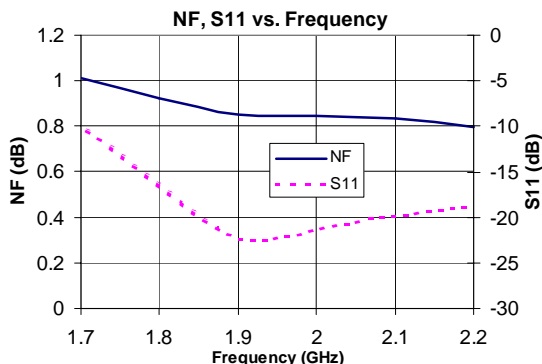


## Product Description

Sirenza Microdevices' SLM-20T amplifier is a low noise amplifier module operating in the 1700-2000 MHz frequency band. This device has been optimized to serve high linearity base station applications where a high intercept point is required with low noise figure. The SLM-20T uses PHEMT device technology and internal bias circuitry to yield a high performance product with proven reliability. Internal RF matching is also included on both the input and output to provide an easy to implement, 50 Ohm circuit block. No additional external components are required. Optimized performance over narrower bands is available for custom specified orders. Contact the sales team for information.



Preliminary

## SLM-20T

### 1700-2000 MHz High Linearity Low Noise Amplifier Module



### Product Features

- Very Low Noise Figure: 0.9 dB
- High OIP3: +30 dBm at 1.9 GHz
- Custom Specified Product Options Available
- 50  $\Omega$  I/O Match, No External Components
- Single Supply Operation, Self Biased
- Robust 2000V ESD (HBM), Class 2

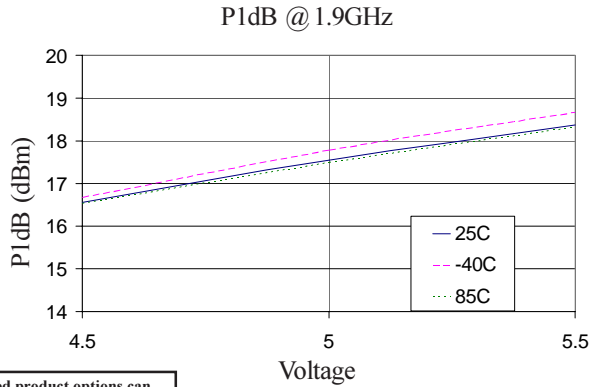
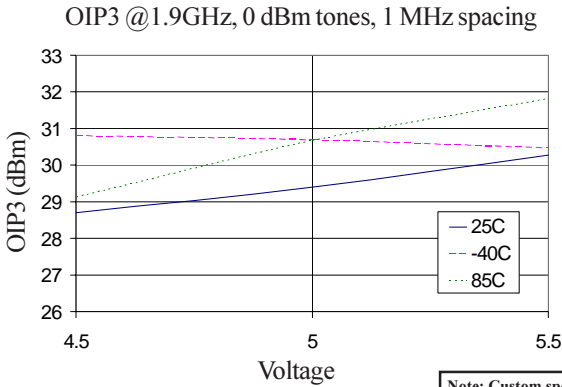
### Applications

- PCS, DCS1800, CDMA, W-CDMA receivers

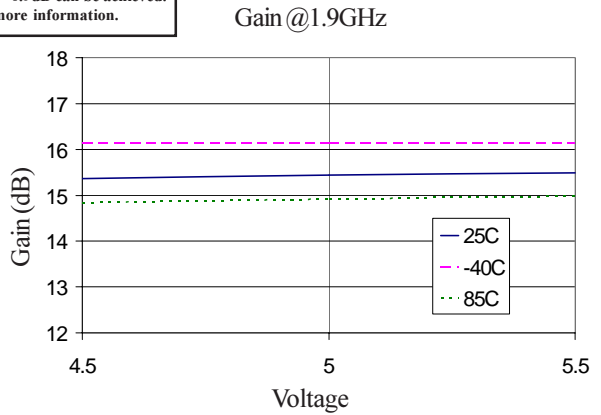
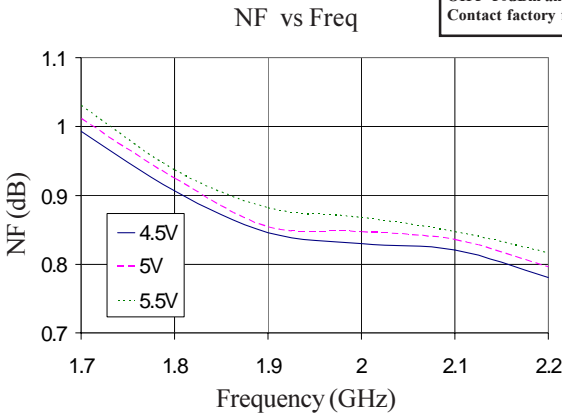
Symbol	Parameters: Test Conditions: $Z_0 = 50$ Ohms, $V_{dd} = 5V$ , $T_a = 25^\circ C$ , Typ data shown for 1.9 GHz	Units	Min.	Typ.	Max.
$F_o$	Frequency Range	GHz	1.7		2.0
$S_{21}$	Gain	dB	13.6	15.1	16.5
$S_{11}$	Input Return Loss	dB		-18	
$S_{22}$	Output Return Loss	dB		-15	
NF	Noise Figure (f = 1.9 GHz)	dB		0.9	1.05
OIP <sub>3</sub>	Output Third Order Intercept Point (P <sub>out</sub> /Tone = 0 dBm, Tone spacing = 1 MHz)	dBm		30	
P <sub>1dB</sub>	Output Power at 1 dB Compression	dBm		17.7	
$S_{12}$	Reverse Isolation	dB		-20	
$V_{dd}$	Supply Voltage	V		5	
$I_{dd}$	Supply Current	mA	40	44	48
$R_{th, j-l}$	Thermal Resistance (junction -back)	$^\circ C/W$		250	

The information provided herein is believed to be reliable at press time. Sirenza Microdevices assumes no responsibility for inaccuracies or omissions. Sirenza Microdevices assumes no responsibility for the use of this information, and all such information shall be entirely at the user's own risk. Prices and specifications are subject to change without notice. No patent rights or licenses to any of the circuits described herein are implied or granted to any third party. Sirenza Microdevices does not authorize or warrant any Sirenza Microdevices product for use in life-support devices and/or systems. Copyright 2003 Sirenza Microdevices, Inc. All worldwide rights reserved.

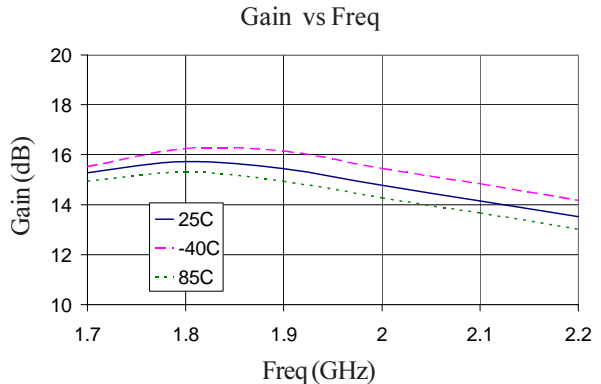
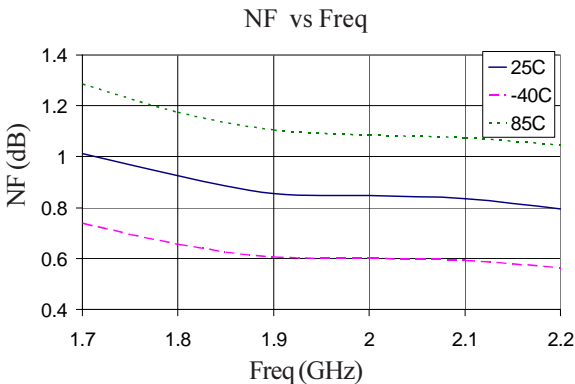
### SLM-20T Performance Over Supply Voltage (Vdd)



Note: Custom specified product options can be ordered. For 1700-1880MHz applications OIP3=30dBm and NF=0.9dB can be achieved. Contact factory for more information.

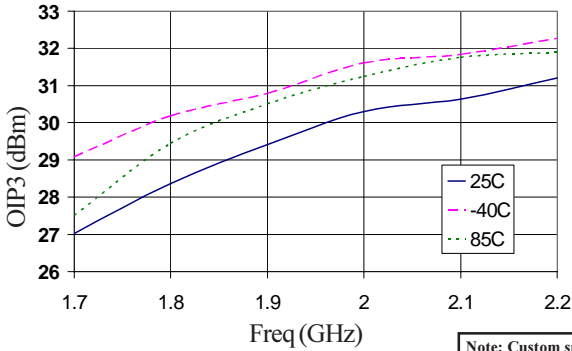


### SLM-20T Performance Over Temperature

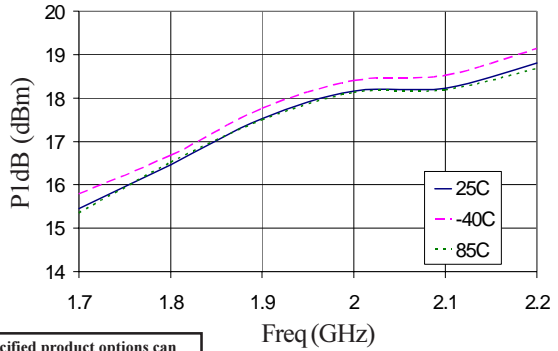


## SLM-20T Performance Over Temperature

OIP3 vs Freq., 0 dBm tones, 1 MHz spacing

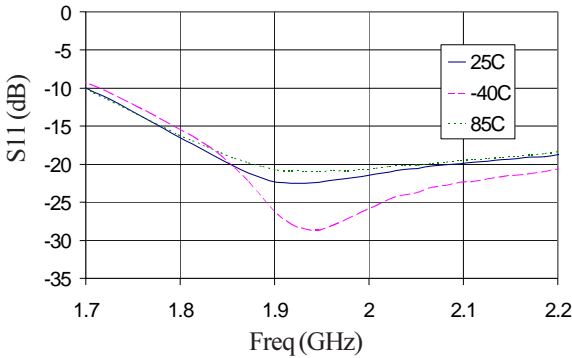


P1dB vs Freq

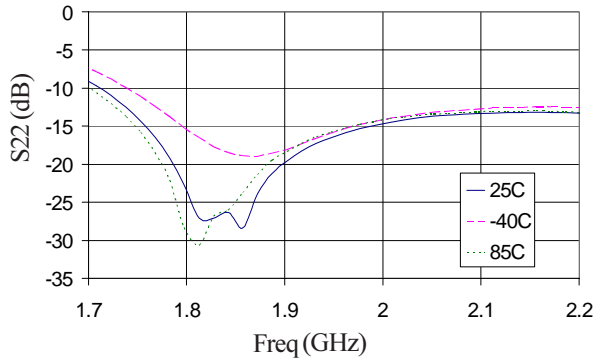


Note: Custom specified product options can be ordered. For 1700-1880MHz applications OIP3=30dBm and NF=0.9dB can be achieved. Contact factory for more information.

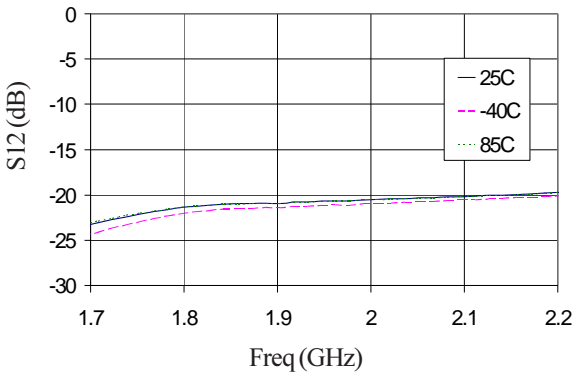
S11 vs Freq



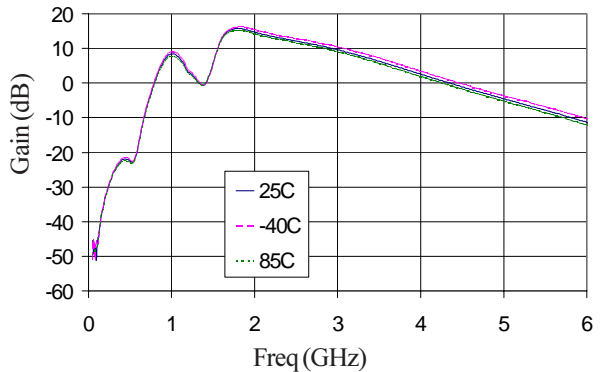
S22 vs Freq



S12 vs Freq



Gain vs Freq



### Absolute Maximum Ratings

Parameter	Absolute Limit
Supply Current ( $I_{dd}$ )	80 mA
Device Voltage ( $V_{dd}$ )	5.5 V
Operating Temperature	-40 to +85 °C
Max. Storage Temperature	+150 °C
Peak Reflow Temperature (30 sec.)	+220 °C
Operating Junction Temperature	+150 °C
Maximum Input Power	+15 dBm
ESD (HBM)	Class 2

Subjecting this device at or beyond any one of these limits may cause permanent damage. For reliable operation, the device operating voltage and current must not exceed the maximum values shown in "Product Specifications" on page 1.

Bias Conditions should also satisfy the following expression:

$$V_{dd} I_{dd} R_{th(j-c)} < T_j - T_{cp}$$

where  $T_j$  is the junction temperature (150 °C) and  $T_{cp}$  is the board temperature.



### Caution: ESD Sensitive

Appropriate precautions in handling, packaging and testing devices must be observed.

Preliminary

### SLM-20T 1700-2000 MHz LNA Module

#### Part Number Ordering Information

Part Number	Devices Per Reel	Reel Size
SLM-20T	500	13"

#### Part Symbolization

The part will be symbolized with a "SLM 20T" designator on the top surface of the package.

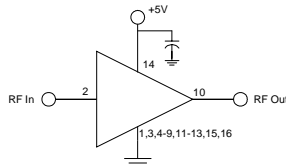
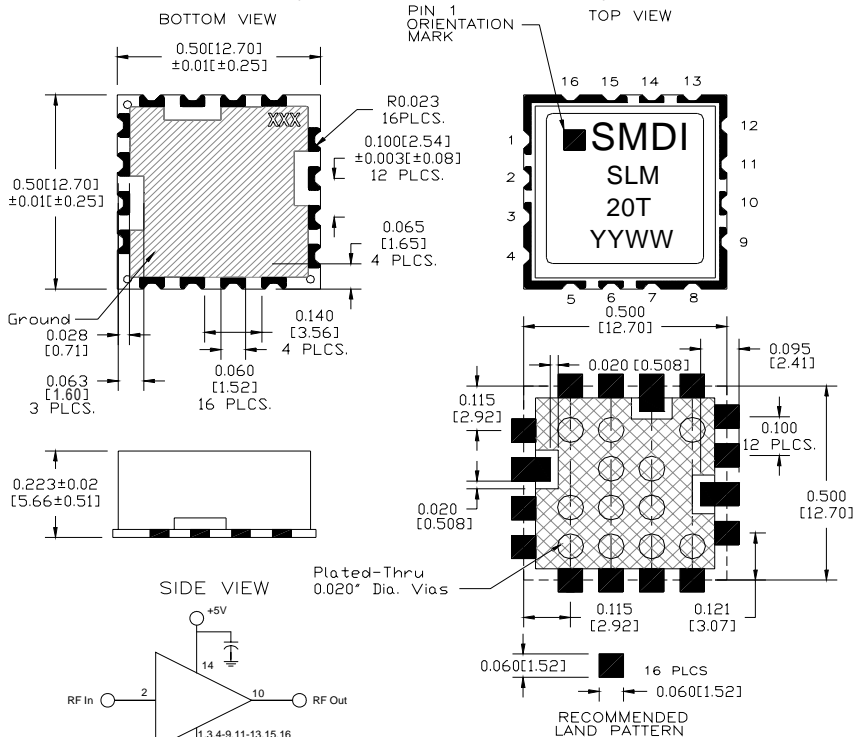
#### Pin Description

Pin #	Function
2	RF In
10	RF Out
14	Vdd

All other pins are ground.

### Package Dimensions

(See SMDI 60035 for tolerances)



Application circuit