

MQ161K0VP LDMOS TRANSISTOR

Document Number: MQ161K0VP
Preliminary Datasheet V1.0

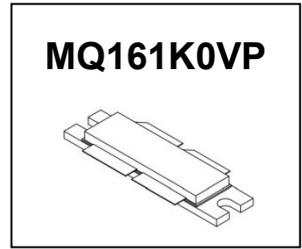
1000W, 50V L band pulsed RF LDMOS FETs

Description

The MQ161K0VP is a 1000W, high performance, internally matched LDMOS FET, designed for any applications with frequencies 1.3 to 1.6GHz.

It is featured for high power and high ruggedness.

It is recommended to use this device under pulse condition only



- Typical Pulse Performance (on innogration wide band test fixture with device soldered):
Vds = 50 V, Idq = 100 mA, TA = 25 °C, 1.3GHz

Pulsed CW conditions	Pin(dBm)	Pout(dBm)	Pout(W)	Ids(A)	Gain(dB)	Eff(%)
8us,5%	49.54	61.32	1355	2.6	11.8	52
20us,20%	48.61	60.38	1100	8.6	11.8	51

Features

- High Efficiency and Linear Gain Operations
- Integrated ESD Protection
- Internally Matched for Ease of Use
- 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}	115	Vdc
Gate--Source Voltage	V _{GS}	-10 to +10	Vdc
Operating Voltage	V _{DD}	+55	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
Thermal Resistance, Junction to Case,Case Temperature 80°C, 1000W Pout, Pulse width: 8us, duty cycle: 5%, Vds=50 V, IdQ = 100 mA	R _{θJC}	0.02	°C/W

Table 3. ESD Protection Characteristics

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

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

Characteristic	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	115			V

DC Characteristics

MQ161K0VP LDMOS TRANSISTOR

Document Number: MQ161K0VP
Preliminary Datasheet V1.0

($V_{GS}=0V$; $I_D=100\mu A$)				
Zero Gate Voltage Drain Leakage Current ($V_{DS} = 50 V$, $V_{GS} = 0 V$)	I_{DSS}		10	μA
Gate--Source Leakage Current ($V_{GS} = 6 V$, $V_{DS} = 0 V$)	I_{GSS}		1	μA
Gate Threshold Voltage ($V_{DS} = 50V$, $I_D = 600 \mu A$)	$V_{GS(th)}$		1.6	V
Gate Quiescent Voltage ($V_{DD} = 50 V$, $I_{DQ} = 100 mA$, Measured in Functional Test)	$V_{GS(Q)}$		3	V

Reference Circuit of Test Fixture (Layout file upon request) PCB: Roger 4350B, 20mils

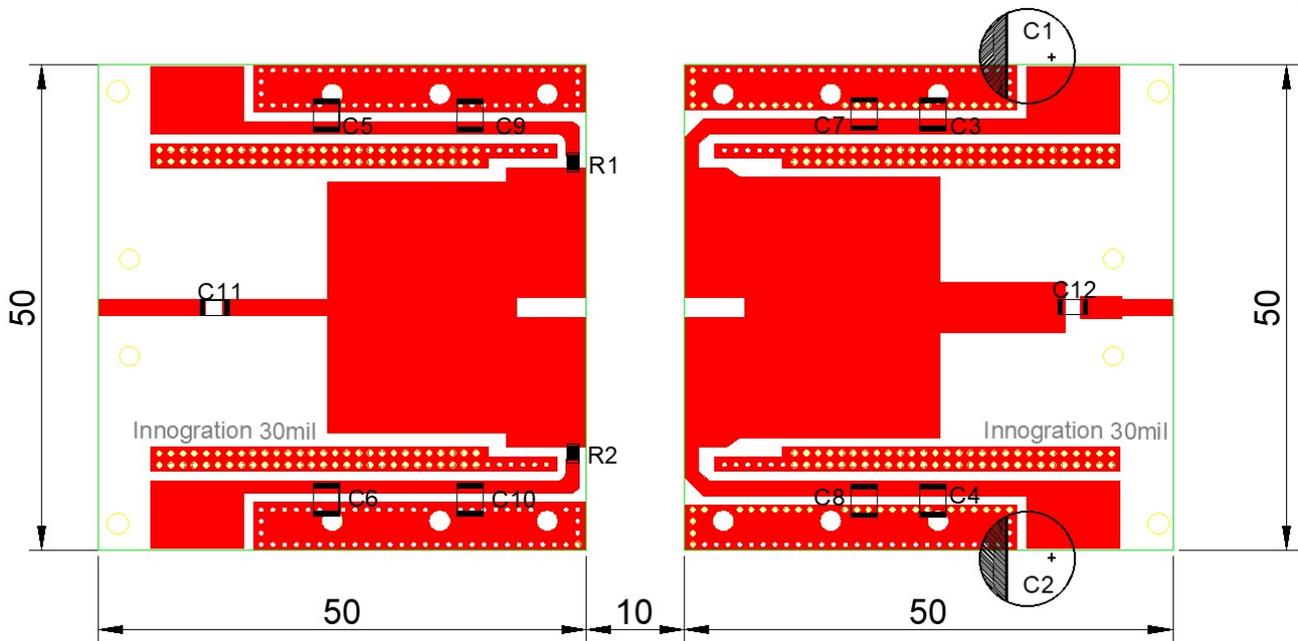


Figure 1. Test Circuit Component Layout

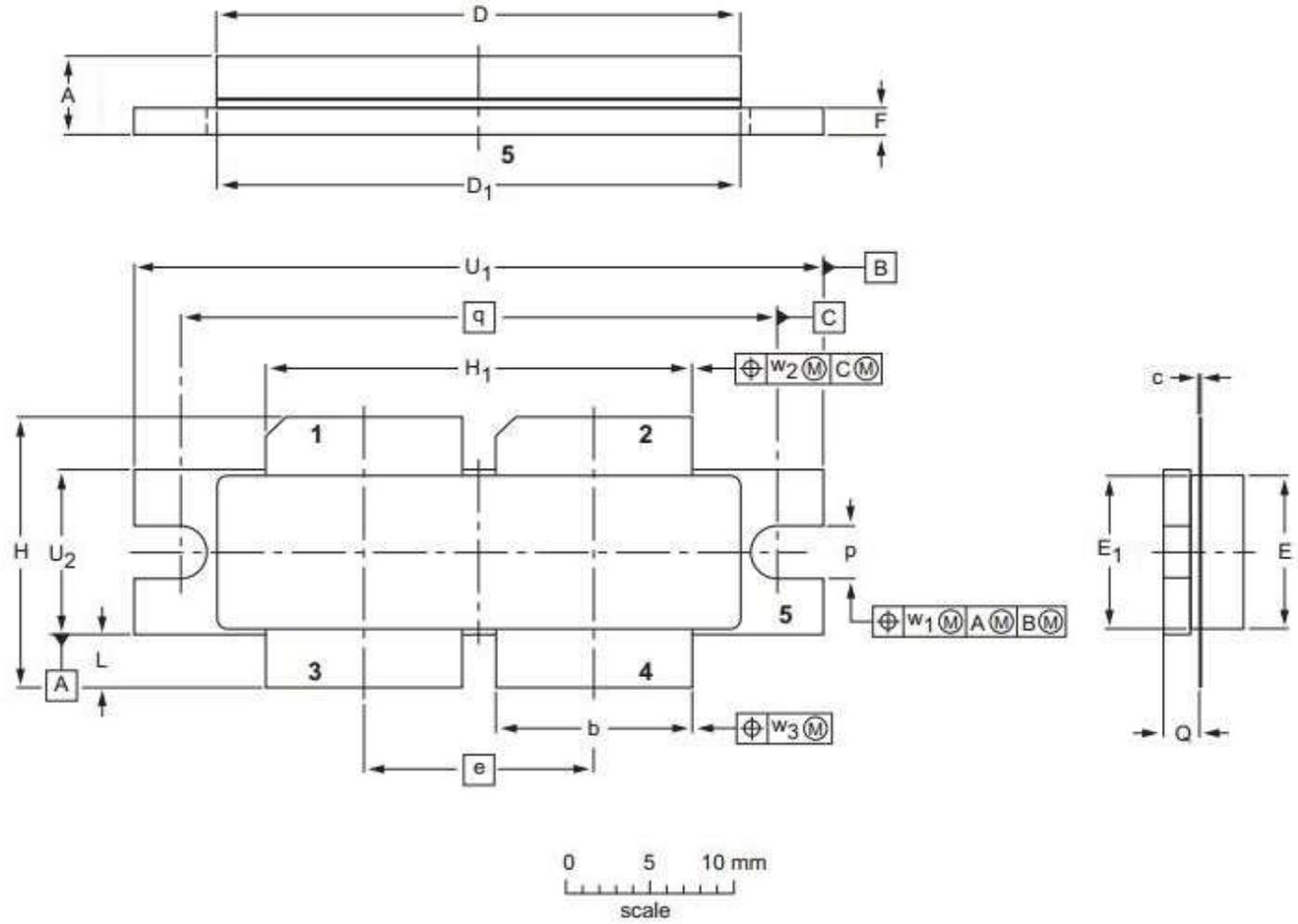
Component	Description	Suggestion
C1,C2	2200uF/63V	
C3,C4,C5,C6	10uF	1210
C7,C8,C9,C10,C11,C12	33pF	ATC 800B
R1,R2,	Chip Resistor, 10Ω	0805
PCB	30 mil Rogers 4350B	

MQ161K0VP LDMOS TRANSISTOR

Document Number: MQ161K0VP
Preliminary Datasheet V1.0

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 ₃
Mm	4.7	11.81	0.18	31.55	31.52	13.72	9.50	9.53	1.75	17.12	25.53	3.48	3.30	2.26	35.56	41.28	10.29	0.25	0.51	0.25
	4.2	11.56	0.10	30.94	30.96		9.30	9.27	1.50	16.10	25.27	2.97	3.05	2.01		41.02	10.03			
Inches	0.185	0.465	0.007	1.242	1.241	0.540	0.374	0.375	0.069	0.674	1.005	0.137	0.130	0.089	1.400	1.625	0.405	0.01	0.02	0.01
	0.165	0.455	0.004	1.218	1.219		0.366	0.365	0.059	0.634	0.995	0.117	0.120	0.079		1.615	0.395			

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

MQ161K0VP LDMOS TRANSISTOR

Document Number: MQ161K0VP
Preliminary Datasheet V1.0

Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2023/12/2	Rev 1.0	Preliminary Datasheet Creation

Application data based on RXT-23-47

Disclaimers

Specifications are subject to change without notice. Innogration believes the information contained within this data sheet to be accurate and reliable. However, no responsibility is assumed by Innogration for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Innogration. Innogration makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose. "Typical" parameters are the average values expected by Innogration in large quantities and are provided for information purposes only. These values can and do vary in different applications and actual performance can vary over time. All operating parameters should be validated by customer's technical experts for each application. Innogration products are not designed, intended or authorized for use as components in applications intended for surgical implant into the body or to support or sustain life, in applications in which the failure of the Innogration product could result in personal injury or death or in applications for planning, construction, maintenance or direct operation of a nuclear facility. For any concerns or questions related to terms or conditions, pls check with Innogration and authorized distributors

Copyright © by Innogration (Suzhou) Co.,Ltd.