MQ1430S LDMOS TRANSISTOR

Document Number: MQ1430S
Preliminary Datasheet V2.0

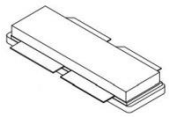
300W, 28V , 1.2-1.4GHz High Power RF LDMOS FETs

Description

The MQ1430S is a 300-watt capable, high performance, internally matched push pull LDMOS FET,for wide-band commercial and industrial applications with frequencies 1200 to 1400MHz.

It can be used for both CW and pulse application or any other modulation signal.

MQ1430S



- Typical CW Performance at 28V (On Innogration 1.2-1.4GHz wideband fixture with device soldered):

Freq(MHz)	Pout(dBm)	Pout(W)	Ids(A)	Pin(dBm)	Gain(dB)	Eff (%)
1200	55.65	367.3	20.82	43.06	12.59	63.00
1250	55.32	340.4	19.46	42.97	12.35	62.47
1300	55.28	337.3	19.97	42.85	12.43	60.32
1350	55.87	386.4	22.05	43.07	12.80	62.58
1400	54.90	309.0	17.74	42.76	12.14	62.20

Features

- High Efficiency and Linear Gain Operations
- Integrated ESD Protection
- Excellent thermal stability, low HCI dri
- Large Positive and Negative Gate/Source Voltage Range for Improved Class C Operation
- Pb-free, RoHS-compliant

Suitable Applications

- L band pulse amplifier
- Jammer

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DSS}	+65	Vdc
Gate--Source Voltage	V_{GS}	-10 to +10	Vdc
Operating Voltage	V_{DD}	+32	Vdc
Storage Temperature Range	Tstg	-65 to +150	°C
Case Operating Temperature	T_C	+150	°C
Operating Junction Temperature	T_J	+225	°C

Table 2. Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case T_C= 85°C, T_J=200°C, DC test	RθJC	0.2	°C/W

Table 3. ESD Protection Characteristics

Test Methodology	Class
Human Body Model (per JESD22--A114)	Class 2

Reference Circuit of Test Fixture Assembly Diagram

(Layout file upon request, 30mil RO4350)

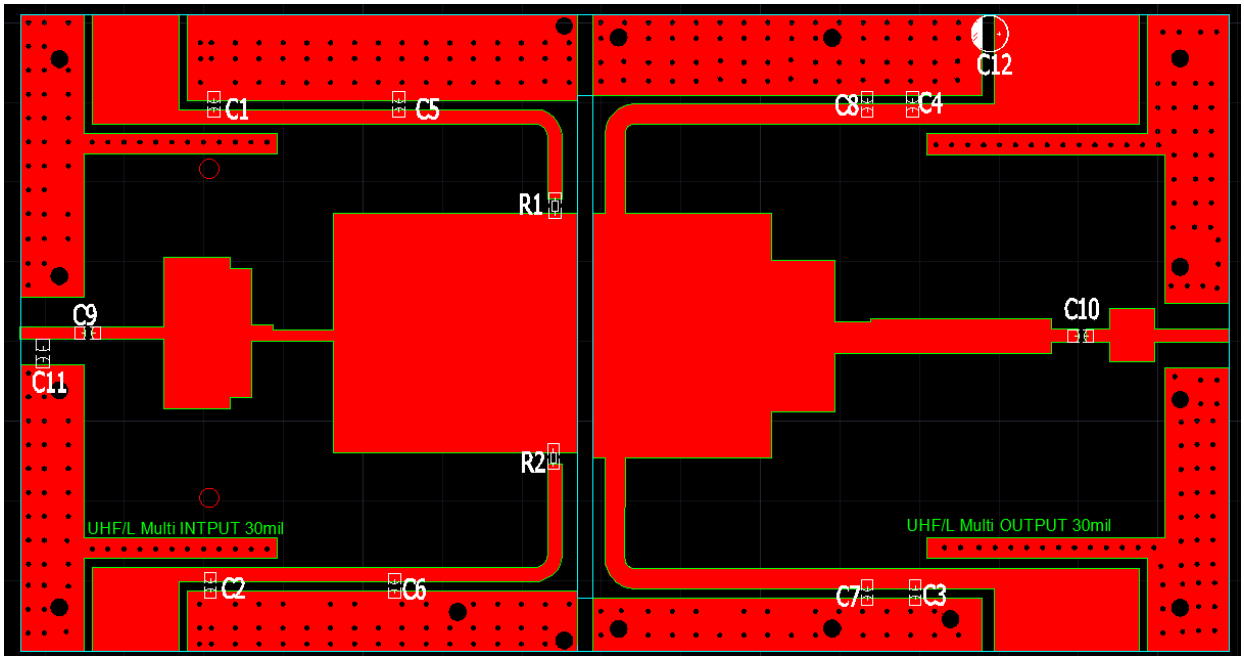
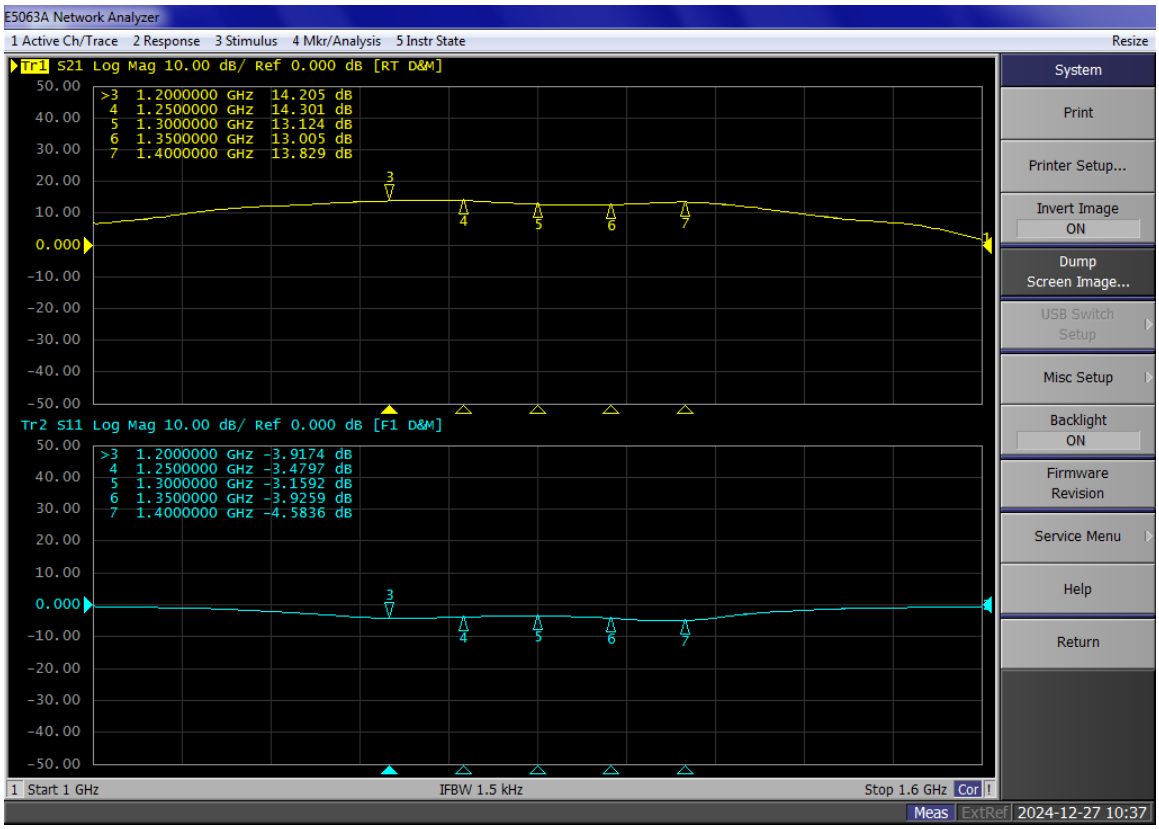


Table 5. Test Circuit Component Designations and Values

Component	Description	Suggestion
C1~C4	10uF/200V-1210	Ceramic multilayer capacitor
C5~C6	82pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ301111
C9	39pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ301111
C10	39pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ101111
C11	3.3pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ301111
C12	2000uF-63V	Electrolytic Capacitor
R1,R2	10Ω-1206	Chip Resistor

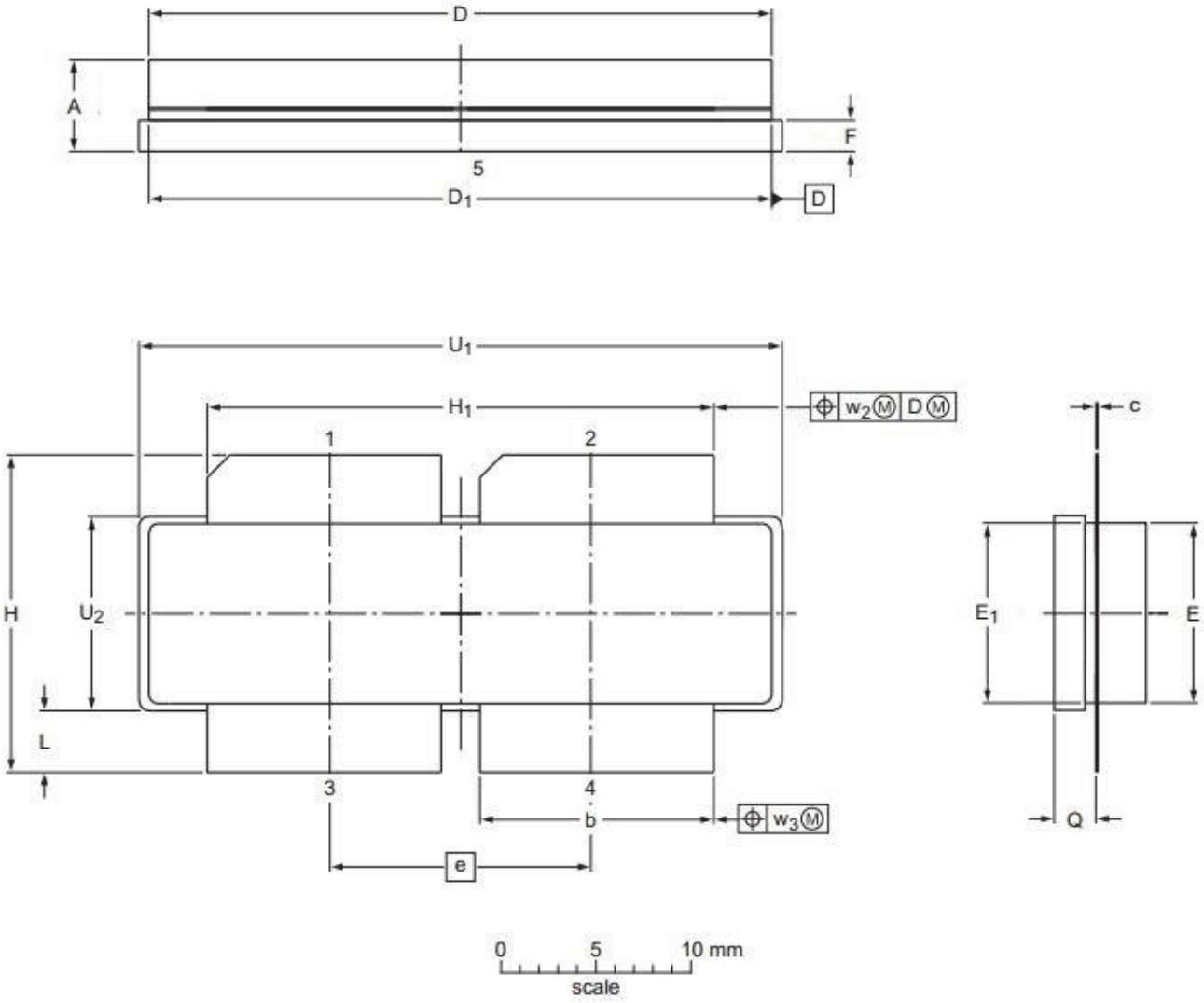
TYPICAL CHARACTERISTICS

Figure 1. Network analyzer output S11/S21 (Vds=28V Idq=1A Vgs=2.8V)



Package Outline

Earless flanged ceramic package; 4 leads（1、2—DRAIN、3、4—GATE、5—SOURCE）



UNIT	A	b	c	D	D_1	e	E	E_1	F	H	H_1	L	Q	U_1	U_2	W_2	W_2
mm	4.7 4.2	11.81 11.56	0.18 0.10	31.55 30.94	31.52 30.96	13.72	9.50 9.30	9.53 9.27	1.75 1.50	17.12 16.10	25.53 25.27	3.48 2.97	2.26 2.01	32.39 32.13	10.29 10.03	0.25	0.25
inches	0.185 0.165	0.465 0.455	0.007 0.004	1.242 1.218	1.241 1.219	0.540	0.374 0.366	0.375 0.365	0.069 0.059	0.674 0.634	1.005 0.995	0.137 0.117	0.089 0.079	1.275 1.265	0.405 0.395	0.01	0.01

OUTLINE VERSION	REFERENCE			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
PKG-D4					03/12/2013

Revision history

Table 5. Document revision history

Date	Revision	Datasheet Status
2022/7/14	Rev 1.0	Preliminary Datasheet
2024/12/27	Rev 2.0	Modify application info with better result

Application data based on JF-22-13/TC-24-76

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