WPS-2527LD5-98

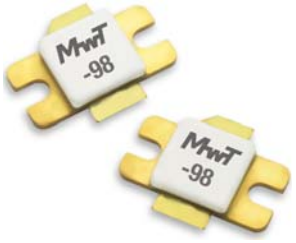
2.5 – 2.7 GHz Linear Power Amplifier
Preliminary Data Sheet

Features:

- **10 dB Typical Gain**
- **37 dBm Typical P1dB**
- **EVM < 2.5% at 33 dBm Pout**
- **40% CW Drain Efficiency**
- **Reliable LDMOS Based**
- **Copper Flange Package**
- **MTTF > 100 yrs @ T_J 150°C**

Applications:

- **802.16 WiMax**
- **802.11 WLAN**
- **Wireless Communications**
- **Telecomm Infrastructure**



Product Description:

The WPS-2527LD5-98 is a LDMOS based 37 dBm high power amplifier designed for 802.11 WLAN, 802.16 WiMAX, MMDS, and IFTS base station applications. The amplifiers are partially pre-matched to 50 ohms such that the input and output load contours are greater than 10 ohms.

The WPS-2527LD5-98 amplifier requires gate and drain biasing. The Idq is about 95 mA. The amplifier can be biased to operate in either class A or class AB. The CW drain efficiency is typically 40%.

The adjacent channel power ratio (ACPR) performance is excellent. For example, using a single carrier WCDMA with a crest factor of 10 dB, the ACPR at Pavg=30 dBm, is 45 dBc at 5 MHz offset, and 61 dBc at 10 MHz offset.

For a WiMAX signal with 256 carriers and 64 QAM, the ACPR is 40 dBc and the error vector magnitude (EVM) is 2.5% that has an average output power of 33 dBm.

Electrical Specifications @ 25°C, Vds = 26 V, Zo = 50 ohms

SYMBOL	PARAMETERS	Min	Typical	Max	Unit
Freq.	Frequency Range	2.5		2.7	GHz
SSG	Small Signal Gain		10.0		dB
P1 dB	Pout at 1 dB Compression Point		+37.0		dBm
EVM	Error Vector Magnitude (see note 1)		2.5		%
IP3	Third-order Intercept (see note 2)		50		dBm
Idq	DC Current		95		mA
Vgs	Gate to Source Voltage		3.5		volts
R_{TH}	Thermal Resistance, Junction to Case		4.0		°C/W

Notes:

1. The EVM is measured at an output power of 33 dBm. The EVM is the relative error for all carriers and includes the accumulated errors of the modulator and driver. The test frequency is 2.5 GHz.
2. The power per tone is 33 dBm at 2.5 GHz.

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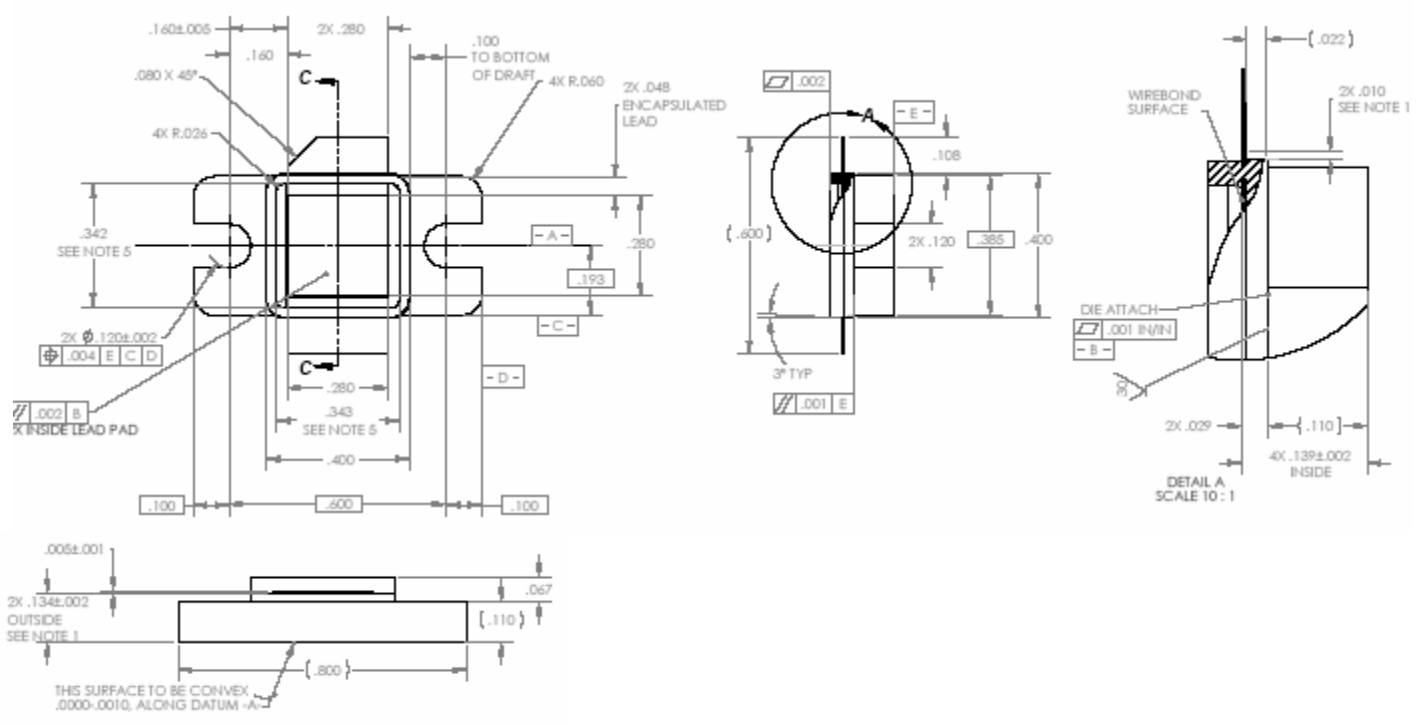
Absolute Maximum Ratings:

Maximum Drain to Source Voltage	65.0 V
Maximum Continuous RF Input Power	+30 dBm
Maximum Peak Input Power	+33 dBm
Maximum Operating Case Temperature	+70 °C
Maximum Storage Temperature	- 65 to + 150 °C
Maximum Channel Temperature	150°C

Package Information

Outline Diagram (Package 98)



Notes:

1. Tolerance applies to noted zone on leads

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Pavg=33 dBm 802.16 for 2.5% EVM (see note 3)

IEEE 802.16 - 2004					
Frequency:	2.5 GHz	Signal Level:	12.6 dBm	External Att:	0 dB
Sweep Mode:	Continuous	Trigger Mode:	Free Run	Trigger Offset:	-10 µs
Burst Type:	OFDM DL Burst	Modulation:	64QAM2/3	No Of Data Symbols:	11366

Result Summary						
No. of Bursts	66					*
	Min	Mean	Limit	Max	Limit	Unit
EVM All Carriers	**2.29**	**2.47**	3.76	**2.69**	3.76	%
EVM Data Carriers	**2.29**	**2.47**	3.76	**2.69**	3.76	%
EVM Pilot Carriers	**2.10**	**2.40**		**2.77**		%
IQ Offset	**2.03**	**2.21**		**2.38**		%
Gain Imbalance	**1.29**	**0.97**		**0.72**		%
Quadrature Error	**- 0.207**	**- 0.051**		**0.024**		°
Center Frequency Error	**- 0.15**	**7.34**	± 18400	**61.62**	± 18400	Hz
Symbol Clock Error	**1.60**	**6.18**	± 8 *	**18.64**	± 8	ppm
Burst Power	**12.95**	**13.12**		**13.28**		dBm

Notes:

3. The amplifier's output power is 30 dB higher than the burst power.

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