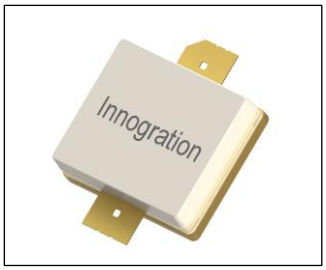
150W,UHF 28V RF LDMOS Transistor



Description

The ITGH09150A2C is 150-watt, high performance, Input matched LDMOS transistor, designed for any general applications at frequencies within UHF band, particularly 915MHz, in new generation highly cost effective open cavity package.

- Typical 915MHz Class AB CW RF Performance (On Innogration fixture with device soldered).

V_{DS} = 28V, I_{DQ} = 5mA

Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff(%)	P1dB Gain(dB)	P3dB (dBm)	P3dB (W)	P3dB Eff(%)
915	51.1	128.8	70.6	16.51	51.89	154.4	74.0

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

- UHF band power amplifier
- 915MHz ISM

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}	+28	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, DC test, **device soldered on heatsink directly**	$R_{\theta JC}$	0.45	°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 DC Characteristics					
Drain-Source Voltage V_{GS}=0, I_{DS}=100uA	$V_{(BR)DSS}$		65		V

Zero Gate Voltage Drain Leakage Current (V_{DS} = 28V, V_{GS} = 0 V)	I_{DSS}	——	——	1	μA
Gate--Source Leakage Current (V_{GS} = 11 V, V_{DS} = 0 V)	I_{GSS}	——	——	1	μA
Gate Threshold Voltage (V_{DS} = 28V, I_D = 600 μA)	$V_{GS(th)}$	——	2	——	V
Gate Quiescent Voltage (V_{DD} = 28V, I_D = 500mA, Measured in Functional Test)	$V_{GS(Q)}$	——	2.7	——	V

Load Mismatch (In Innogration Test Fixture, 50 ohm system): V_{DD} = 28Vdc, I_{DQ} = 500 mA, f = 9150 MHz

VSWR 10:1 at 150W pulse CW Output Power	No Device Degradation

915MHz application board

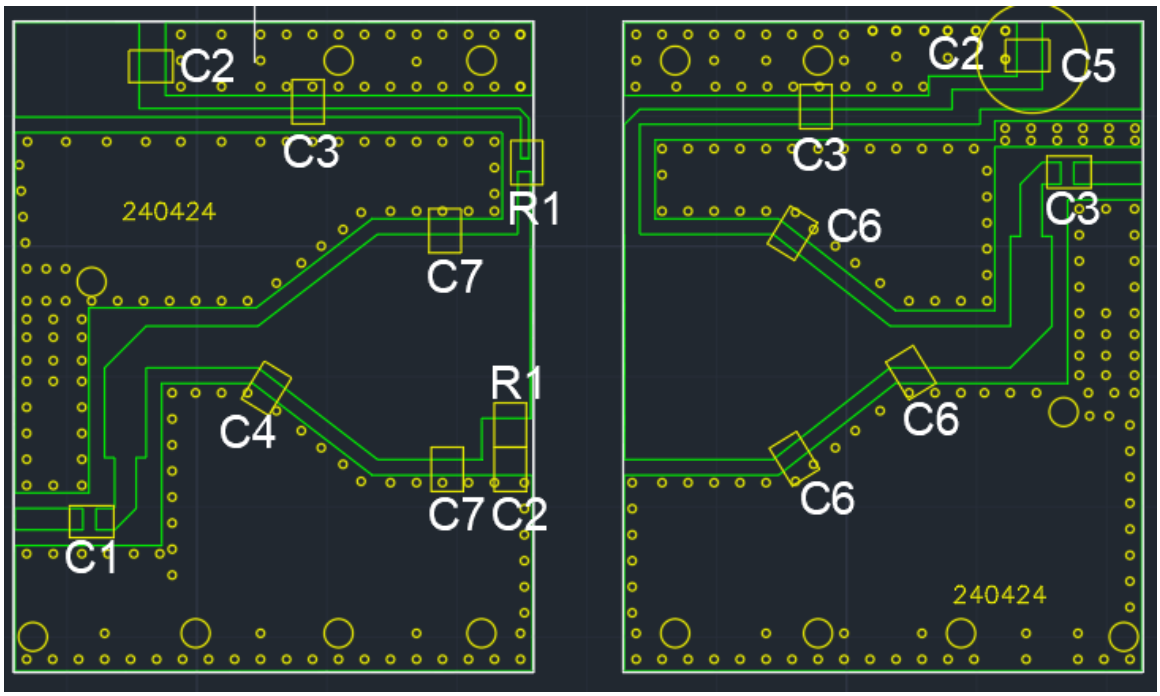


Figure 2. Test Circuit Component Layout, 30mils RO4350B

BOM		
Component	**Value**	**Quantity**
C1	3.9pF	1
C2	10uF	3
R1	10 ohm	2
C5	470uF	1
C3	47pF	3
C4	1pF	1
C6	5.6pF	3
C7	4.3pF	2

TYPICAL CHARACTERISTICS

Figure 3. Power Gain and Drain Efficiency as function of Power Output

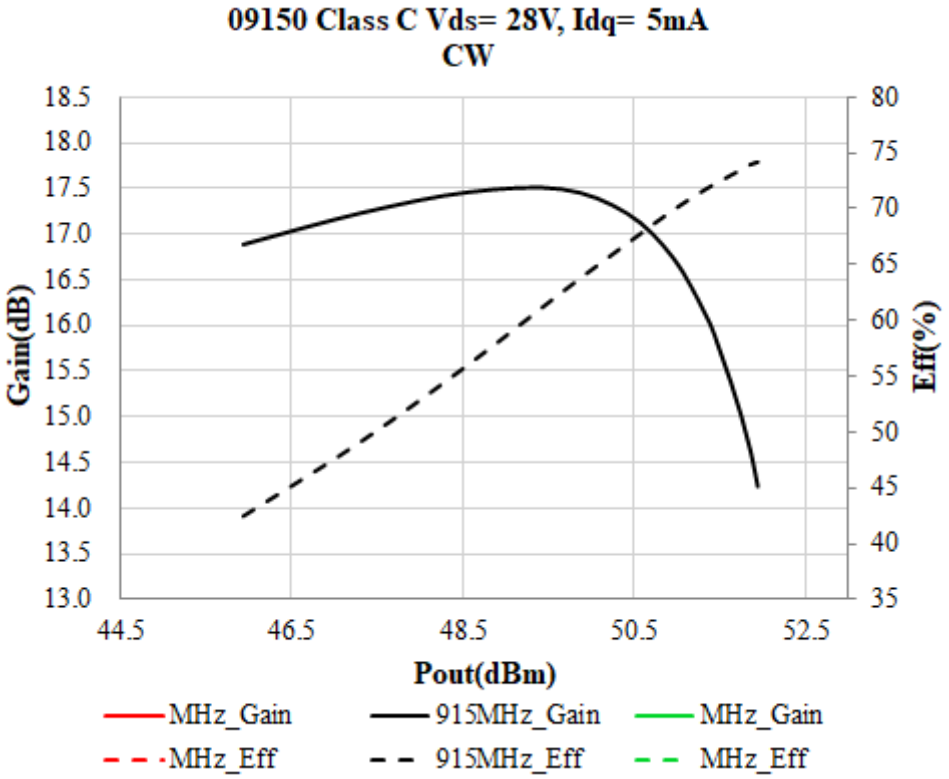
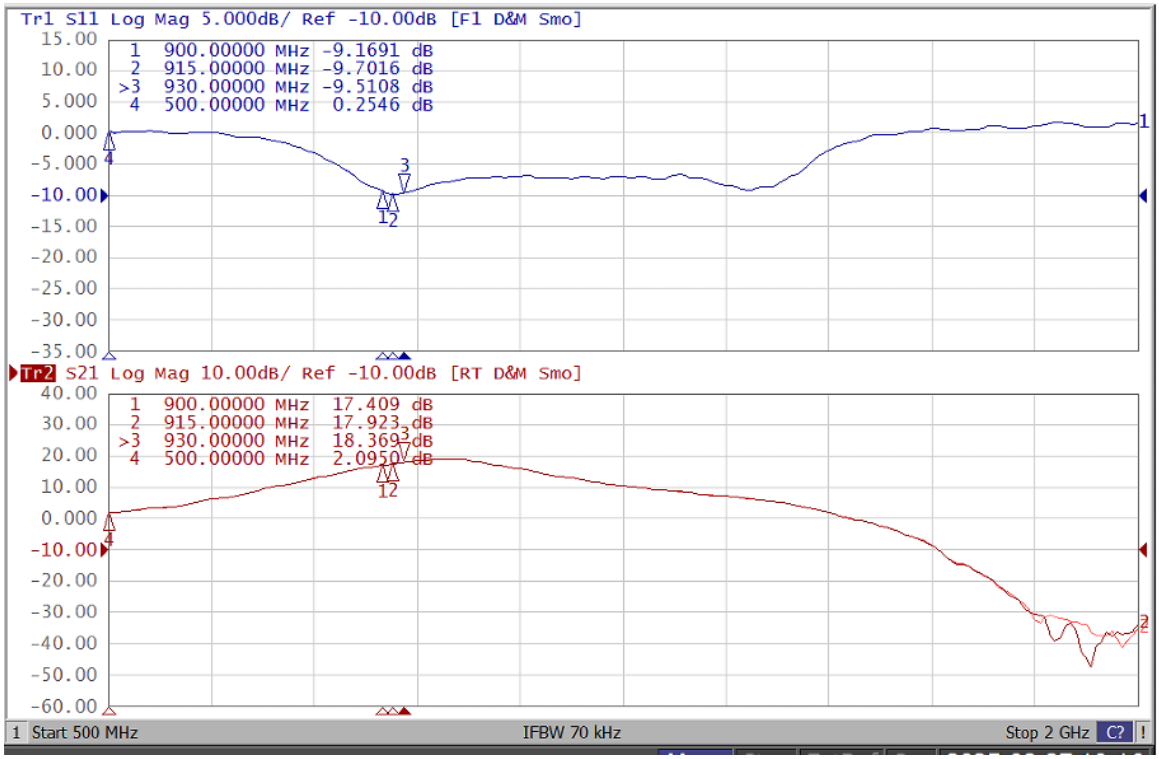
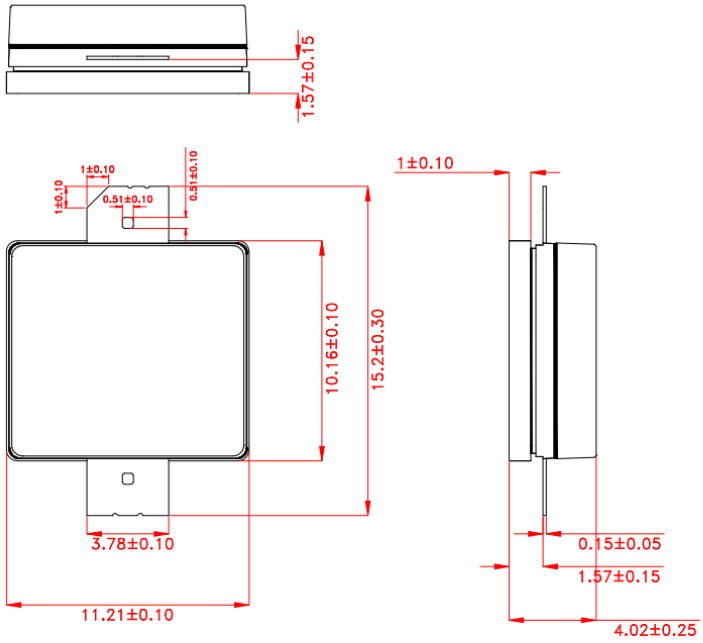
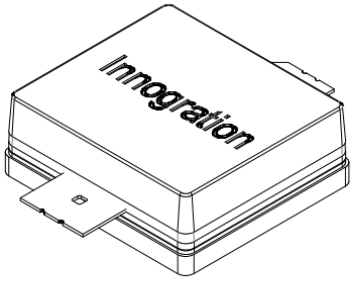


Figure 4： Network analyzer Output S11/S21 (Vds=28V, Idq=500mA)



Package Dimensions





Unit:mm

Tolerance ±0.10mm,Except as Noted.

Revision history

Table 7. Document revision history

Date	Revision	Datasheet Status
2025/8/27	Rev 1.0	Preliminary Datasheet

Application data based on ZXY-25-11

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