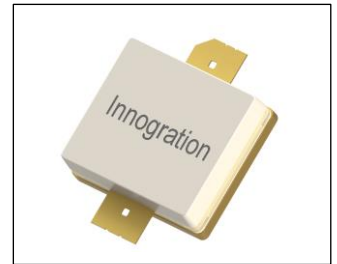




# 100W,28V RF LDMOS Transistor

## Description

The ITGH15100A2C is 100-watt, high performance, Input matched LDMOS transistor, designed for any general applications at frequencies from UHF up to 1.5GHz, in new generation highly cost effective open cavity package.



- Typical 1.4GHz Class AB RF Performance (On Innegration fixture with device soldered).  
V<sub>ds</sub>=28V, I<sub>dq</sub>=100mA

Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff (%)	P1dB Gain (dB)	P3dB (dBm)	P3dB (W)	P3dB Eff (%)
1400	49.6	91	62.0	17	50.33	108	64

## 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

- P band power amplifier
- L band power amplifier

**Table 1. Maximum Ratings**

Rating	Symbol	Value	Unit
Drain--Source Voltage	V <sub>DSS</sub>	+65	Vdc
Gate--Source Voltage	V <sub>GS</sub>	-10 to +10	Vdc
Operating Voltage	V <sub>DD</sub>	+28	Vdc
Storage Temperature Range	T <sub>stg</sub>	-65 to +150	°C
Case Operating Temperature	T <sub>c</sub>	+150	°C
Operating Junction Temperature	T <sub>j</sub>	+225	°C

**Table 2. Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case T <sub>c</sub> = 85°C, DC test, <b>device soldered on heatsink directly</b>	R <sub>θJC</sub>	0.6	°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 DC Characteristics

Drain-Source Voltage V <sub>GS</sub> =0, I <sub>DS</sub> =100uA	V <sub>(BR)DSS</sub>		65		V
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Zero Gate Voltage Drain Leakage Current ( $V_{DS} = 28V, V_{GS} = 0V$ )	$I_{loss}$	—	—	1	$\mu A$
Gate--Source Leakage Current ( $V_{GS} = 11V, V_{DS} = 0V$ )	$I_{loss}$	—	—	1	$\mu A$
Gate Threshold Voltage ( $V_{DS} = 28V, I_D = 600\mu A$ )	$V_{GS(th)}$	—	2	—	V
Gate Quiescent Voltage ( $V_{DD} = 28V, I_D = 600mA$ , Measured in Functional Test)	$V_{GS(Q)}$	—	2.7	—	V

**Load Mismatch (In Innegration Test Fixture, 50 ohm system):**  $V_{DD} = 28Vdc, I_{DQ} = 600mA, f = 1400MHz$

VSWR 10:1 at 100W pulse CW Output Power	No Device Degradation
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### 1400MHz application board

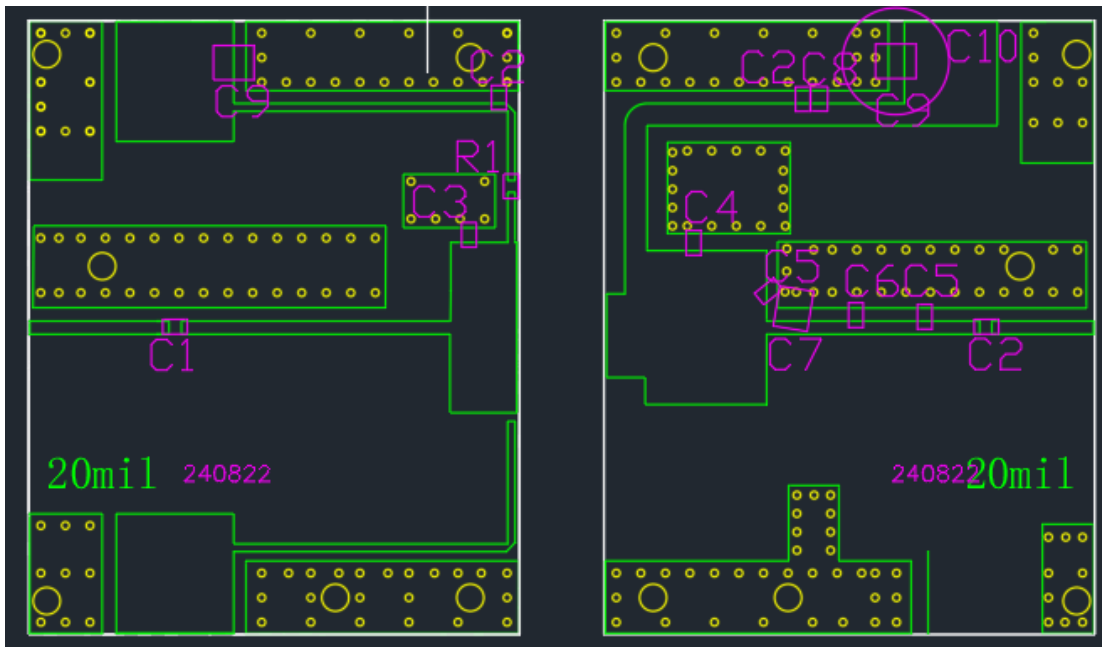


Figure 2. Test Circuit Component Layout, 20mils RO4350B

Table 5. Test Circuit Component Designations and Values

Component	Value	Quantity
C1	3pF	1
C2	30pF	3
R1	10 ohm	1
C9	10uF	2
C3	5.6pF	1
C4	4.7pF	1
C5	0.1pF	2
C6	0.2pF	1
C10	470uF	1
C7	1.5 pF	1
C8	1uF	1



**TYPICAL CHARACTERISTICS**

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

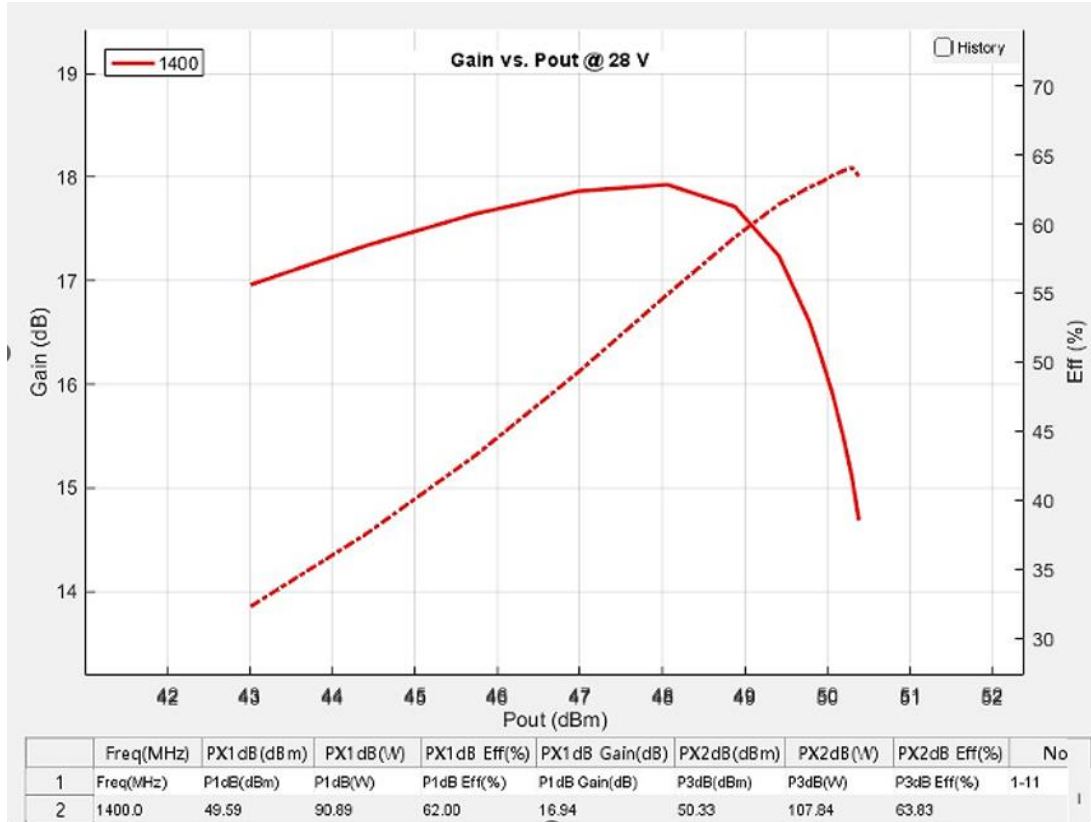
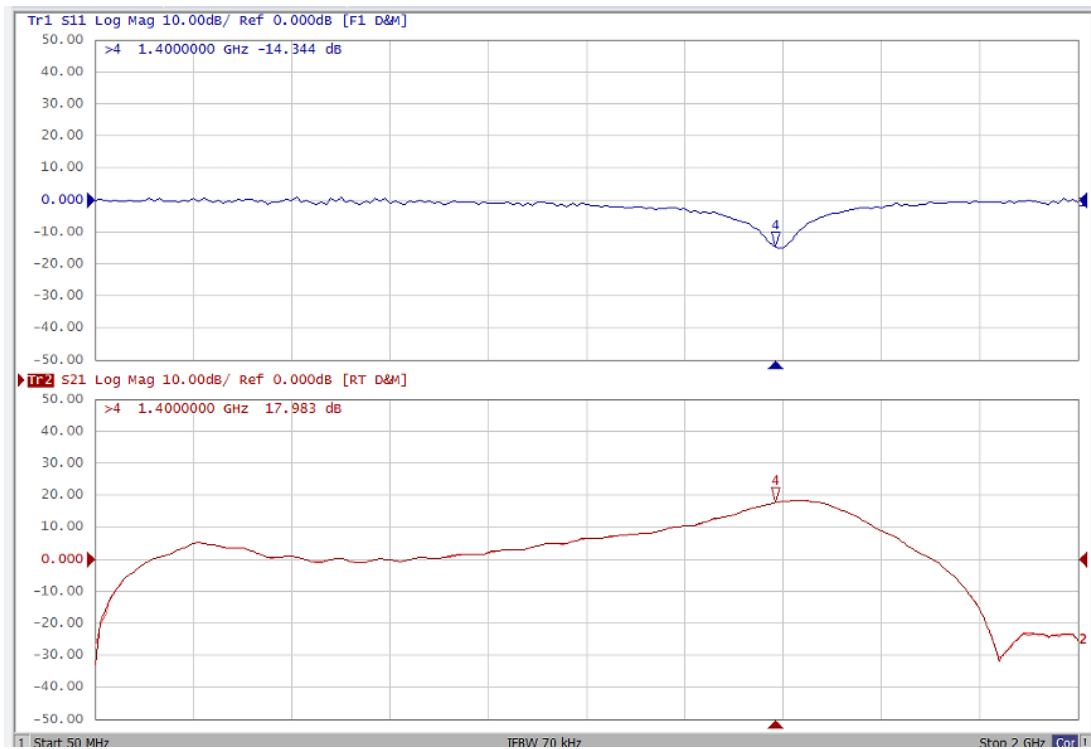
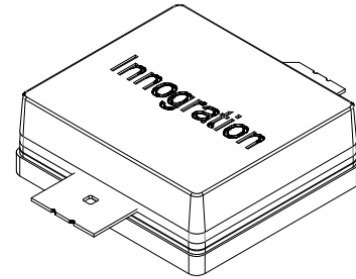
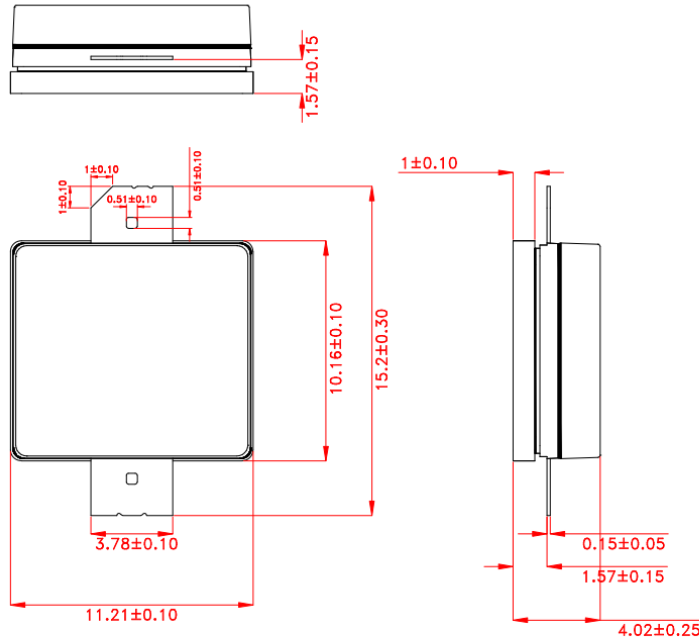


Figure 4: Network analyzer Output S11/S21





### Package Dimensions



Unit:mm

Tolerance ±0.10mm,Except as Noted.

### Revision history

Table 7. Document revision history

Date	Revision	Datasheet Status
2024/9/23	Rev 1.0	Preliminary Datasheet

Application data based on ZXY-24-32

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