

MGA-515844-99 5.1 – 5.8 GHz 25W High Efficiency Linear Power Amplifier

Features:

- 16 dB Gain
- 44 dBm P_{-3dB}
- 35 dBm Linear Pout @ 2.5% EVM (802.11 64-QAM)
- 20 % Efficiency at 35 dBm Linear Output Power
- Fully Matched Input and Output for Easy Cascade
- +28 V 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 4 watts with 2.5 % EVM and ACPR better than -38 dBc the efficiency is 20 %. The modulation test pattern is 802.16x 64-QAM. 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: $V_{ds} = 28\text{ V}$, $V_{gs} = -2.3\text{ V}$, $I_{dq} = 325\text{ mA}$, $T_a = 25\text{ °C}$, $Z_0 = 50\text{ }\Omega$

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

ESD Caution

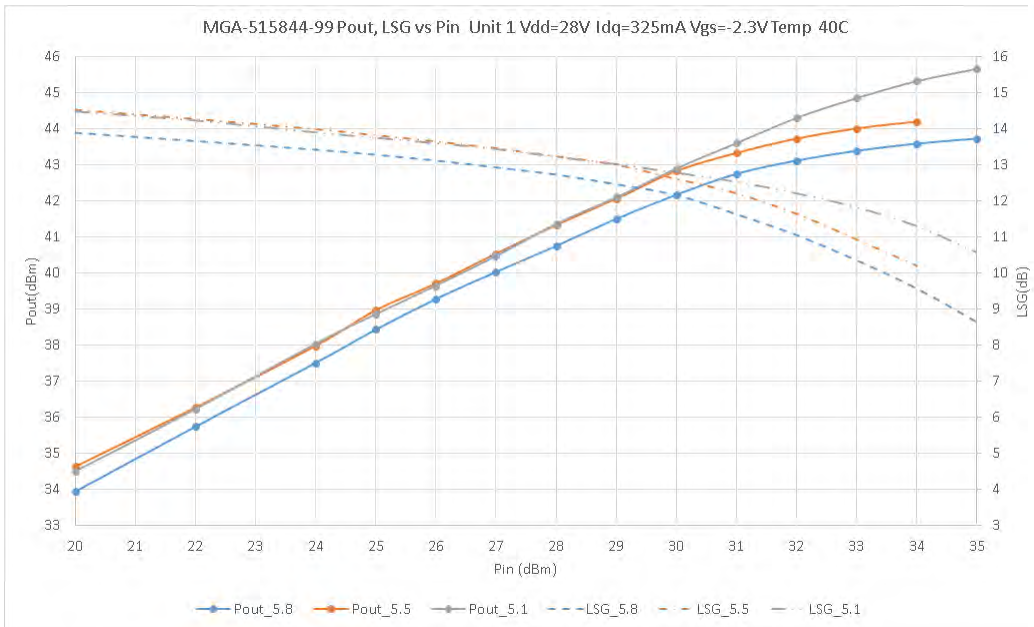
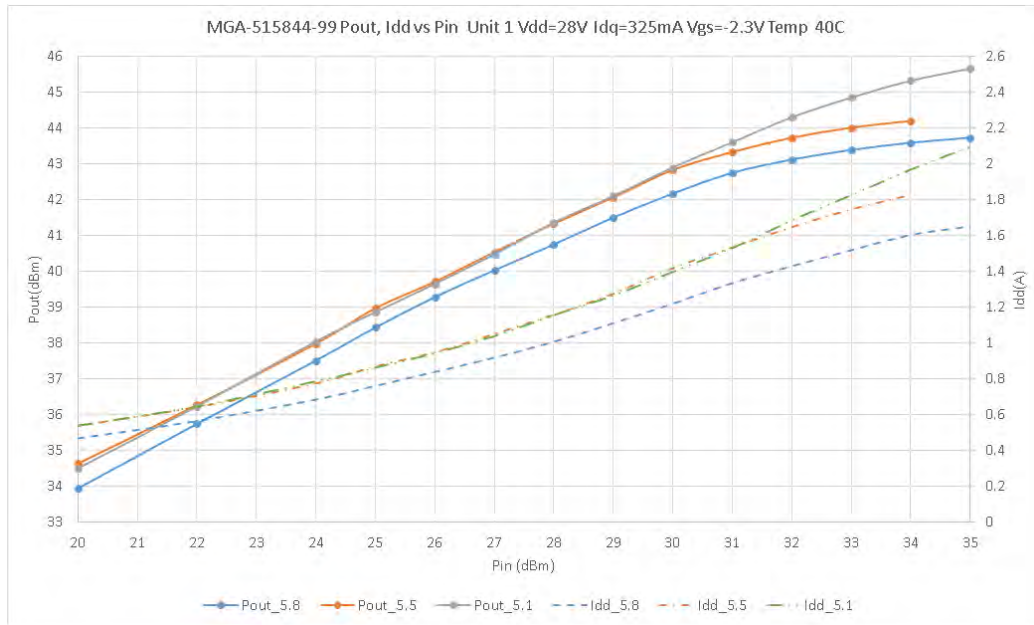


High-performance RF integrated circuits are highly sensitive to electrostatic discharge (ESD) and may contain unprotected inputs and outputs. Handling and assembly should be conducted in an ESD-controlled environment. It is recommended that ESD precautions and protocols are adopted to minimise the risk of electrostatic discharge and protect product integrity.

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Linear Power Amplifier

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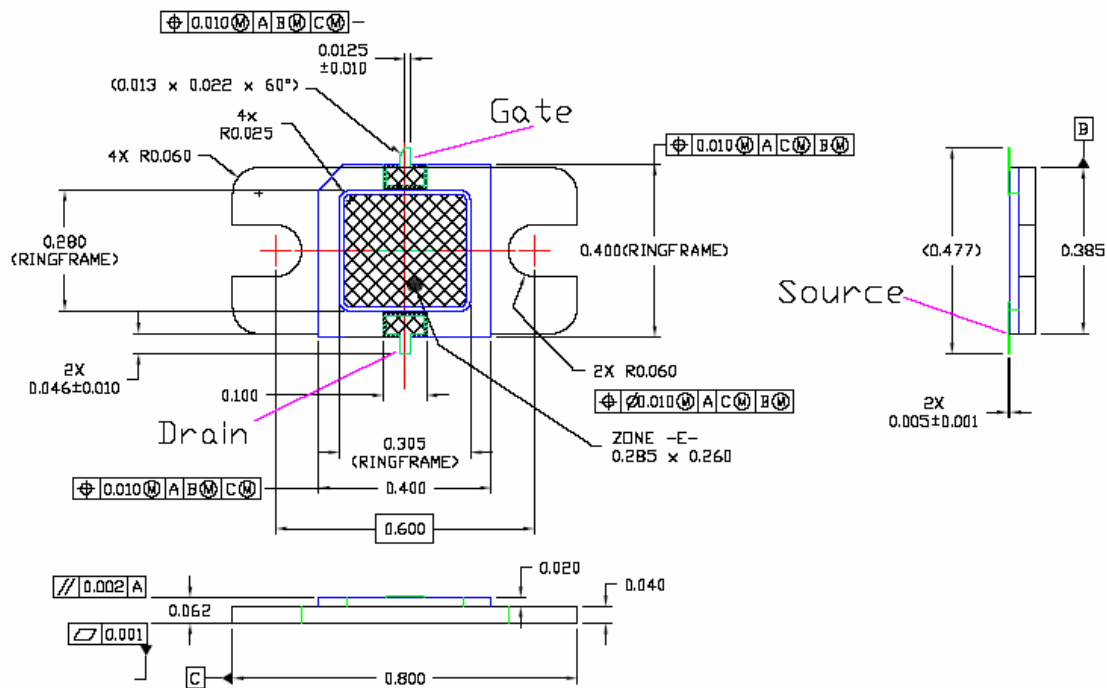


Absolute Maximum Ratings: ($T_a = 25\text{ }^{\circ}\text{C}$)*

SYMBOL	PARAMETERS	UNITS	ABSOLUTE MAXIMUM
V _{ds}	Drain-Source Voltage	V	50
V _{gs}	Gate-Source Voltage	V	10
I _d	Drain Current	A	6
I _g	Gate Current	mA	7
P _{diss}	DC Power Dissipation	W	50
Pin max	RF Input Power	dBm	+33
T _{ch}	Channel Temperature	°C	225
T _{stg}	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

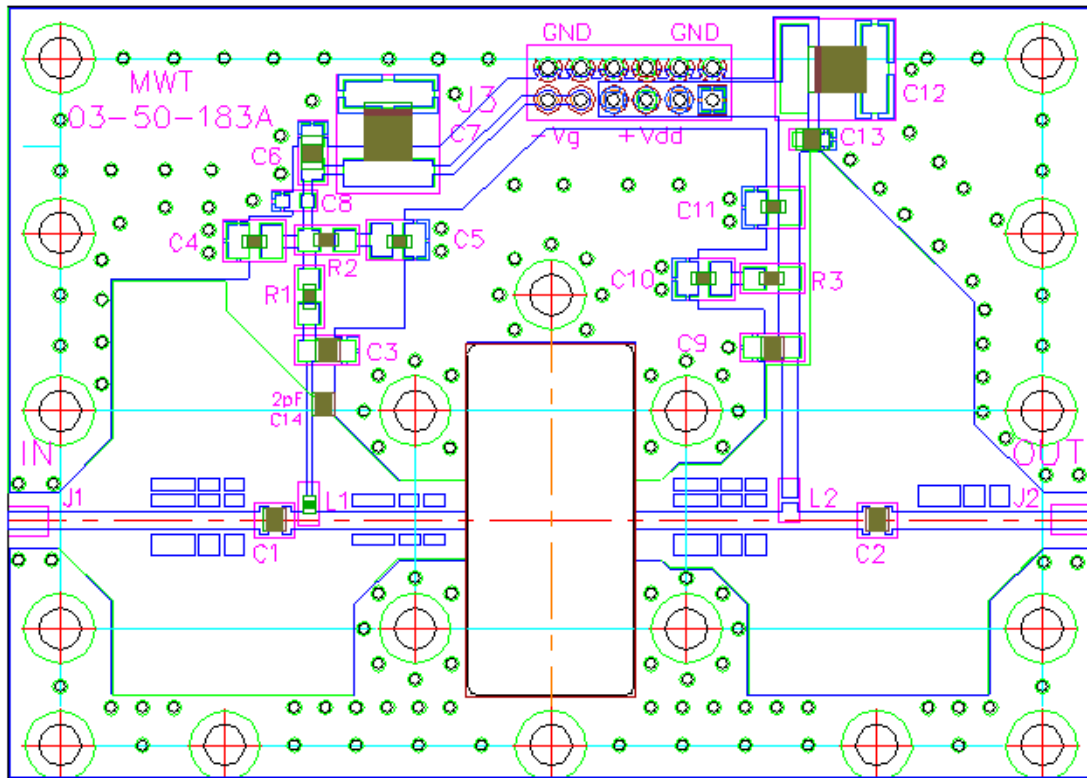


All dimensions are in inches

Pin Designation (Top View)

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

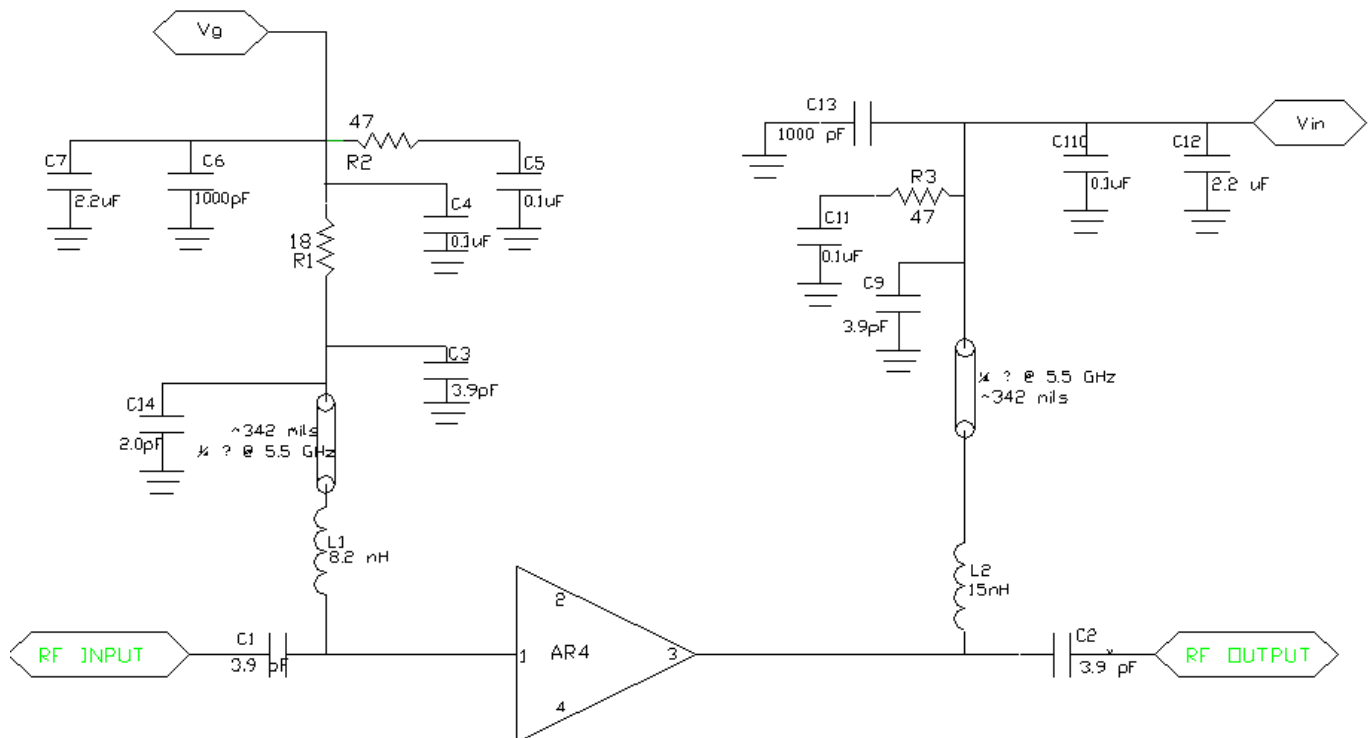
Demo Board Layout



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	T491B225K035A1	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



RoHS Compliance



CML Micro certifies, to the best of our knowledge, that its products comply with RoHS directive (2011/65/EU), as amended by Directive (EU) 2015/863.

REACH Compliance



CML Micro certifies, to the best of our knowledge, that its products do not contain any of the banned substances specified in the SVHC list at <https://echa.europa.eu/candidate-list-table>. CML Micro are committed to ensuring the safety of products and the compliance with regulations. Publications will be updated in the event that REACH control is compromised.

Contact Information

For further information please contact your local CML sales representative.
Contact details can be found at www.cmlmicro.com.

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