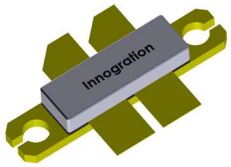
MX1530G LDMOS TRANSISTOR

Document Number: MX1530G
Product Datasheet V1.0

300W, 28V High Power RF LDMOS FETs

MX1530G



Description

The MX1530G is a 300-watt capable, highly rugged, unmatched,push pull LDMOS FET, designed for wide-band commercial and industrial applications with frequencies 200 to 700MHz.

- Typical Performance (On Innogration fixture with device soldered):

MX1530G Vgs=2.4V Vds=28V Idq=150mA CW								
Freq(MHz)	**Psat(dBm)**	**Psat(W)**	**IDS(A)**	**Pin(dBm)**	**Gain(dB)**	**Eff(%)**	**2nd(dBc)**	**3rd(dBc)**
400	55.07	321.37	18.25	36.16	18.91	62.89	-20.3	-36.7
420	54.95	312.61	17.26	35.94	19.01	64.68	-20.6	-40.5
440	55.3	338.84	17.85	35.75	19.55	67.80	-22.1	-42.5
460	55.04	319.15	16.57	36	19.04	68.79	-24.9	-44.6
480	55	316.23	15.66	36.07	18.93	72.12	-28.7	-46.9
500	54.78	300.61	14.67	37.44	17.34	73.18	-32.8	-46.8

Features

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

Applications

- 225-512MHz (ultra shortwave communication)
- 470-700MHz (TV UHF)

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}	+28	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, Pout=300W,CW Test	RθJC	0.27	°C/W

Table 3. ESD Protection Characteristics

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

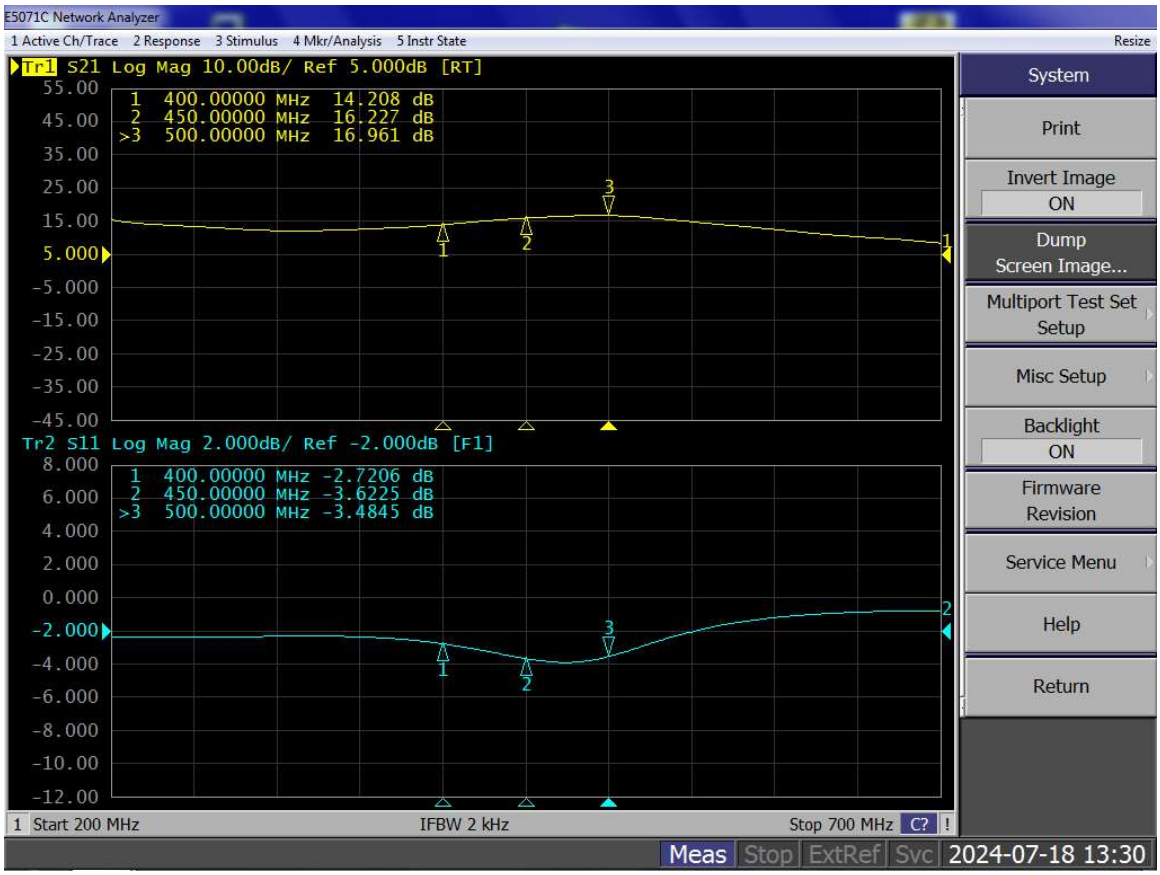
Table 4. Electrical Characteristics (T_A = 25 ℃ unless otherwise noted)

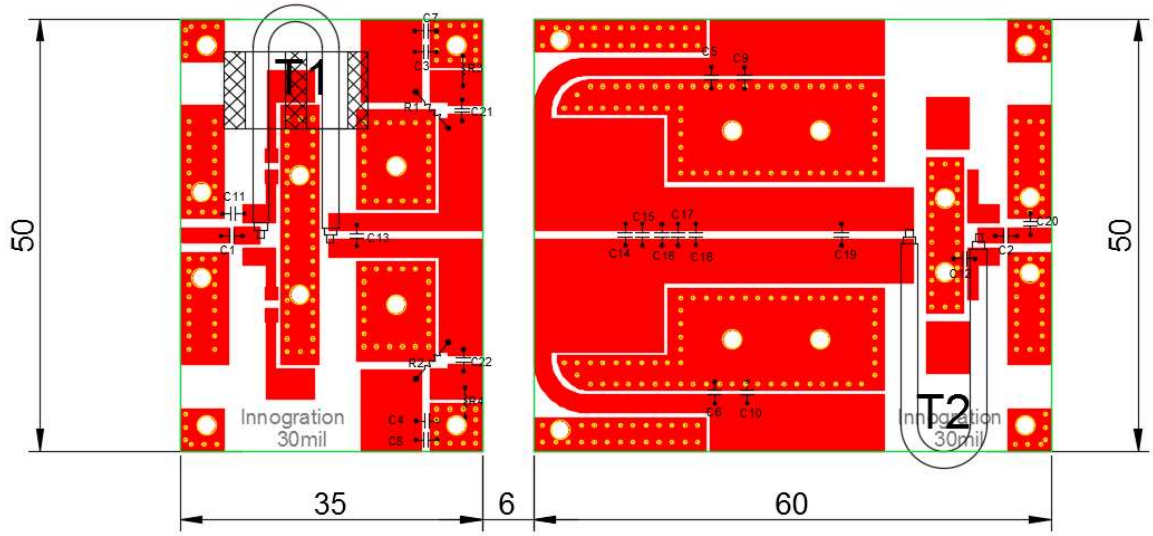
Characteristic	Symbol	Min	Typ	Max	Unit
DC Characteristics (per half section)					
Drain-Source Voltage V_{GS}=0, I_{DS}=1.0mA	$V_{(BR)DSS}$	65			V
Zero Gate Voltage Drain Leakage Current (V_{DS} = 75V, V_{GS} = 0 V)	I_{DSS}	——	——	1	μA
Zero Gate Voltage Drain Leakage Current (V_{DS} = 28 V, V_{GS} = 0 V)	I_{DSS}	——	——	1	μA
Gate--Source Leakage Current (V_{GS} = 10 V, V_{DS} = 0 V)	I_{GSS}	——	——	1	μA
Gate Threshold Voltage (V_{DS} = 28V, I_D = 400 μA)	$V_{GS(th)}$	——	2	——	V
Gate Quiescent Voltage (V_{DD} = 28V, I_D = 150 mA, Measured in Functional Test)	$V_{GS(Q)}$	——	2.4	——	V

Load Mismatch (In Innogration Test Fixture, 50 ohm system): V_{DD} =28Vdc, I_{DQ} = 150 mA, f = 500MHz

10:1, at 300W Pulsed CW	No Device Degradation

Figure 1： Network analyzer Output S11/S21

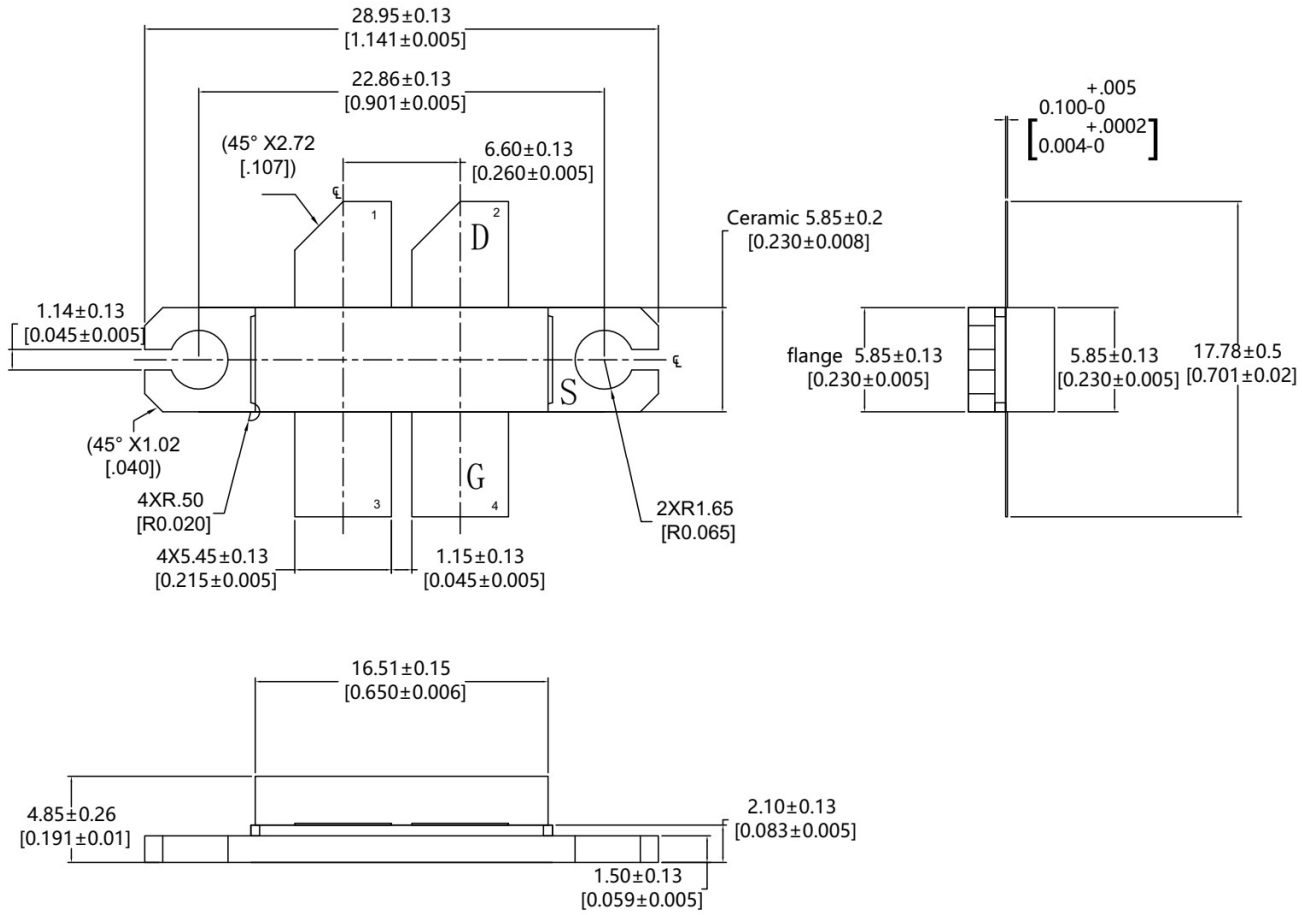




Component	Description	Suggestion
C1,C2	390pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ301111
C3~C6	1000pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ301111
C7~C11,C21,C22	10uF/100V	Ceramic Multilayer Capacitor
C12	1000pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ101111
C13	15pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ301111
C14,C20	2.4pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ301111
C15	8.2pF	DLC70B
C16	8.2pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ301111
C17	9.1pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ301111
C18	3.6pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ301111
C19	10pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ301111
R1,R2	200Ω/½W	Pulg-in Resistor
R3,R4	10Ω/1206	Chip Resistor
T1	RFSFBU-086-25 60mm BN-61-2402	
T2	SFXF-35-3 45mm	
PCB	30Mil Rogers4350	

Package Outline

Flanged ceramic package; 2 mounting holes; 4 leads



OUTLINE VERSION	REFERENCE			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
PKG-LB/LBB					05/21/2021

Revision history

Table 5. Document revision history

Date	Revision	Datasheet Status
2024/7/19	Rev 1.0	Product Datasheet Creation

Application data based on HL-24-29

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