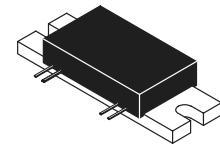


The RF Line  
**PCS Band**  
**RF Power LDMOS Amplifier**

**MHW1910-1**

**1930–1990 MHz, 10 W  
RF POWER LDMOS AMPLIFIER**

- Specified 26 Volts, 1930–1990 MHz, Class AB Characteristics  
Output Power = 14 Watts CW Typ  
Power Gain = 26 dB Typ @ 10 Watts  
Efficiency = 34% Min @ 10 Watts
- 50  $\Omega$  Input/Output System
- Designed for GSM Linearity Requirements



CASE 301AW-02, STYLE 1

**MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
DC Supply Voltage	$V_S$	28	Vdc
DC Bias Voltage	$V_{bias}$	28	Vdc
RF Input Power	$P_{in}$	21	dBm
RF Output Power	$P_{out}$	20	W
Operating Case Temperature Range	$T_C$	- 10 to +90	$^{\circ}C$
Storage Temperature Range	$T_{stg}$	- 30 to +100	$^{\circ}C$

**ELECTRICAL CHARACTERISTICS** ( $T_C = +25^{\circ}C$ ,  $V_S = 26$  Vdc;  $V_{bias} = 5$  Vdc; 50  $\Omega$  system, unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	1930	—	1990	MHz
Quiescent Current ( $P_{in} = 0$ mW)	$I_{DQ}$	100	—	150	mA
Bias Current	$I_{bias}$	—	—	2	mA
Output Power at 1 dB Compression	$P_{1dB}$	10	14	—	W
Power Gain ( $P_{out} = 10$ W)	$G_p$	24	26	28	dB
Efficiency ( $P_{out} = 10$ W)	$\eta$	34	—	—	%
Input VSWR	$VSWR_{in}$	—	—	1.8:1	—
Harmonics at $2f_o$	$H_2$	—	—	- 35	dBc
Harmonics at $3f_o$	$H_3$	—	—	- 45	dBc
Reverse IMD; $P_{out} = 10$ W; Preverse = -40 dBc ( $F_1 = F_0 \pm 200$ kHz @ -40 dBc)	$IMD_r$	—	—	- 50	dBc
Load Mismatch Stress Load VSWR = 5:1, All Phase Angles	$\psi$	No Degradation in Output Power			
Stability ( $P_{out} = 10$ mW to 10 W, $V_S \leq 26$ Vdc) Load VSWR = 5:1, All Phase Angles	—	All Spurious Outputs More Than 60 dB Below Desired Signal			

NOTE – **CAUTION** – MOS devices are susceptible to damage from electrostatic charge. Reasonable precautions in handling and packaging MOS devices should be observed.

**EXTREME CASE ELECTRICAL CHARACTERISTICS** ( $T_C = -10$  to  $+85^\circ\text{C}$ ,  $V_S = 23.5$  to  $26$  Vdc,  $V_{\text{bias}} = 3$  to  $26$  Vdc,  $50\ \Omega$  system, unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	1930	—	1990	MHz
Quiescent Current ( $P_{\text{in}} = 0$ mW)	$I_{\text{DQ}}$	100	—	160	mA
Bias Current	$I_{\text{bias}}$	—	—	2	mA
Output Power at 1 dB Compression	$P_{1\text{dB}}$	8	—	—	W
Power Gain Variation for a Given Part ( $P_{\text{out}} = 10$ W)	$G_p$	—	5	6.5	dB
Efficiency ( $P_{\text{out}} = 10$ W)	$\eta$	32	—	—	%
Input VSWR	$\text{VSWR}_{\text{in}}$	—	—	2:1	—
Harmonics at $2f_o$	$H_2$	—	—	-35	dBc
Harmonics at $3f_o$	$H_3$	—	—	-45	dBc
Reverse IMD; $P_{\text{out}} = 10$ W; Preverse = -40 dBc ( $F1 = F0 \pm 200$ kHz @ -40 dBc)	$\text{IMD}_r$	—	—	-46	dBc
Load Mismatch Stress Load VSWR = 5:1, All Phase Angles	$\psi$	No Degradation in Output Power			
Stability ( $P_{\text{out}} = 10$ mW to $10$ W, $V_S \leq 26$ Vdc) Load VSWR = 5:1, All Phase Angles	—	All Spurious Outputs More Than 60 dB Below Desired Signal			

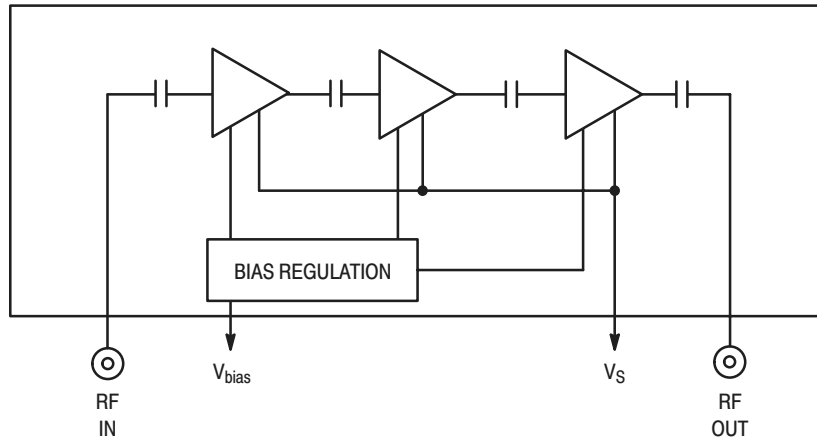
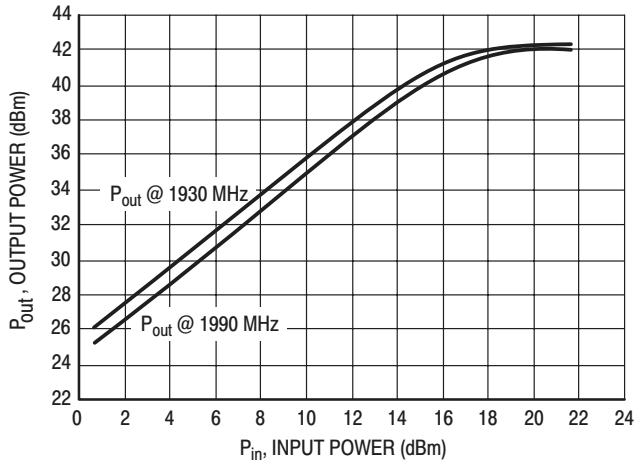
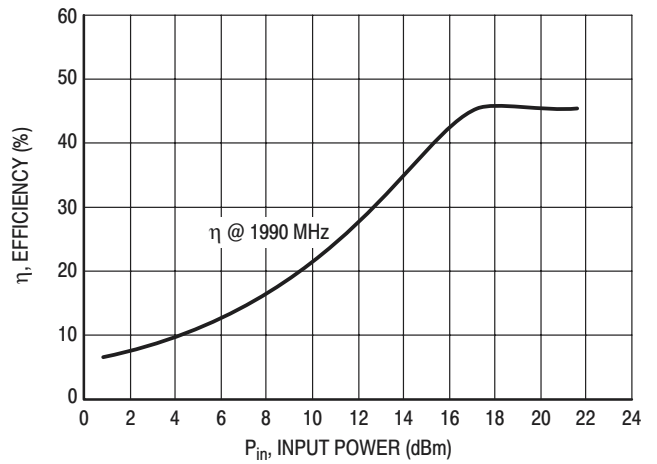


Figure 1. Internal Diagram

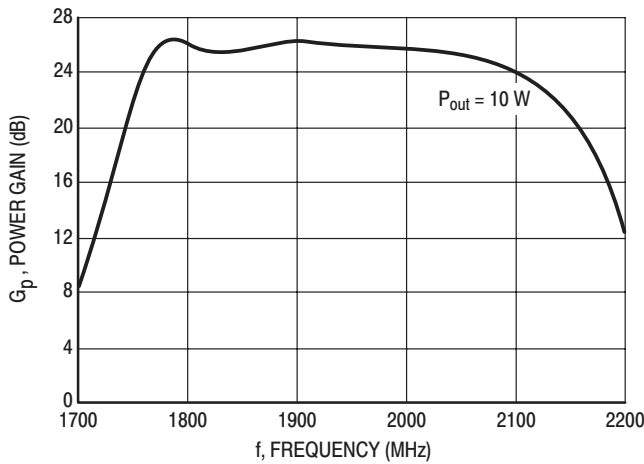
## TYPICAL CHARACTERISTICS



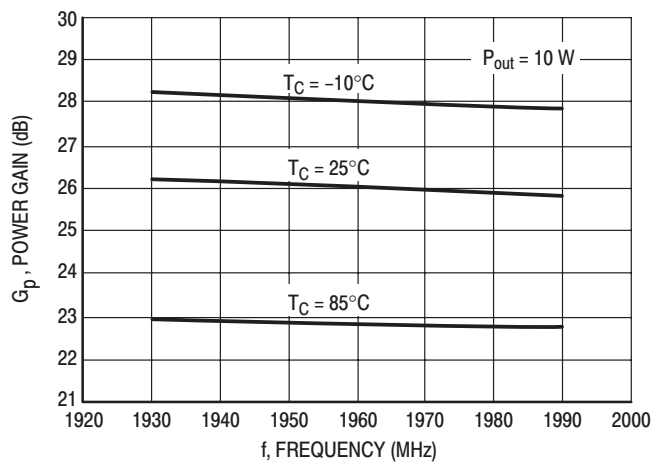
**Figure 2. Output Power versus Input Power**



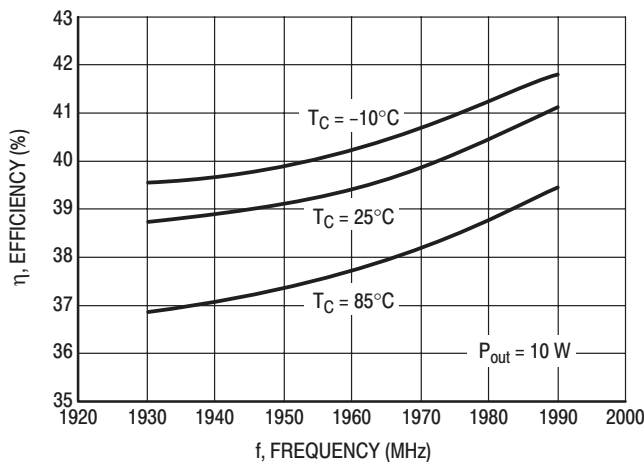
**Figure 3. Efficiency versus Input Power**



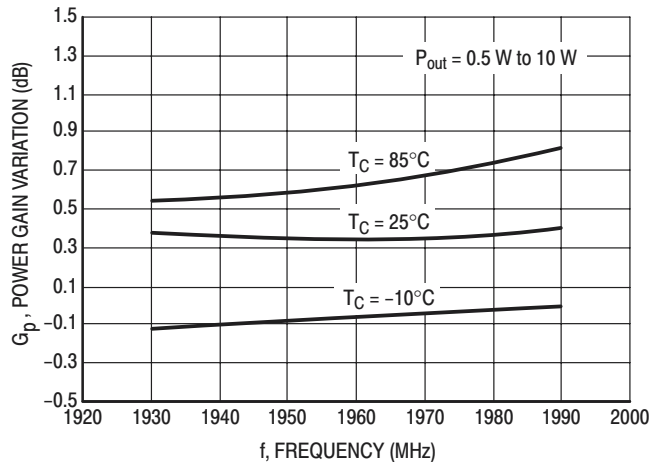
**Figure 4. Power Gain versus Frequency**



**Figure 5. Gain versus Frequency**



**Figure 6. Efficiency versus Frequency**

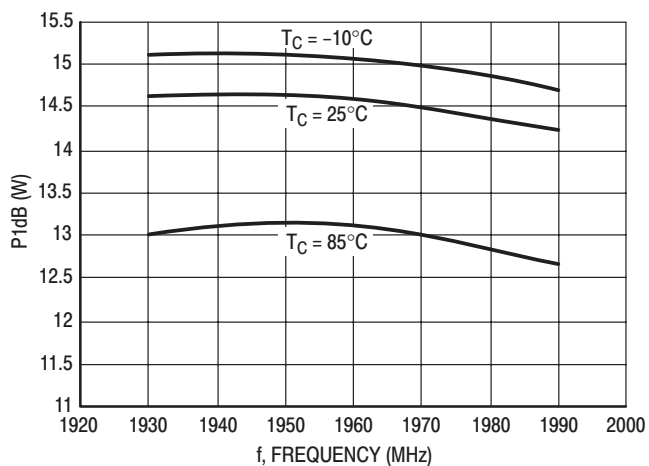


**Figure 7. Power Gain Variation versus Frequency**

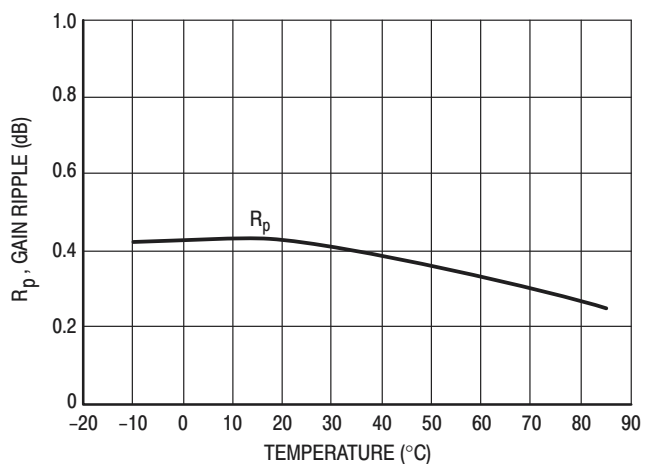
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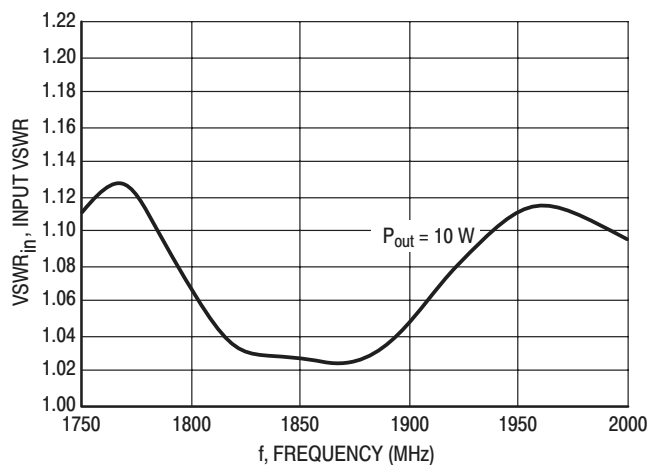
## TYPICAL CHARACTERISTICS



**Figure 8. P1dB versus Frequency**



**Figure 9. Gain Ripple versus Temperature**



**Figure 10. Input VSWR**

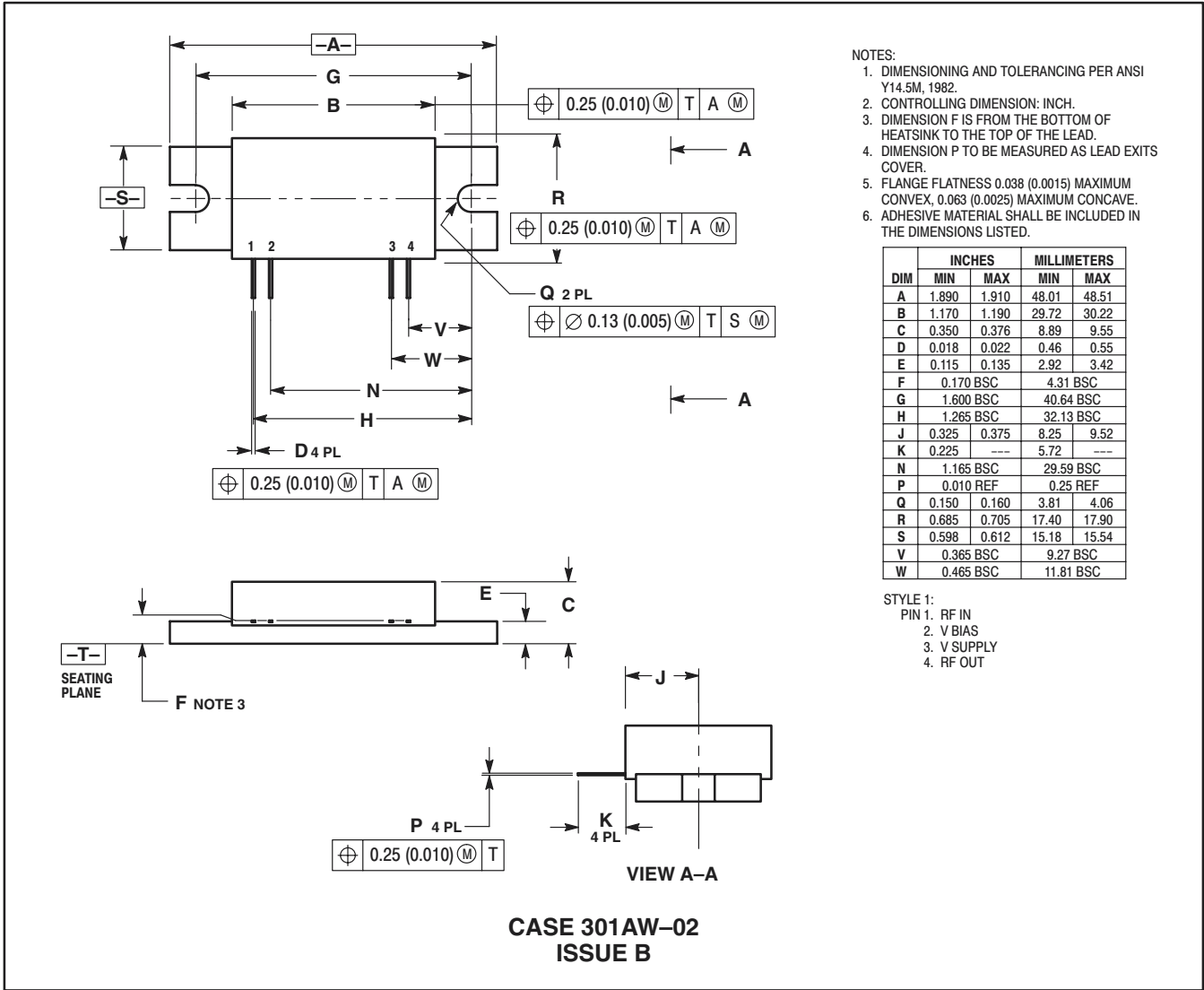
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# NOTES

# NOTES

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