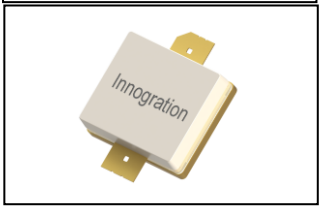
75W,12.5V High Power RF LDMOS FETs

ITGH05250A2C



Description

The ITGH05250A2C is a 75watt, highly rugged, unmatched LDMOS FET, designed for commercial and industrial applications within HF/VHF. It can be used in linear or saturated power amplifier, for CW and pulsed signal, and any modulation format.

Mounted on additional eared flange, it can be drop-in replacement of legacy Mitsubishi's RD70HVF1C

- Typical HF CW Performance (On Innogration fixture with device soldered).

Idq=1000mA， CW, 30MHz

Voltage (V)	Pin (dBm)	Pout (dBm)	Pout (W)	ID (A)	Gain (dB)	Eff (%)	2nd	3rd
12.5	24.3	48.95	79	8.00	24.7	78.5	-12.10	-36.60
13.6	24.3	49.62	92	8.64	25.3	78.0		

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

- HF to VHF Land mobile radio (LMR)
- ISM applications

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	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	0.5	°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}=0, I_{DS}=100uA	$V_{(BR)DSS}$		65		V
Zero Gate Voltage Drain Leakage Current (V_{DS} = 13.6V, V_{GS} = 0 V)	I_{DSS}	——	——	1	μA
Gate--Source Leakage Current (V_{GS} = 9 V, V_{DS} = 0 V)	I_{GSS}	——	——	1	μA
Gate Threshold Voltage (V_{DS} = 13.6V, I_D = 600 μA)	$V_{GS(th)}$	——	2	——	V
Gate Quiescent Voltage (V_{DD} = 13.6V, I_D = 1000mA, Measured in Functional Test)	$V_{GS(Q)}$	——	2.67	——	V

Load Mismatch (In Innogration Test Fixture, 50 ohm system): V_{DD} = 12.5Vdc, I_{DQ} = 1000 mA, f = 175 MHz

VSWR 65:1 at 75W pulse CW Output Power	No Device Degradation

30MHz

Reference Circuit of Test Fixture Assembly Diagram

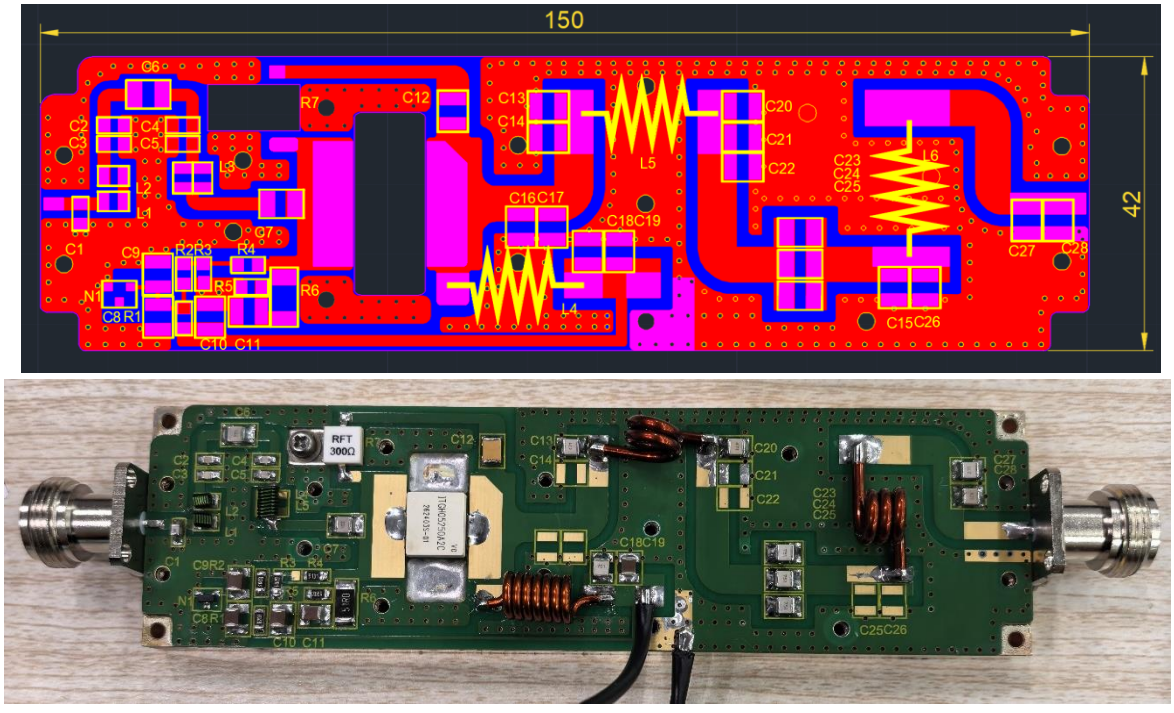


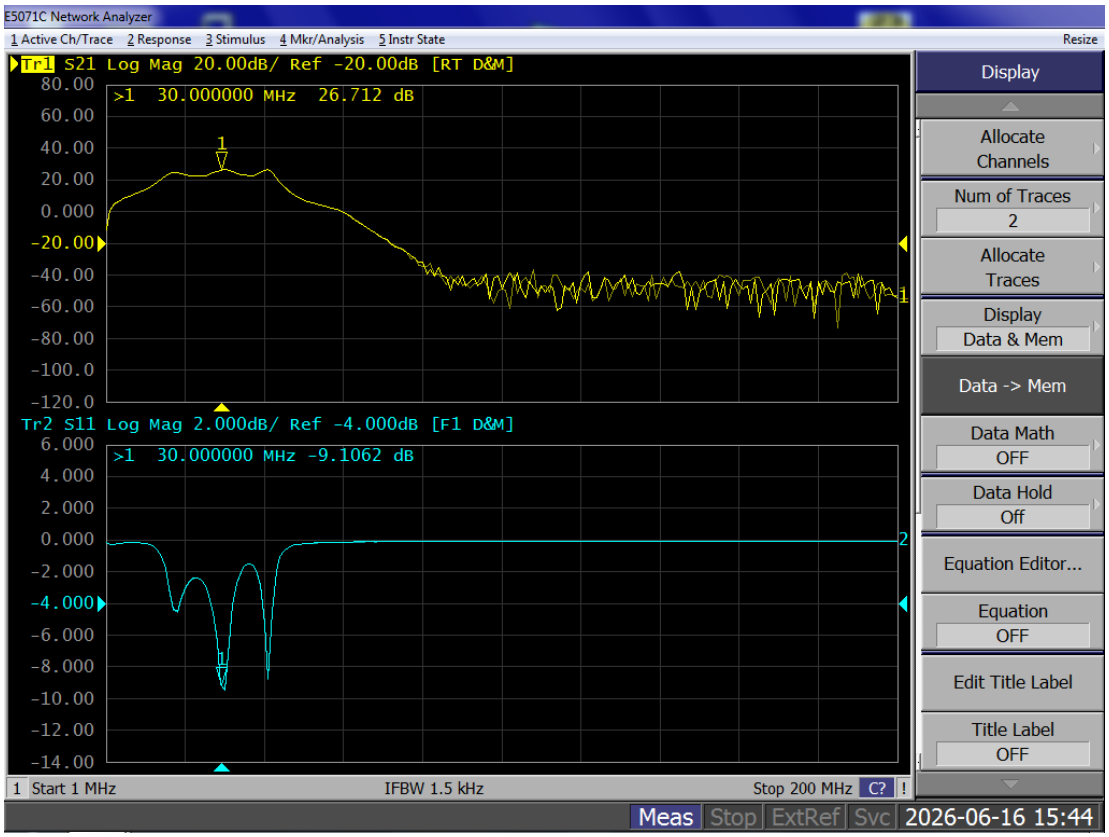
Figure 1. Test Circuit Component Layout

Table 5. Test Circuit Component Designations and Values

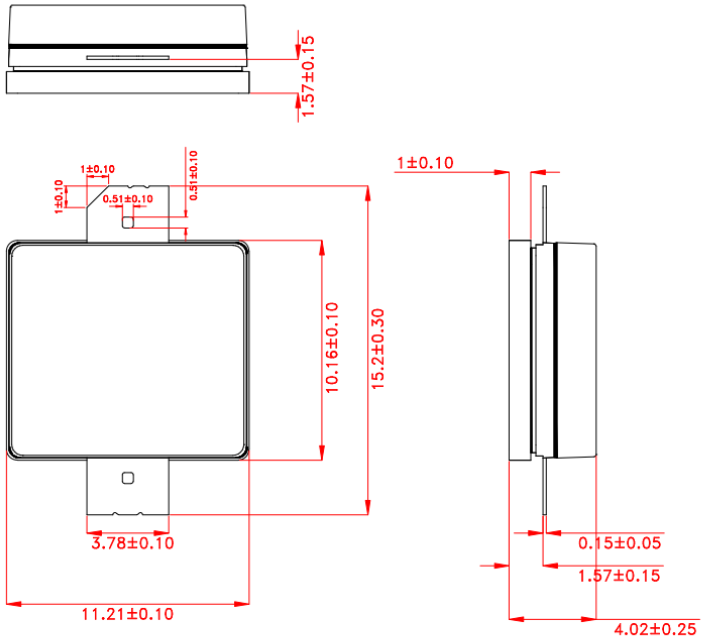
Component	Description	Suggested Manufacturer
C1	480pF MQ400805	
C2~C3	100pF MQ400805	
C4~C5,C18	120pF MQ400805	
C6~C7	1000pF MQ301111	

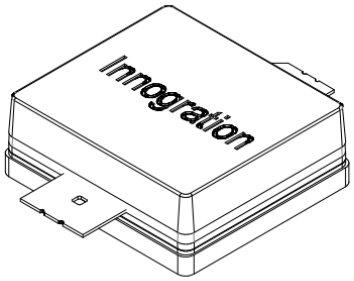
C23~C25	750pF MQ301111	
C12	10nF 1210	
C8~C11,C1,C19	10uF 1210	
C14~C17,C21,C22,,C26	NC	
C13,C20	470pF MQ101111	
C28	82pF MQ101111	
C27	270pF MQ101111	
L1	43nH 1515SQ-82NGEC	///
L2	43nH 1515SQ-82NGEC	//
L3	82nH 1515SQ-82NGEC	///
L5	2mm wire ， 6mm inner diameter, 2Turns	DIY
L6	2mm wire ， 5mm inner diameter, 3Turns	DIY
L4	1.5mm wire ， 5mm inner diameter, 7Turns	DIY
R1,R2	8.2KΩ， 1206	///
R4	9.1KΩ， 1206	///
R3	6.2KΩ， 1206	///
R5	56KΩ， 1206	///
R6	51Ω， 2512	///

Figure 2: Network analyzer output S21/S11



Package Dimensions





Unit:mm

Tolerance ±0.10mm,Except as Noted.

Revision history

Table 7. Document revision history

Date	Revision	Datasheet Status
2026/6/16	Rev 1.0	Preliminary Datasheet

Application data based on SYX-26-34

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