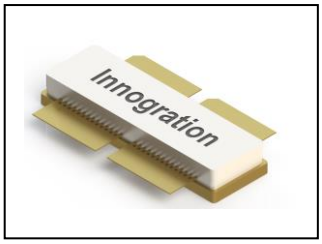
MQ1061VPS LDMOS TRANSISTOR

Document Number: MQ1061VPS
Preliminary Datasheet V1.0

600W, UHF band 50V High Power RF LDMOS FETs



Description

The MQ1061VPS is a 600W capable, Input/Output matched LDMOS FET, designed for commercial and industrial applications within UHF band up to 1GHz, supporting both pulse and CW applications upon bandwidth trade off. **In typical 700-910M full band tuning, it can reach >600W pulsed CW power**

There isn't guarantee when this device is used outside of the band stated above.

- Typical RF performance within 700-910MHz with device soldered

MQ1061VPS^{V0} VGS=3.10V VDS=50V IDQ=190mA pulse 100us 10%						
Freq (MHz)	**Psat (dBm)**	**Psat (W)**	**IDS (A)**	**Pin (dBm)**	**Gain (dB)**	**Eff(%)**
700	58.35	683.9	2.60	44.10	14.25	56.76
750	58.33	680.8	2.50	44.06	14.27	58.94
800	58.30	676.1	2.50	44.64	13.66	58.54
850	58.28	673.0	2.57	44.56	13.72	56.55
910	58.04	636.8	2.21	44.77	13.27	63.05

2 variants package available,

- **CPC V0(released version by default)**
- **Cu-Diamond V1 (upon request for potential wider pulse or higher duty cycle)**

Features

- High breakdown voltage enable high ruggedness
- High Efficiency and Linear Gain Operations
- Integrated ESD Protection
- Large Positive and Negative Gate/Source Voltage Range for Improved Class C Operation
- Excellent thermal stability, low HCI drift
- Compliant to Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DSS}	110	Vdc
Gate--Source Voltage	V_{GS}	-10 to +10	Vdc
Operating Voltage	V_{DD}	+55	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 ,Case Temperature 25°C, 50Vdc, DC test	$R_{\theta JC}$	0.18	°C/W

Table 3. ESD Protection Characteristics

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

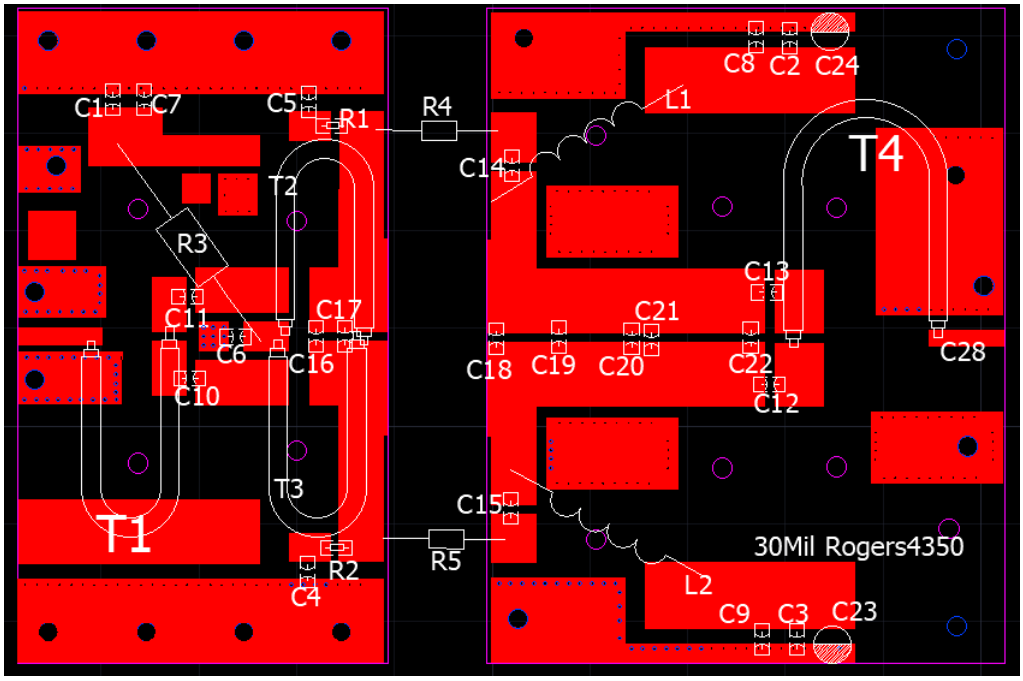
Table 4. Electrical Characteristics (TA = 25 ℃ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
DC Characteristics					
Drain-Source Voltage V_{GS}=0V, I_{DS}=1.0mA	$V_{(BR)DSS}$		110		V
Zero Gate Voltage Drain Leakage Current (V_{DS} = 50V, 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} = 50V, I_D = 600 μA)	$V_{GS(th)}$	——	2.54	——	V
Gate Quiescent Voltage (V_{DD} = 50 V, I_D = 1000 mA, Measured in Functional Test)	$V_{GS(Q)}$	——	3.8	——	V

700-910MHz

Reference Circuit of Test Fixture

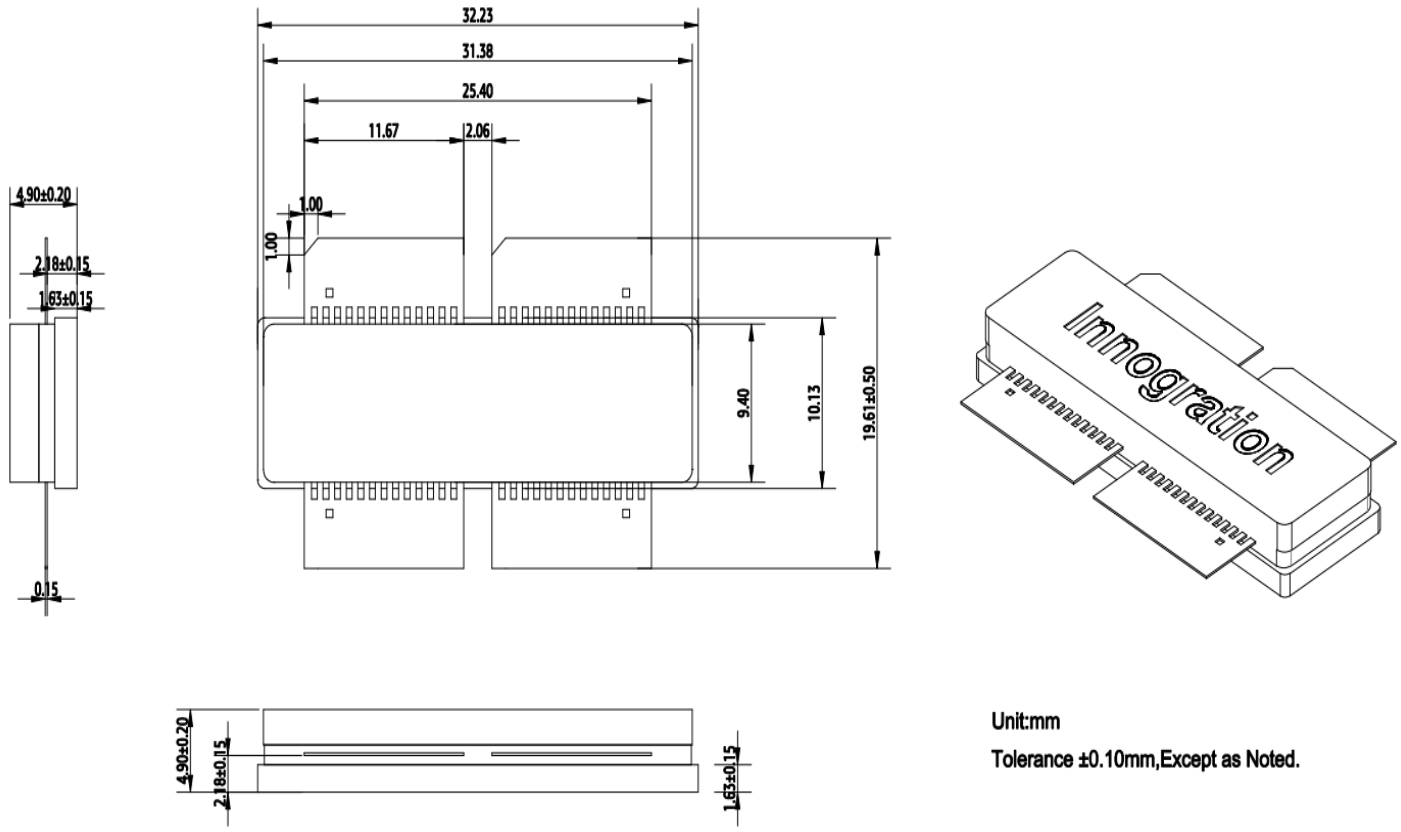
(Layout file upon request) PCB: Roger 4350B, 30mils



Component	Description	Suggestion
C1~C6	10uF/200V-1210	Ceramic multilayer capacitor
C14,C15	10nF/200V-1210	Ceramic multilayer capacitor
C7~C9	470pF	
C10,C11	47pF	
C12,C13	75pF	
C16，C18	5.6pF	
C17	7.5pF	
C19	6.2pF	
C20	3.6pF	
C21	1pF	
C22	2.2pF	
C23,C24	4700uF	electrolytic capacitor
R1,R2	10Ω/1206	Chip Resistor
R3	300Ω	color ring resistor
R4,R5	200Ω	RFT-200
T1	45 ohm-40mm	RFSFBU-086-50
T2,T3	16.7 ohm-40mm	SFF-16.7-1.5
T4	35 ohm-50mm	SFF-35-3
L1,L2	1.5mm wire ， 5mm inner diameter，2Turns	DIY

Package Outline

Earless Flanged Plastic Air Cavity Package; 4 leads



Revision history

Table 5. Document revision history

Date	Revision	Datasheet Status
2026/6/8	Rev 1.0	Preliminary Datasheet with package D4C V0

Application data based on TC-26-20

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