



# **MGA-515844-99**

5.1 – 5.8 GHz 25W High Efficiency  
Linear Power Amplifier  
Data Sheet

## Features:

- 16 dB Gain
- 44 dBm P<sub>-3dB</sub>
- 35 dBm Linear Pout @ 2.5% EVM (802.11 64QAM)
- 20% Efficiency at 35 dBm Linear Output Power
- Fully Matched Input and Output for Easy Cascade
- + 28V Bias Voltage
- Surface Mount Package with RoHS Compliance
- MTTF > 100 years @ 85°C ambient temperature

## Applications:

- Telemetry
- Point-To-Point Radio Applications

## Description:

The MGA-515844-99 is a power amplifier with the State-of-the-Art linear power-added-efficiency between 5.1 GHz and 5.8 GHz frequency band. Based on advanced robust GaN device technology, the power-added-efficiency of this power amplifier is over 50% at 25 watts. At a linear burst power of 4W with 2.5% EVM and ACPR better than -38 dBc the efficiency is 20%. The modulation test pattern is 802.16x 64QAM. The high efficiency power amplifier has excellent reliability. Ideal applications include telemetry systems for driver and the output power stage, base stations back-bone, wireless infrastructures and access points. It also can be used for PTP (Point-To-Point) radio applications for this band.

## Typical RF Performance: $V_{ds}=28V, V_{gs}=-2.3V, I_{dq}=325mA, T_a=25\text{ }^\circ\text{C}, Z_0=50\text{ ohm}$

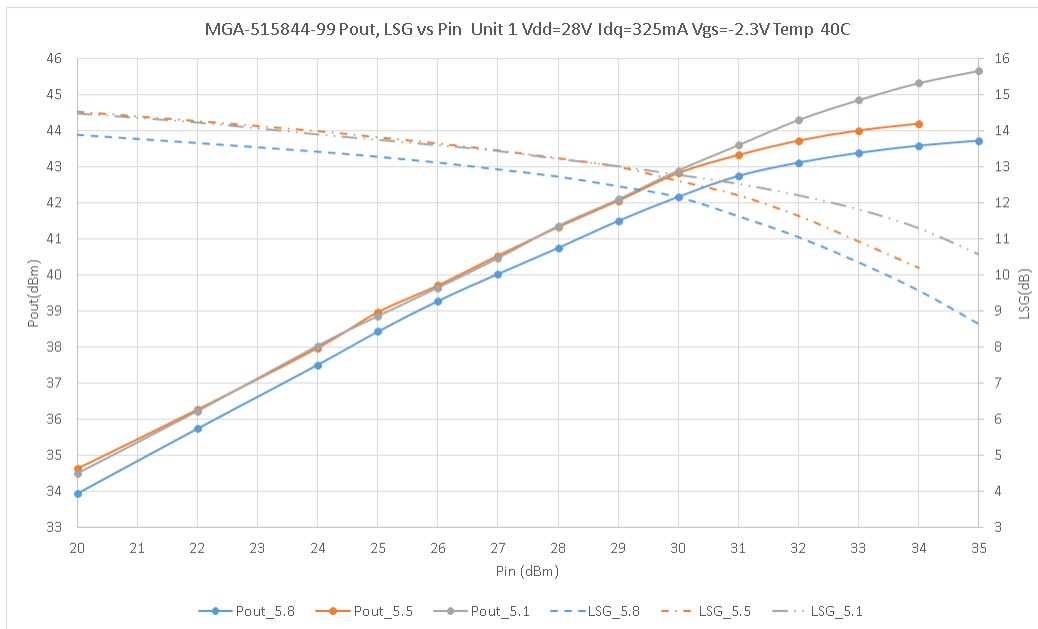
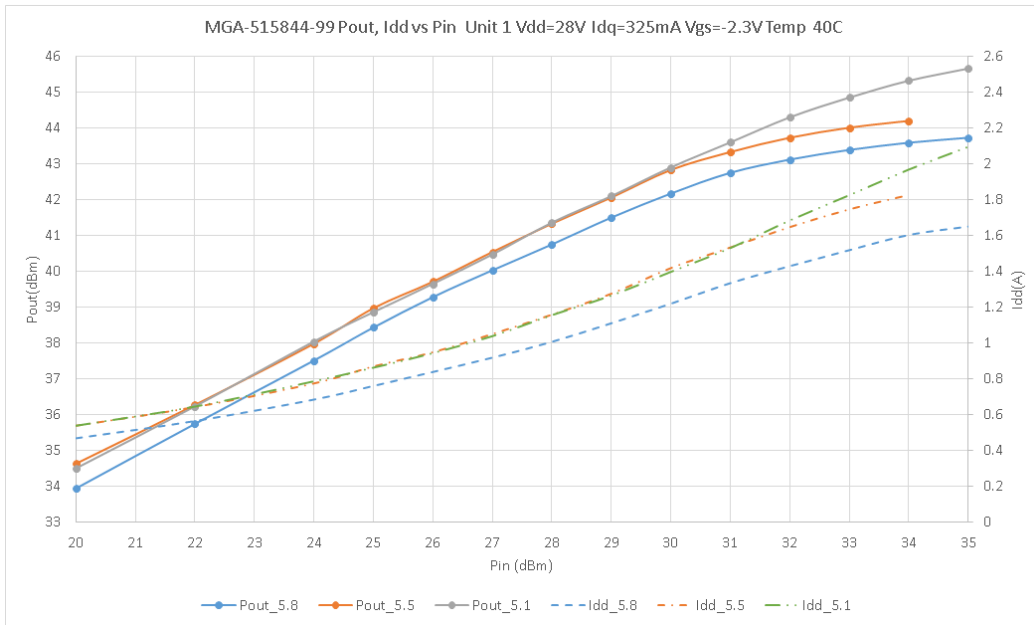
Parameter	Units	Typical Data
Frequency Range	MHz	5100-5800
Gain (Typ)	dB	16
Gain Flatness (Typ)	+/-dB	1.0
Input Return Loss	dB	10
Output Return Loss	dB	12
Output P3dB	dBm	44
Pout @ 2.5% EVM	dBm	35
Operating Current Range	mA	<2,000
Thermal Resistance	°C /W	2.8



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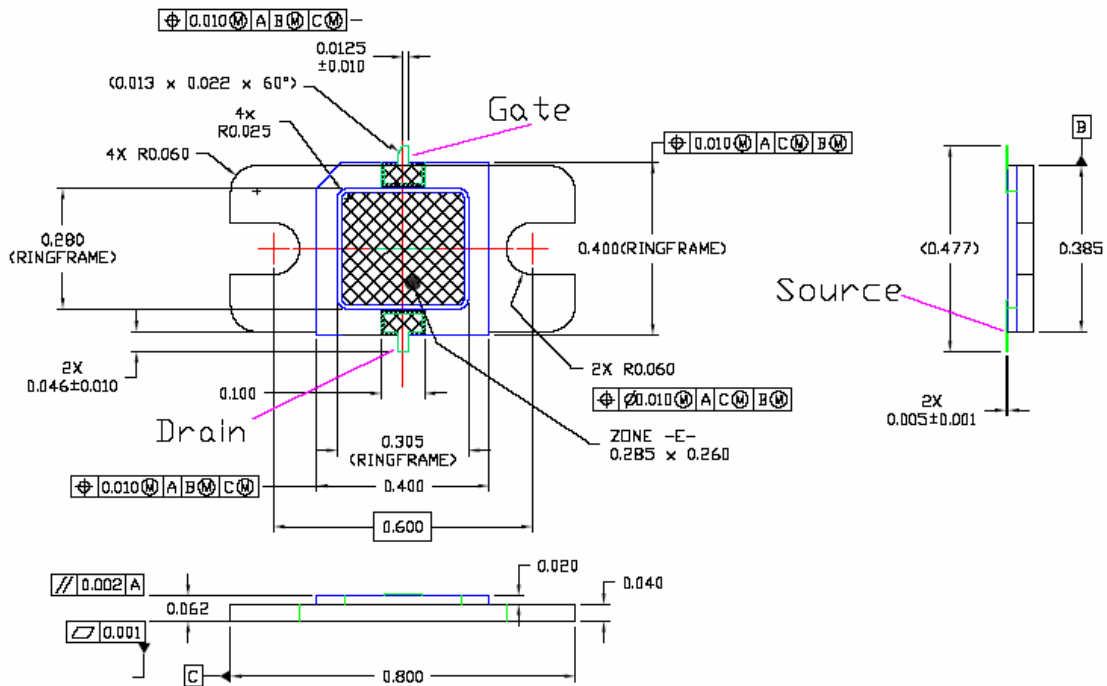


**Absolute Maximum Ratings:** ( $T_a = 25\text{ }^\circ\text{C}$ )\*

SYMBOL	PARAMETERS	UNITS	ABSOLUTE MAXIMUM
Vds	Drain-Source Voltage	V	50
Vgs	Gate-Source Voltage	V	10
I <sub>d</sub>	Drain Current	A	6
I <sub>g</sub>	Gate Current	mA	7
P <sub>diss</sub>	DC Power Dissipation	W	50
Pin max	RF Input Power	dBm	+33
T <sub>ch</sub>	Channel Temperature	°C	225
T <sub>stg</sub>	Storage Temperature	°C	-55 to 150

\*Operation of this device above any one of these parameters may cause permanent damage.

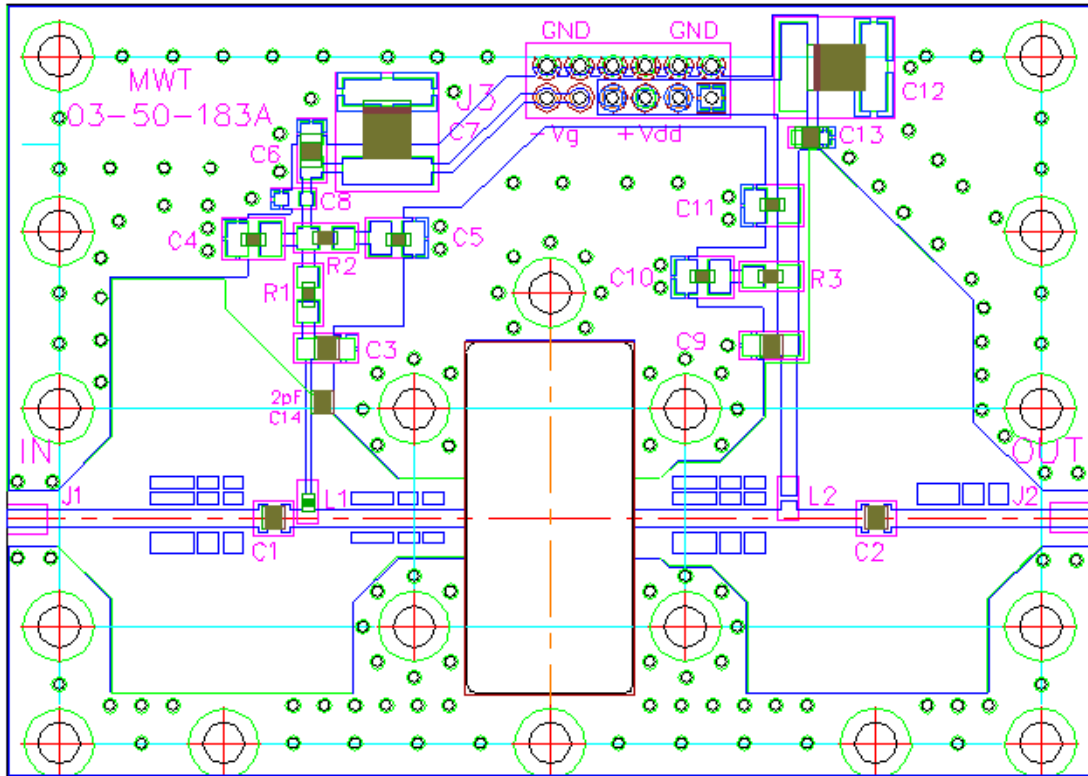
**Mechanical Information:** *This Package is RoHS compliant*



**All dimensions are in inches**

Pin Designation (Top View)	
Pin Number	Description
Pin 1 (Chamfer)	Gate
Pin 2	Drain
Mounting Surface	GND

## Demo Board Layout



## Bill of Material

Item	Quantity	Description	Vendor P/N	MwT P/N	Ref No.
1	1	Connector , 12 PIN	DF11-12DP-20SA		P1
2	1	coil 3 turn	3-5038-A	03-02-302	L2
3	1	coil 8.2 nH	0402DC-8N2X-R		L1
4	4	Capacitor .1 uF	0603YC104KAT2A	03-02-593	C4,5,10&11
5	2	Capacitor 1000 pF	C4520X7R3A102K	03-02-603	C6,13
6	1	Capacitor 2 pF	ML03512R08AT2A	03-02-304	C14
7	2	Capacitor 2.2 uF	T491B225KD35A1	03-02-643	C7,C12
8	4	Capacitor 3.9 pF	ATC100A3R9BCA150XC	03-02-604	C1,2,3&9
9	2	Resistor surface mount 51 ohms	ERJ-2GEJ510X	03-02-308	R2,3
10	1	Resistor surface mount 18 ohms	ERJ-2GEJ180X	03-02-309	R1

## Electrical Schematics

