

MQ1552GRS LDMOS TRANSISTOR

Document Number: MQ1552GRS
Product Datasheet V1.0

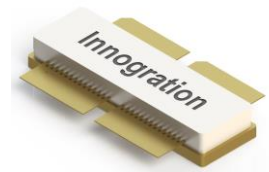
150W, 13.6V High Power RF LDMOS FETs

Description

The MQ1552GRS is a 150-watt capable, highly rugged, unmatched, push pull LDMOS FET, designed for wide-band commercial and industrial applications with frequencies HF up to 100MHz.

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

MQ1552GRS



MQ1552GRS ^{V0} VGS=2.53V VDS=13.6V IDQ=450mA CW								
Freq (MHz)	Pout (dBm)	Pout (W)	IDS (A)	Pin (dBm)	Gain (dB)	Eff(%)	2 nd (dBc)	3 rd (dBc)
8	50.27	106.4	10.22	35.20	15.07	76.56	-35.30	-9.40
10	50.70	117.5	10.49	35.10	15.60	82.35	-35.30	-11.10
15	51.00	125.9	10.95	34.00	17.00	84.54	-38.10	-13.30
20	51.42	138.7	12.37	33.90	17.52	82.43	-40.00	-12.10
25	51.17	130.9	12.22	33.63	17.54	78.78	-39.60	-8.30
30	52.12	162.9	16.00	33.53	18.59	74.88	-32.10	-31.10

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

Suitable Applications

- 2-30MHz (HF or Short wave communication)
- 30-88MHz (Ground communication)
- 54-88MHz (TV VHF I)
- 136-174MHz (Commercial ground communication)
- 88-108MHz (FM)

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}	+24	Vdc
Storage Temperature Range	T _{stg}	-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
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Thermal Resistance, Junction to Case $T_C = 85^{\circ}\text{C}$, $P_{out}=150\text{W}$, CW Test	$R_{\theta JC}$	0.15	$^{\circ}\text{C/W}$
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Table 3. ESD Protection Characteristics

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

Table 4. Electrical Characteristics ($T_A = 25^{\circ}\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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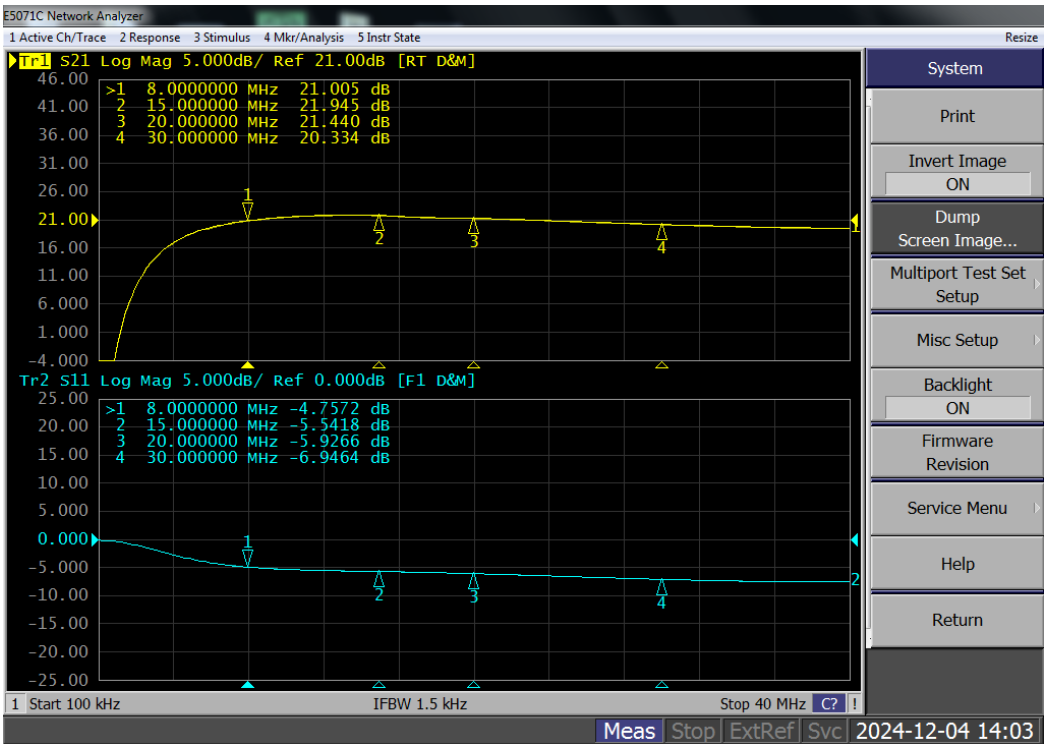
DC Characteristics (per half section)

Drain-Source Voltage $V_{GS}=0$, $I_{DS}=1.0\text{mA}$	$V_{(BR)DSS}$	65			V
Zero Gate Voltage Drain Leakage Current ($V_{DS} = 75\text{V}$, $V_{GS} = 0\text{V}$)	I_{DSS}	—	—	1	μA
Zero Gate Voltage Drain Leakage Current ($V_{DS} = 28\text{V}$, $V_{GS} = 0\text{V}$)	I_{DSS}	—	—	1	μA
Gate--Source Leakage Current ($V_{GS} = 10\text{V}$, $V_{DS} = 0\text{V}$)	I_{GSS}	—	—	1	μA
Gate Threshold Voltage ($V_{DS} = 13.6\text{V}$, $I_D = 400\mu\text{A}$)	$V_{GS(th)}$	—	2	—	V
Gate Quiescent Voltage ($V_{DD} = 13.6\text{V}$, $I_D = 450\text{mA}$, Measured in Functional Test)	$V_{GS(Q)}$	—	2.5	—	V

Load Mismatch (In Innogration Test Fixture, 50 ohm system): $V_{DD} = 13.6\text{Vdc}$, $I_{DQ} = 450\text{mA}$, $f = 80\text{MHz}$

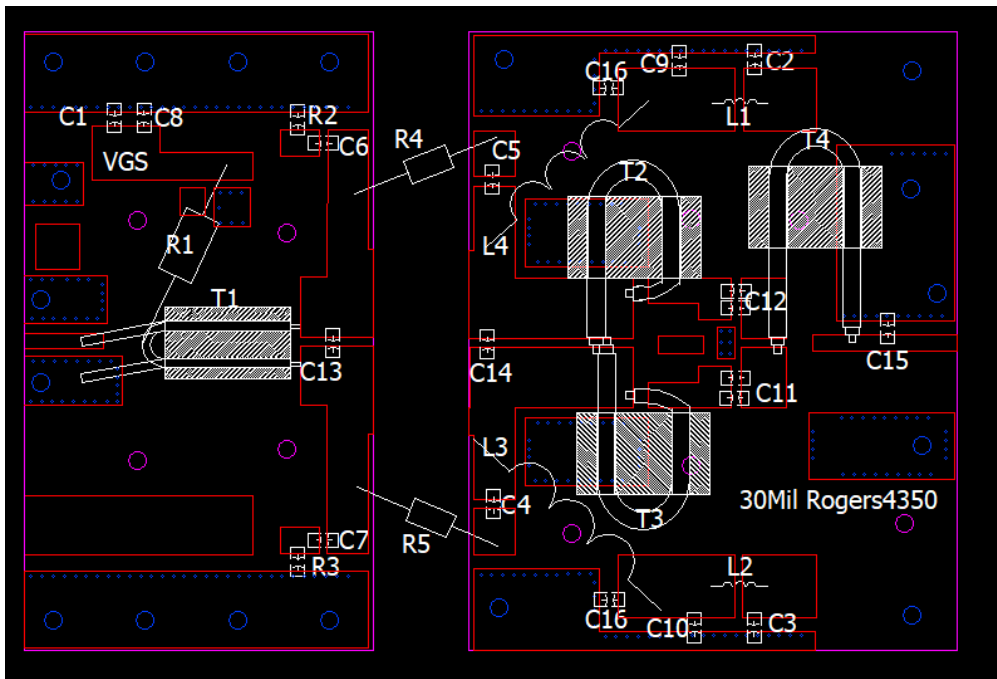
Load open and short, at 150W CW	No Device Degradation
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Figure 1: Network analyzer Output S11/S21



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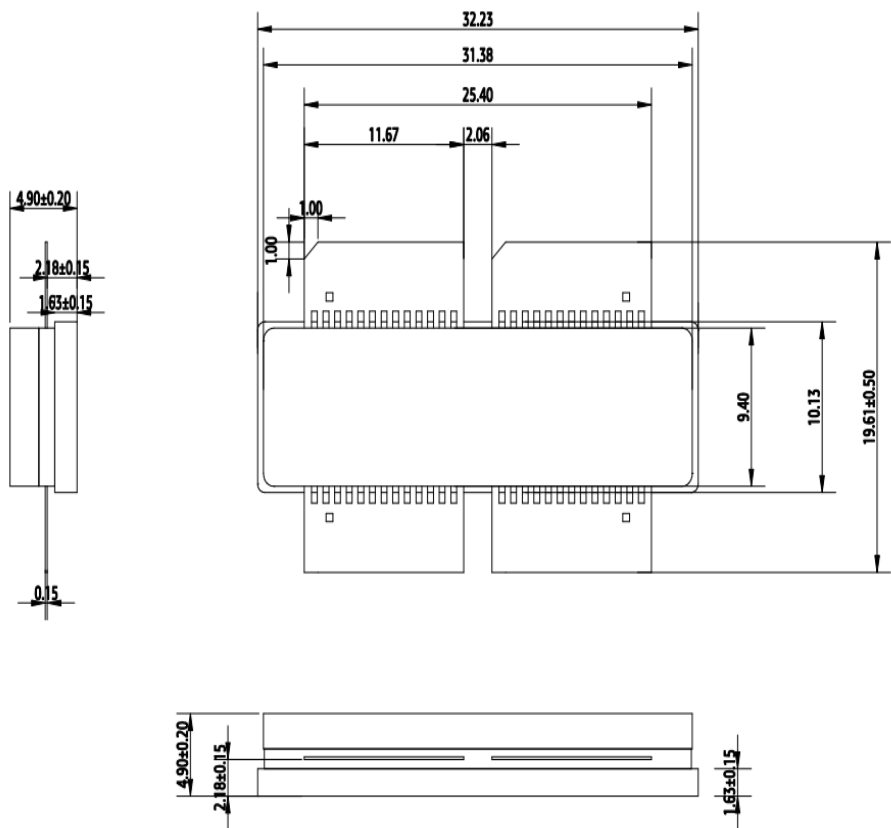


Component	Description	Suggestion
C1~C3,C6,C7	10uF/200V-1210	Ceramic multilayer capacitor
C4,C5,C8,C11,C12	10nF/200V-1812	Ceramic multilayer capacitor
C9,C10	100pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ101111
C13	82pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ101111
C14	47pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ101111
C15	10pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ101111
C16	39pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ101111
L1,L2	1mm wire, 3mm innerdiameter, 7turns	DIY
L3,L4	1mm wire, 3mm innerdiameter, 4turns	DIY
T1	4:1	BN-61-202
T2,T3	12.5ohm, 450mm	SFF-12.5-1.5;FT-140-43
T4	25ohm, 450mm.	SFF-25-1.5;FT-140-43
R1,R4,R5	330 Ω -3w	Color ring resistance
R2,R3	51 Ω *2	Chip Resistor

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Earless Flanged Plastic Air Cavity Package; 4 leads



Unit:mm

Tolerance $\pm 0.10\text{mm}$, Except as Noted.

Revision history

Table 5. Document revision history

Date	Revision	Datasheet Status
2024/12/5	Rev 1.0	Product Datasheet Creation

Application data based on TC-24-35

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