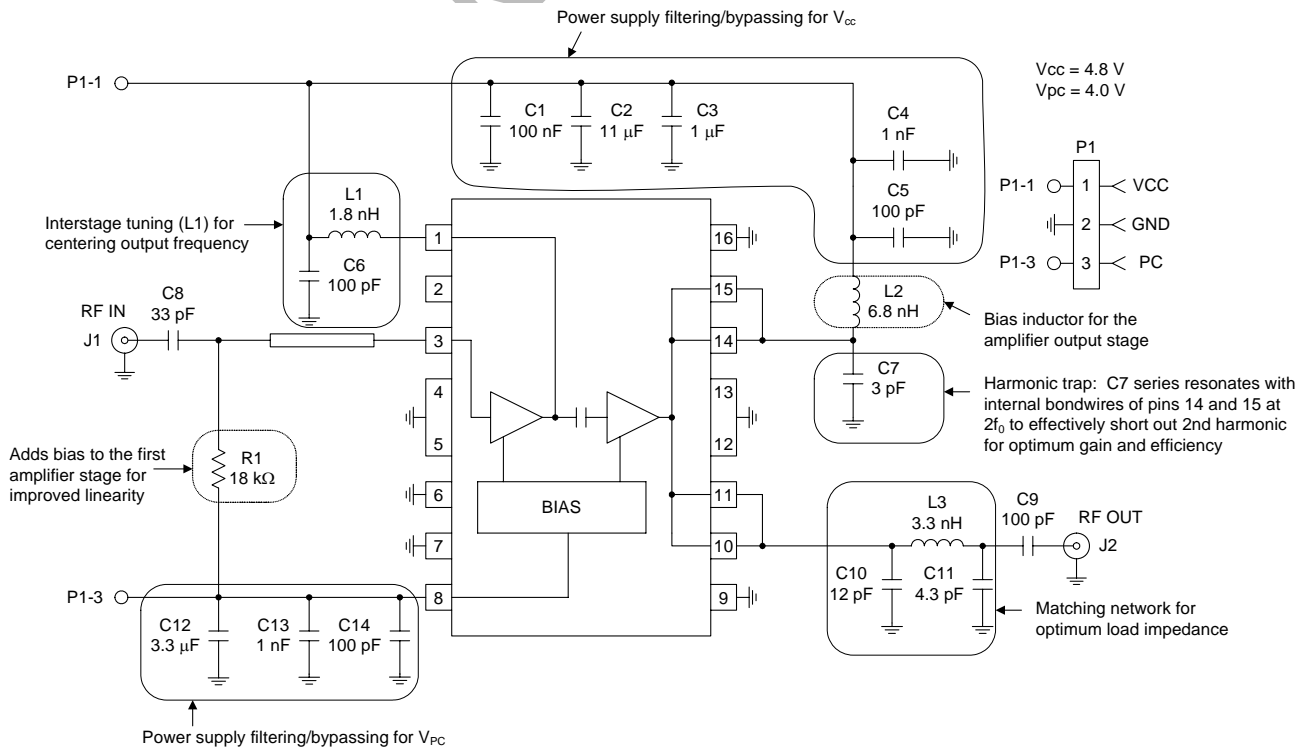


NOT FOR NEW DESIGNS

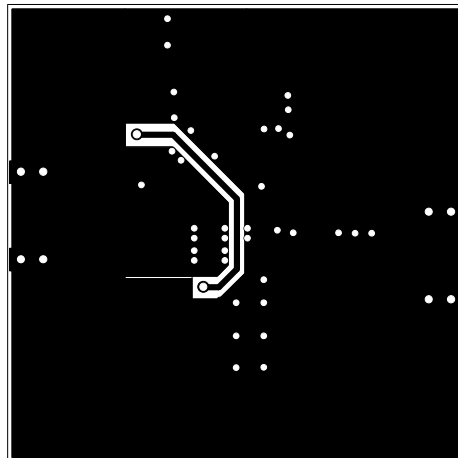
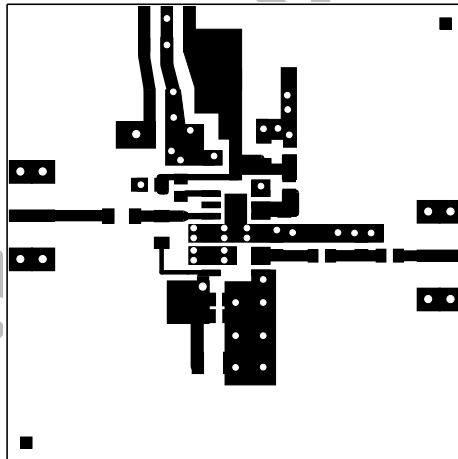
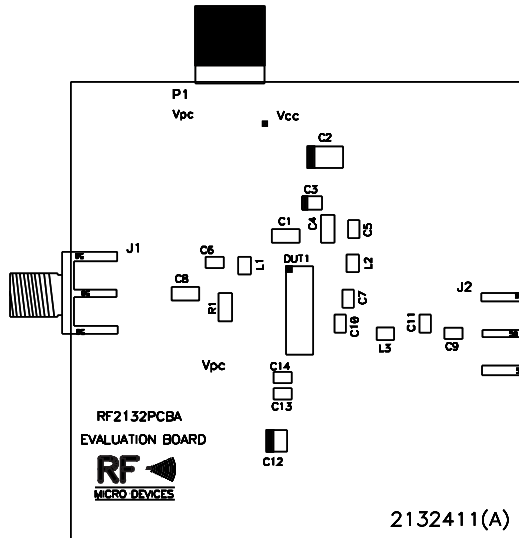
Application Schematic



Evaluation Board Schematic

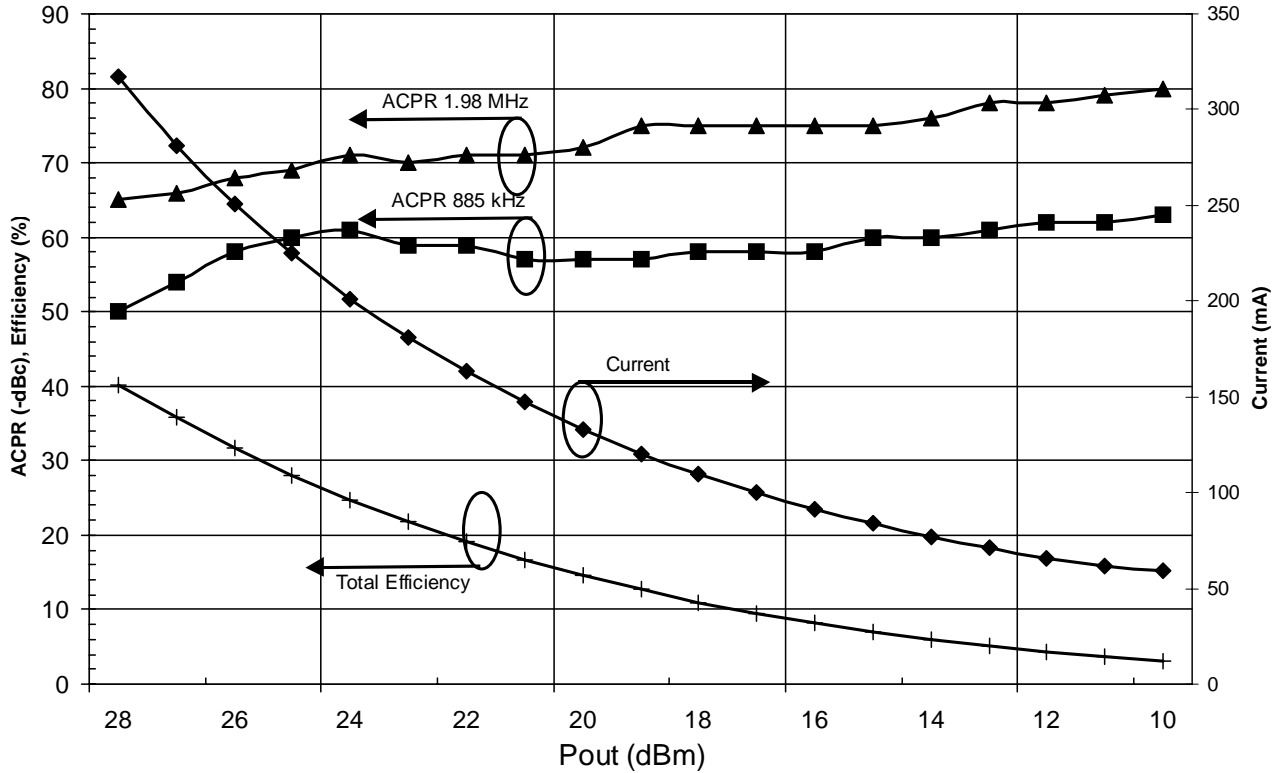


Evaluation Board Layout 2" x 2"



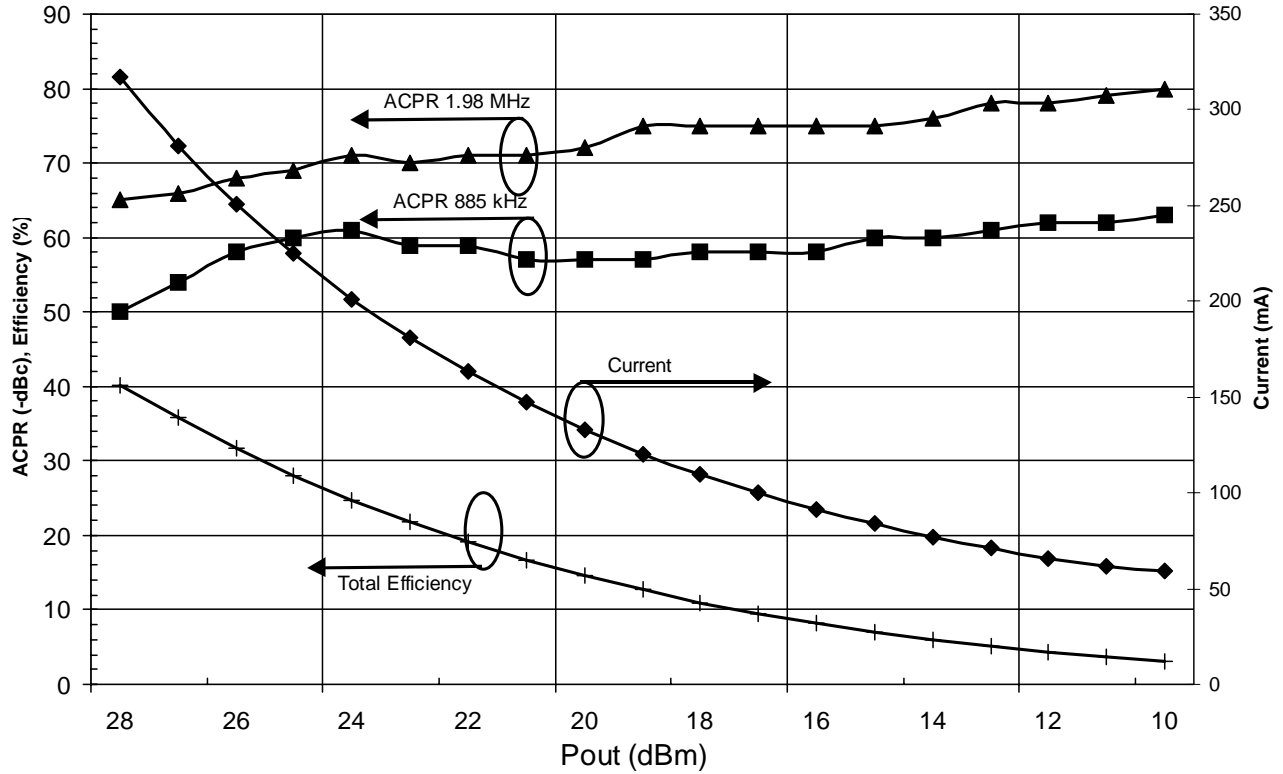
NOT FOR

RF2132 Evaluation Board
 Vcc = 4.8 V, Vpc = 4.0 V, Frequency = 836 MHz, IS-95A CDMA

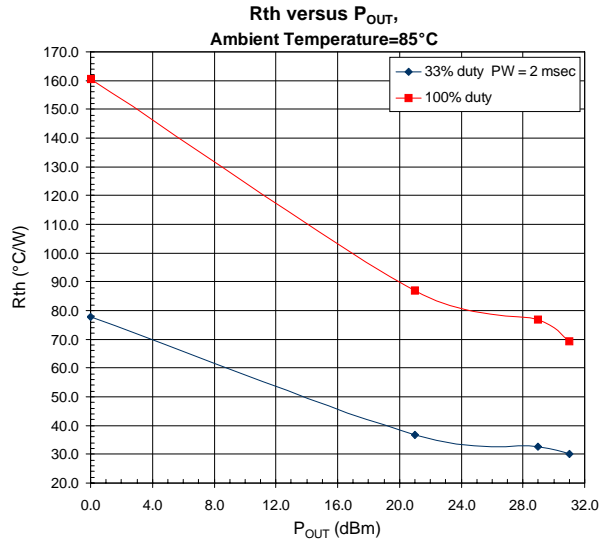


NOT FOR

RF2132 Evaluation Board
Vcc = 4.8 V, Vpc = 4.0 V, Frequency = 836 MHz, IS-95A CDMA



NOT FOR



NOT FOR NEW DESIGNS

NOT FOR NEW DESIGNS