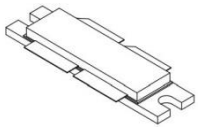
MQ1560GR LDMOS TRANSISTOR

Document Number: MQ1560GR
Preliminary Datasheet V1.0

600W, 28V High Power RF LDMOS FETs

MQ1560GR



Description

The MQ1560GR is a 600-watt capable, high performance, unmatched push pull LDMOS FET,for wide-band commercial and industrial applications with frequencies 200 to 600MHz. It can be used for both CW and pulse application or any other modulation signal.

It is featured for high power and high ruggedness, low thermal resistor, suitable for Industrial, Scientific and Medical application, as well as FM radio, VHF TV and mobile radio applications.

- Typical Performance at 28V (On Innogration 440MHz wideband fixture with device soldered):

MQ1560CR VGS=2.32V VDS=28V IDQ=200mA CW								
Freq (MHz)	Pout (dBm)	Pout (W)	IDS (A)	Pin (dBm)	Gain (dB)	Eff (%)	2nd (dBc)	3rd (dBc)
420	58.16	654.64	39.00	43.00	15.16	60	-44.0	-34.5
440	58.75	749.89	40.70	43.26	15.49	65	-46.9	-36.9
460	57.86	610.94	34.00	43.61	14.25	64	-45.7	-35.8

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

- 225-512MHz (ultra shortwave communication)
- VHF/UHF Power amplifier

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	0.1	°C/W

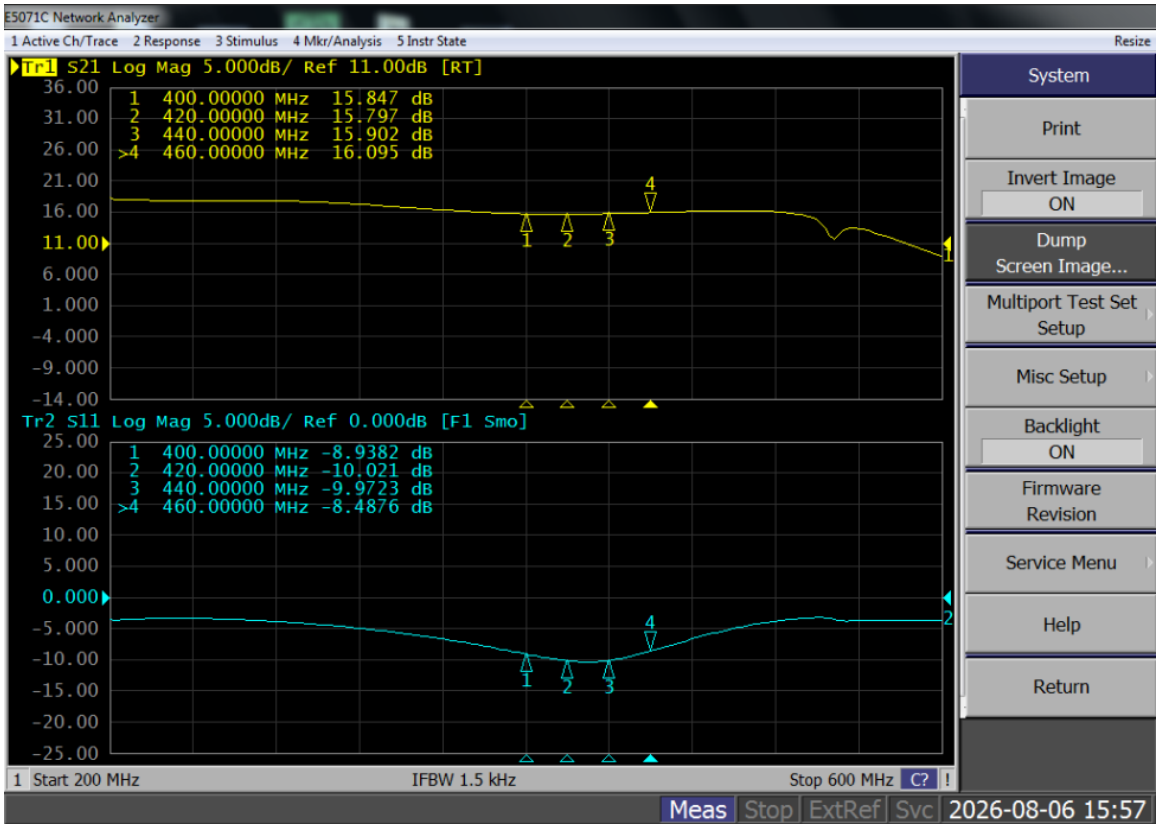
Table 3. ESD Protection Characteristics

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} = 65V, 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 = 800 μA)	$V_{GS(th)}$	——	2.2	——	V
Gate Quiescent Voltage (V_{DD} = 28 V, I_D = 200 mA, Measured in Functional Test)	$V_{GS(Q)}$	——	2.3	——	V

Typical Performance



Reference Circuit of Test Fixture Assembly Diagram

(Layout file upon request, 30mil RO4350)

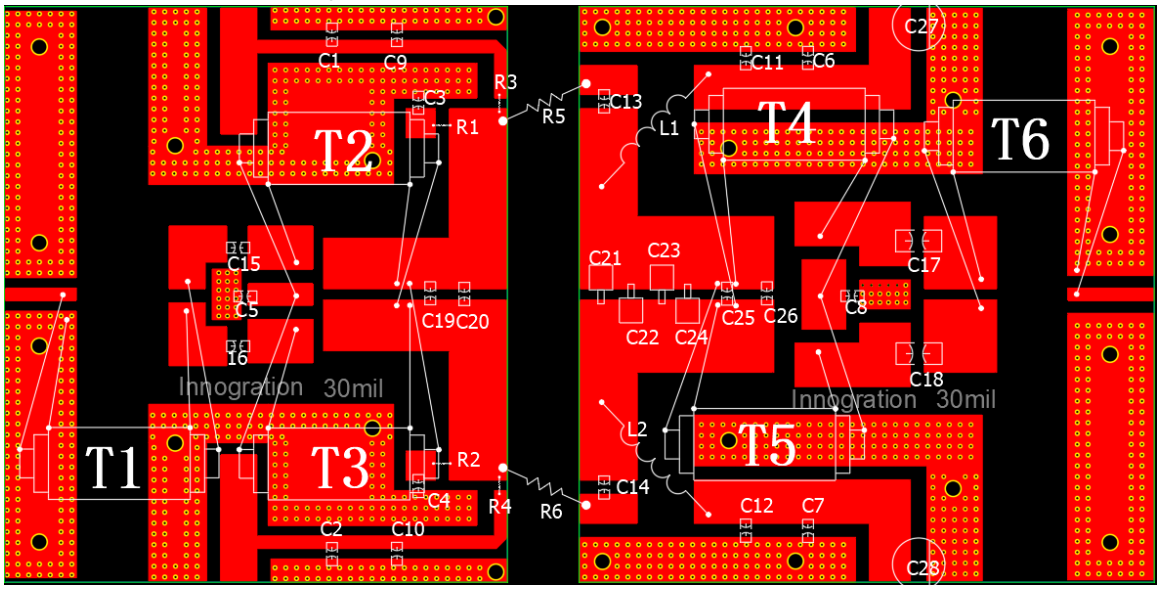
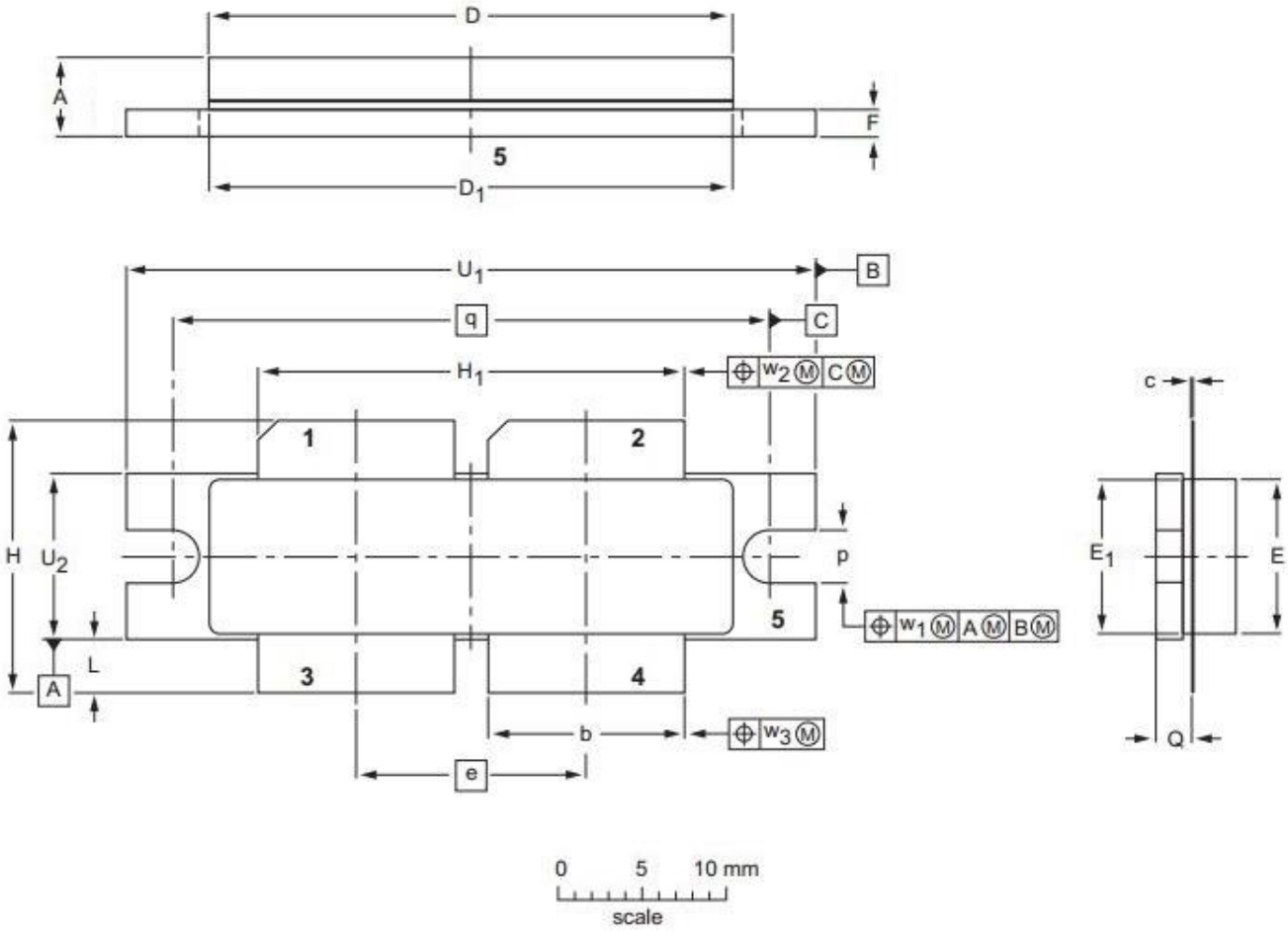


Table 5. Test Circuit Component Designations and Values

Component	Description	Suggested Manufacturer
C1~C8	10uF 1210	TDK
C9~C16	330pF MQ101111	
C17,C18	330pF MQ102525	
C19	12pF MQ301111	
C20	15pF MQ301111	
C21	18pF 300V	ShanXi Huamao
C22	15pF 300V	ShanXi Huamao
C23	10pF 300V	ShanXi Huamao
C24	36pF 300V	ShanXi Huamao
C25	2.4pF MQ101111	
C26	8.2pF MQ101111	
C27,C28	4700uF / 63V	
R1,R2	51Ω 2512	/
R3,R4	18Ω 1206	/
R5,R6	200Ω	TYT
L1,L2	3mm wire，8mm inner diameter, 1Turn	DIY
T1	50ohm 70mm RFSFBU-086-50	/
T2,T3	12.5ohm 70mm SFF-12.5-1.5	/
T4,T5	12.5ohm 70mm SFF-12.5-3	/
T6	25ohm 70mm SFF-25-3	/
PCB	Rogers 4350B 30mil	

Package Outline

Flanged ceramic package; 2 mounting holes; 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	p	Q	q	U_1	U_2	W_1	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	3.30 3.05	2.26 2.01	35.56	41.28 41.02	10.29 10.03	0.25	0.51	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	0.130 0.120	0.089 0.079	1.400	1.625 1.615	0.405 0.395	0.01	0.02	0.01

OUTLINE VERSION	REFERENCE			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
PKG-D4E					03/12/2013

Revision history

Table 5. Document revision history

Date	Revision	Datasheet Status
2026/8/6	Rev 1.0	Preliminary Datasheet

Application data based on HL-26-30

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