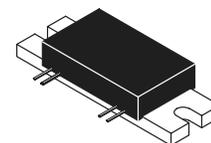


The RF Line PCS Band RF Power LDMOS Amplifier

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 Ω 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	°C
Storage Temperature Range	T_{stg}	- 30 to +100	°C

ELECTRICAL CHARACTERISTICS ($T_C = +25^\circ\text{C}$, $V_S = 26$ Vdc; $V_{bias} = 5$ Vdc; 50 Ω 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)	η	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	ψ	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_{DQ}	100	—	160	mA
Bias Current	I_{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)	η	32	—	—	%
Input VSWR	VSWR_{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)	IMD_r	—	—	-46	dBc
Load Mismatch Stress Load VSWR = 5:1, All Phase Angles	ψ	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			

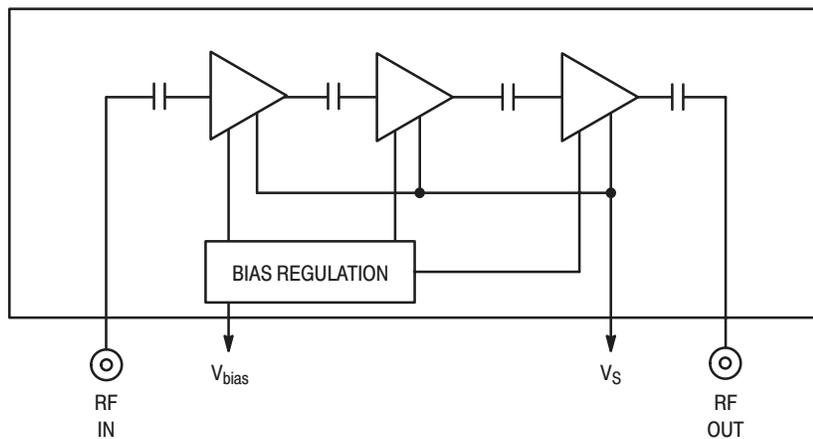


Figure 1. Internal Diagram

TYPICAL CHARACTERISTICS

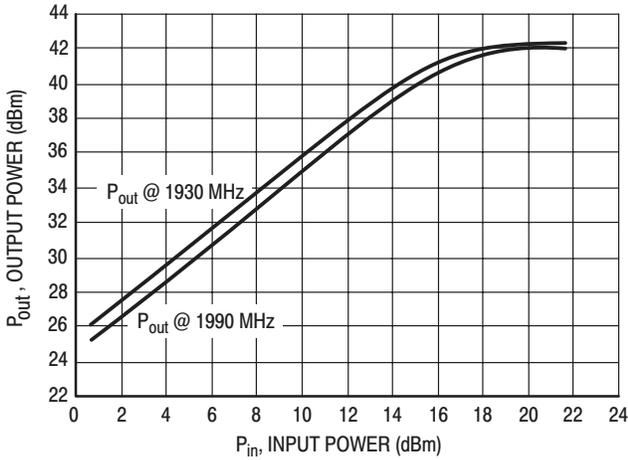


Figure 2. Output Power versus Input Power

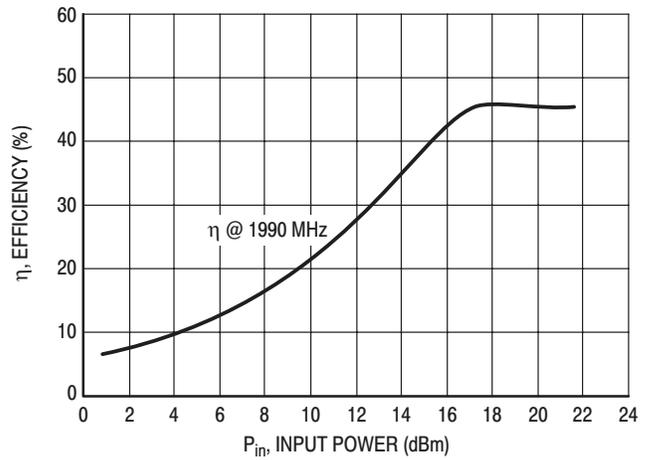


Figure 3. Efficiency versus Input Power

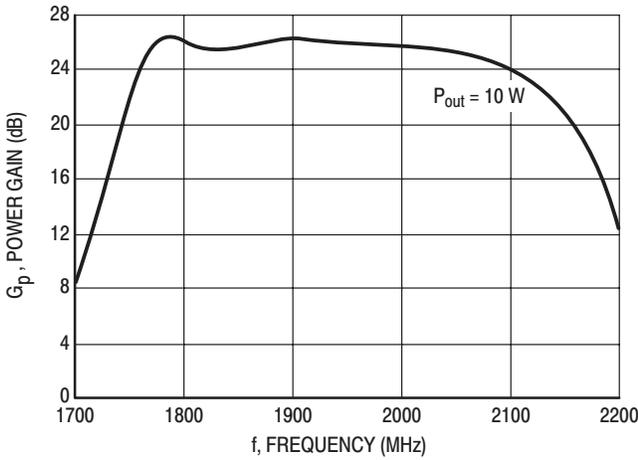


Figure 4. Power Gain versus Frequency

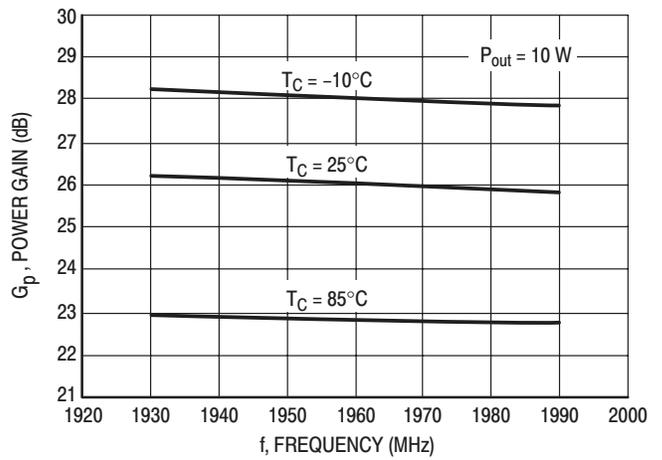


Figure 5. Gain versus Frequency

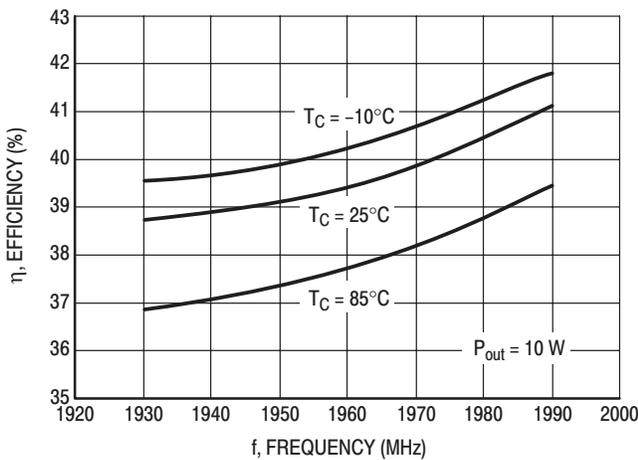


Figure 6. Efficiency versus Frequency

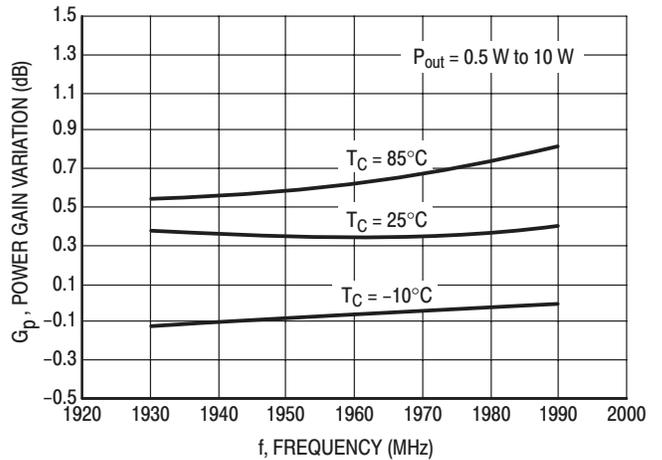


Figure 7. Power Gain Variation versus Frequency

ARCHIVE INFORMATION

ARCHIVE INFORMATION

TYPICAL CHARACTERISTICS

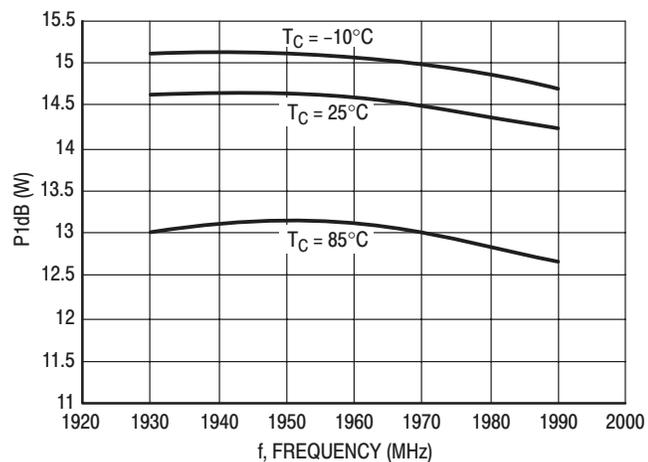


Figure 8. P1dB versus Frequency

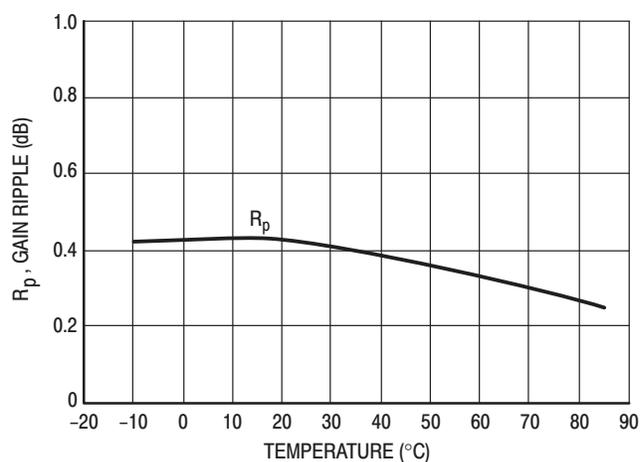


Figure 9. Gain Ripple versus Temperature

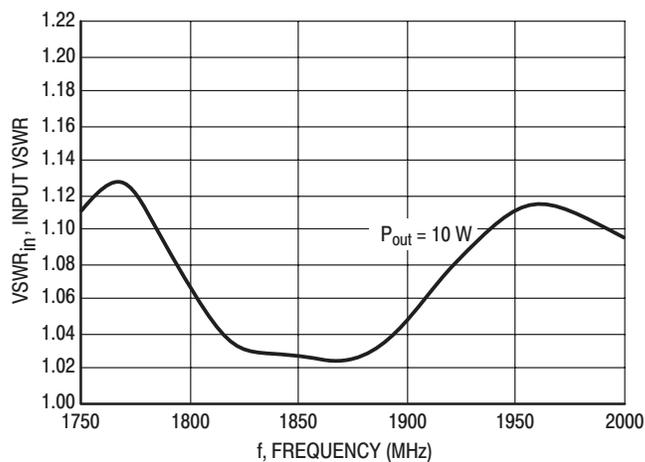


Figure 10. Input VSWR

ARCHIVE INFORMATION

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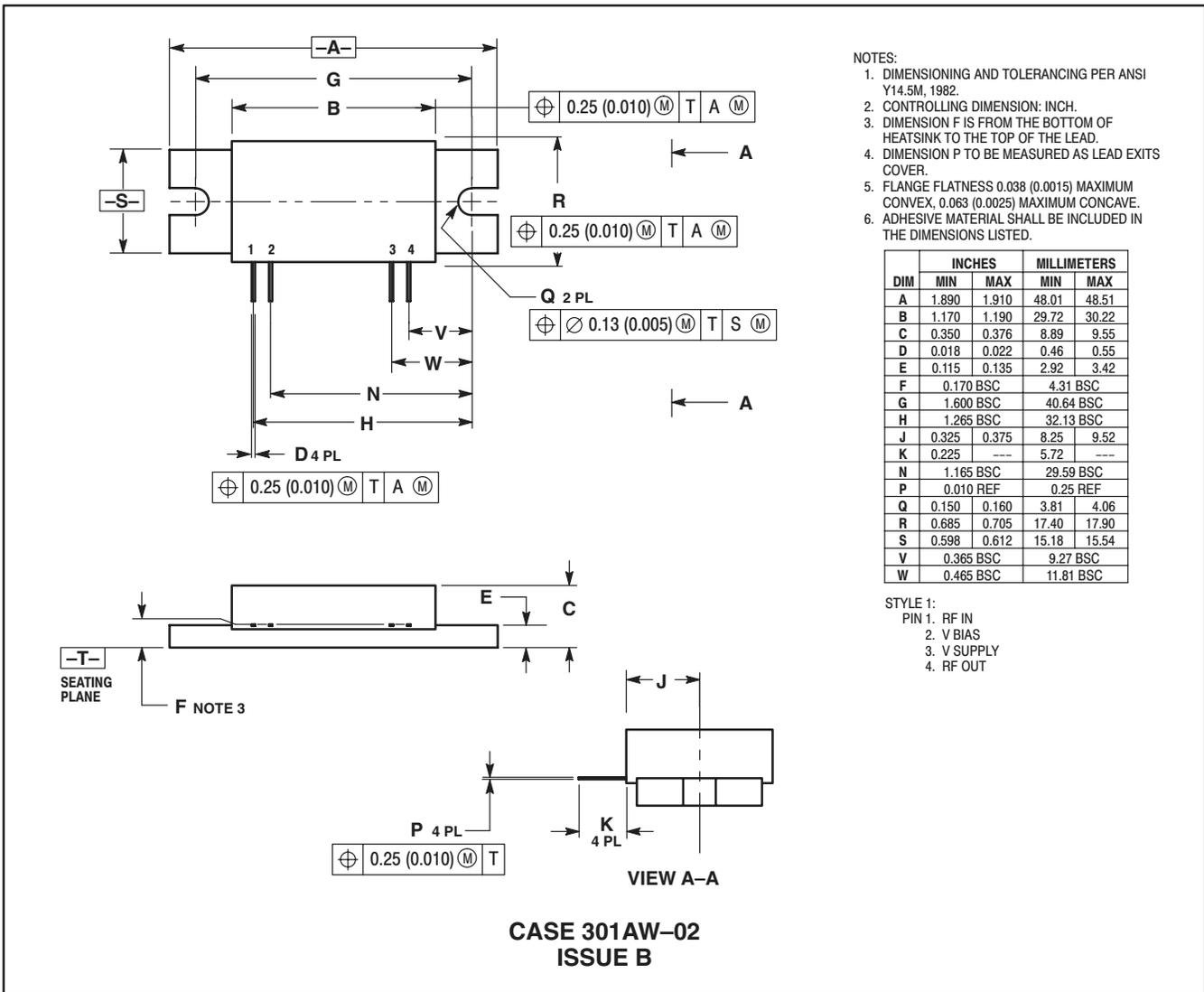


NOTES



NOTES

PACKAGE DIMENSIONS



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