

MK2215S LDMOS TRANSISTOR

Document Number: MK2215S
Preliminary Datasheet V1.0

1800-2200MHz, 150W, 28V High Power RF LDMOS FETs

Description

The MK2215S is a 150-watt, internally matched LDMOS FETs, designed for wideband applications with frequencies at 1800 to 2200MHz.

It can be used in Class AB/B and Class C for all pulsed and CW formats.



• Typical Performance (on wideband board with device soldered):

Freq(MHz)	Pout(dBm)	Pout(W)	IDS(A)	Pin(dBm)	Gain(dB)	Eff(%)	2nd(dBc)
1800	52.43	175.0	11.4	42.82	9.61	54.82	27
1850	52.99	199.1	12.5	42.74	10.25	56.88	30.6
1900	53.19	208.4	12.7	42.96	10.23	58.62	28
1950	52.96	197.7	12.3	42.01	10.95	57.40	25.6
2000	53.07	202.8	12.5	41.99	11.08	57.93	24.3
2050	53	200	12.5	42.21	10.79	57.01	24.1
2100	53.04	201.4	12.6	42.92	10.12	57.08	25.6
2150	52.81	191.0	12.1	42.68	10.13	56.37	25
2200	52.11	162.6	11.2	42.5	9.61	51.84	28.8

Features

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

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DS}	65	Vdc
Gate--Source Voltage	V_{GS}	-10 to +10	Vdc
Operating Voltage	V_{DD}	+32	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, DC Test	$R_{\theta JC}$	0.35	°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
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DC Characteristics

Zero Gate Voltage Drain Leakage Current (VDS = 65V, VGS = 0 V)	I_{loss}			100	μA
Zero Gate Voltage Drain Leakage Current (VDS = 28 V, VGS = 0 V)	I_{loss}			1	μA
Gate--Source Leakage Current (VGS = 6 V, VDS = 0 V)	I_{gss}			1	μA
Gate Threshold Voltage (VDS =28V, ID = 300 μA)	$V_{GS(th)}$		2		V
Gate Quiescent Voltage (VDD = 32 V, ID = 200 mA, Measured in Functional Test)	$V_{GS(Q)}$		2.58		V

Load Mismatch (In Innogration Test Fixture, 50 ohm system): $V_{DD} = 28Vdc$, $I_{DQ} = 200 mA$, $f = 2200 MHz$

VSWR 5:1 at 150W Pulsed CW Output Power	No Device Degradation
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TYPICAL CHARACTERISTICS

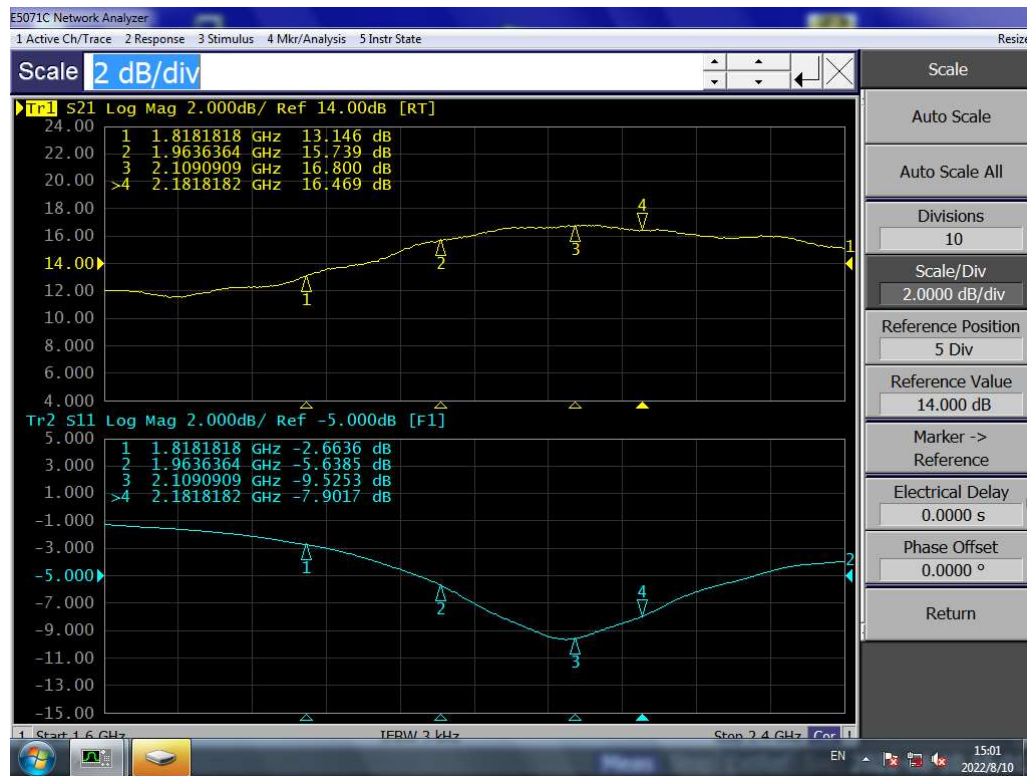
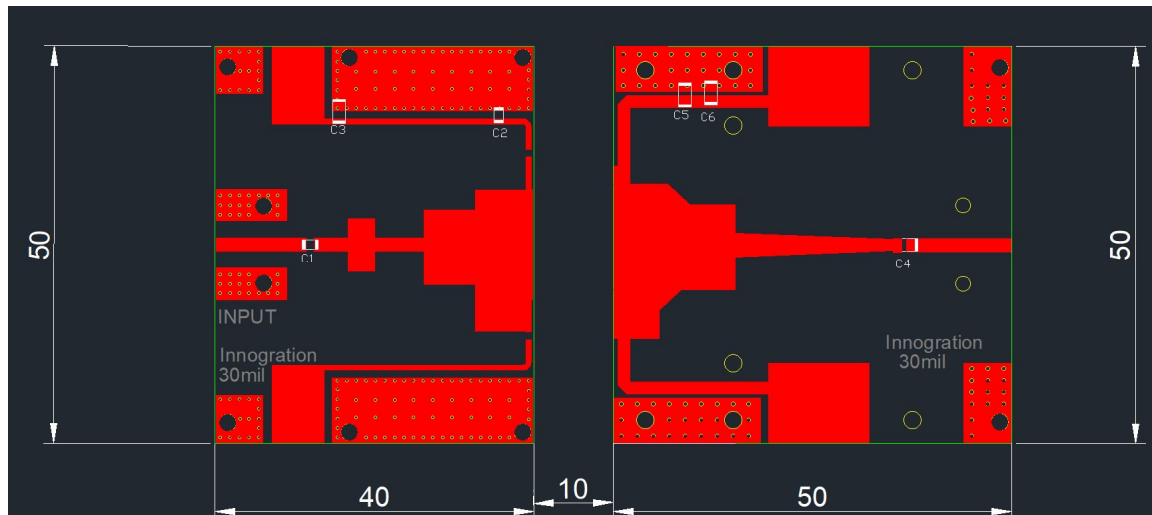


Figure 1. Network analyzer output S11/S21, Idq=1.5A, Vds=28V

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Reference Circuit of Test Fixture Assembly Diagram (Layout file upon request)



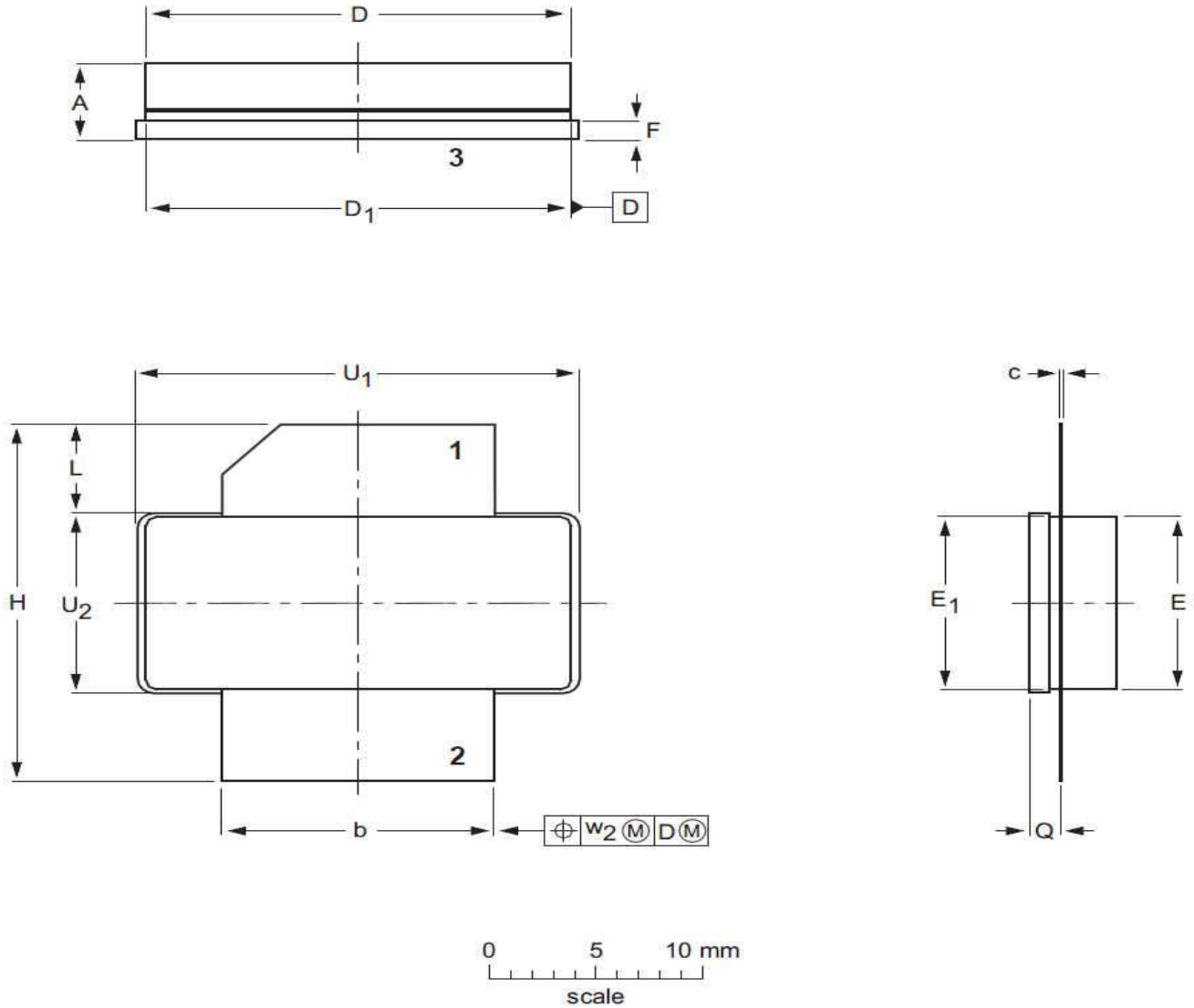
Component	Description	Suggested Manufacturer
C1、C2	47PF MQ200805	Beijing YN
C4	39pF MQ300709C0G2H390JNVB	Beijing YN
C3、C6	10UF 1210	
PCB	30mil Rogers4350B	

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Package Outline

Earless flanged ceramic package; 2 leads



UNIT	A	b	c	D	D ₁	E	E ₁	F	H	L	Q	U ₁	U ₂	W ₂
mm	4.72	12.83	0.15	20.02	19.96	9.50	9.53	1.14	19.94	5.33	1.70	20.70	9.91	0.25
	3.43	12.57	0.08	19.61	19.66	9.30	9.25	0.89	18.92	4.32	1.45	20.45	9.65	
inches	0.186	0.505	0.006	0.788	0.786	0.374	0.375	0.045	0.785	0.210	0.067	0.815	0.390	0.010
	0.135	0.495	0.003	0.772	0.774	0.366	0.364	0.035	0.745	0.170	0.057	0.805	0.380	

OUTLINE VERSION	REFERENCE			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
PKG-B2					03/12/2013

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Revision history

Table 5. Document revision history

Date	Revision	Datasheet Status
2022/8/10	Rev 1.0	Preliminary Datasheet Creation

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