

# RF AMPLIFIER

## MODEL *TM9138PM*

Available as: TM9138PM, 4 Pin TO-8 (T4)  
 TN9138PM, 4 Pin Surface Mount (SM3)  
 FP9138PM, 4 Pin Flatpack (FP4)  
 BX9138PM, Connectorized Housing (H1)

### Features

- Superior Phase Noise Performance
- Output Power: +19 dBm Typical
- Operating Temp. -55 °C to +85 °C
- Environmental Screening Available

### Specifications

CHARACTERISTIC	TYPICAL Ta = 25 °C	MIN/MAX Ta = -55 °C to +85 °C
Frequency (MHz)	10 - 2000 MHz	10 - 2000 MHz
Gain (dB)	7.5	6.0 Min.
Power @ 1 dB Comp. (dBm)	+19	+16.5 Min.
Reverse Isolation (dB)	-9.75	- 9 Max.
VSWR In	1.8:1	2.2:1 Max.
VSWR Out	1.5:1	2.2:1 Max.
Noise Figure (dB)	6.0	9.5 Max.
Power Vdc	+15	+15
mA	65	72 Max.

Note: Care should always be taken to effectively ground the case of each unit.

### Typical Intermodulation Performance at 25 °C

Second Order Harmonic Intercept Point ..... +52 dBm (Typ.)  
 Second Order Two Tone Intercept Point ..... +46 dBm (Typ.)  
 Third Order Two Tone Intercept Point ..... +33 dBm (Typ.)

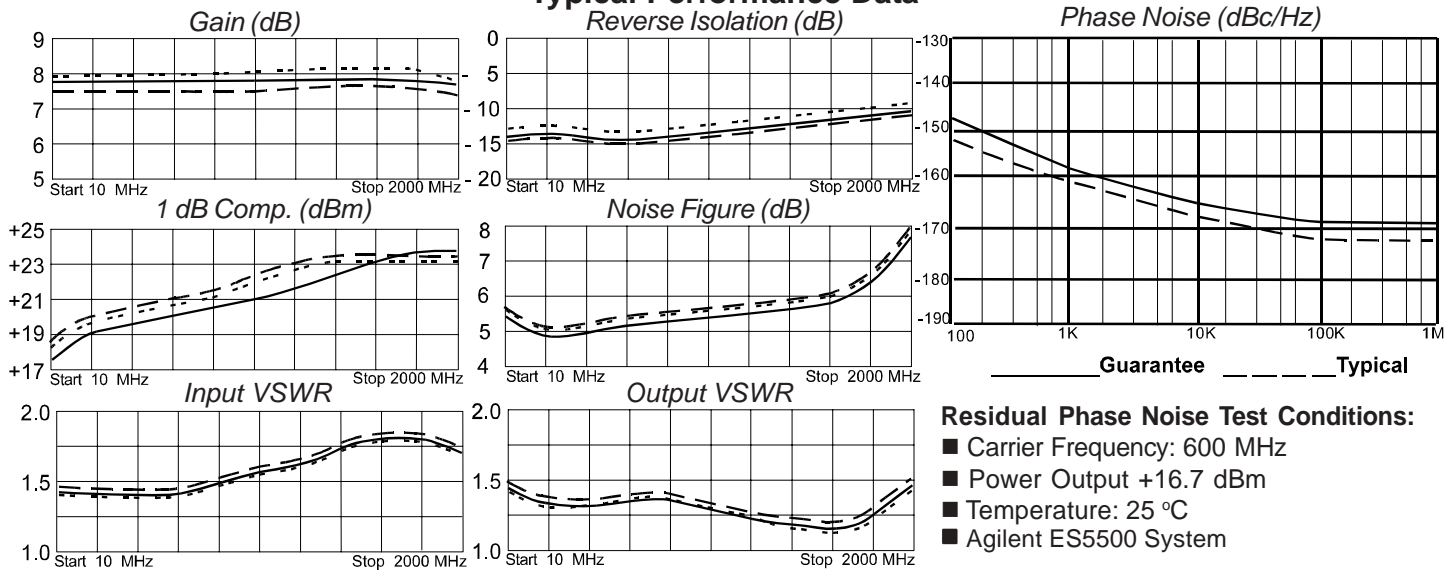
### Maximum Ratings

Ambient Operating Temperature ..... -55°C to +100 °C  
 Storage Temperature ..... -62°C to +125 °C  
 Case Temperature ..... +125 °C  
 DC Voltage ..... +18 Volts  
 Continuous RF Input Power ..... +18 dBm  
 Short Term RF Input Power ..... 50 mW (1 Minute Max.)  
 Maximum Peak Power ..... 0.5 Watt (3 µsec Max.)

### Guaranteed Phase Noise Performance (dBc/Hz) \*

Frequency	Typical	Guarantee (min.)
100 Hz	-152	-148
1 kHz	-161	-158
10 kHz	-168	-165
100 kHz	-172	-168
1 MHz	-172	-168

### Typical Performance Data



### Residual Phase Noise Test Conditions:

- Carrier Frequency: 600 MHz
- Power Output +16.7 dBm
- Temperature: 25 °C
- Agilent ES5500 System

Legend ——— +25 °C    - - - - +85 °C    ······ -55 °C

### Linear S-Parameters

FREQ. MHz	S11		S21		S12		S22	
	Mag	Deg	Mag	Deg	Mag	Deg	Mag	Deg
10	.17	-148	2.49	-172	.19	10	.22	157
100	.16	-176	2.56	171	.20	2	.18	158
200	.16	180	2.56	160	.20	1	.17	143
400	.17	176	2.55	139	.20	2	.17	111
600	.17	174	2.53	119	.21	-1	.18	80
800	.18	172	2.49	100	.22	-1	.17	49
1000	.19	170	2.46	82	.24	-3	.15	15
1200	.21	165	2.45	64	.25	-5	.14	-23
1400	.23	156	2.48	46	.27	-9	.13	-71
1600	.24	144	2.56	28	.30	-12	.16	-121
1800	.24	127	2.67	7	.33	-17	.23	-165
2000	.23	102	2.69	-20	.36	-27	.30	151



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