



35W,28V Plastic RF LDMOS Transistor

ITEH27035C6

Description

The ITEH27035C6 is a 35-watt, highly rugged, LDMOS transistor, designed for any general applications at frequencies within 2.4 to 2.5GHz, in 10*6mm QFN plastic package, supporting surface mounted on PCB through high density grounding vias.

• Typical 2.4-2.5GHz Class AB RF Performance (On Innegration fixture with device soldered).

VDS=28V, Idq=10mA



Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff (%)	P1dB Gain (dB)	P3dB (dBm)	P3dB (W)	P3dB Eff (%)
2400	45.32	34.1	55.7	17.48	46.12	40.9	57.6
2450	45.01	31.7	55.6	17.37	45.84	38.4	57.5
2500	44.59	28.8	55.1	16.54	45.55	35.9	57.5

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

Suitable Applications

- Broadcast and Industrial, Scientific and Medical applications in the frequency range from 2.4 to 2.5GHz

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	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 T _c = 85°C, T _j =200°C, DC test	R _{θJC}	0.65	°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

Drain-Source Voltage V _{GS} =0, I _{DS} =100uA	V _{(BR)DSS}		65		V
Zero Gate Voltage Drain Leakage Current	I _{oss}	—	—	1	μA



($V_{DS} = 28V, V_{GS} = 0V$)					
Gate--Source Leakage Current ($V_{GS} = 11V, V_{DS} = 0V$)	I_{GSS}	---	---	1	μA
Gate Threshold Voltage ($V_{DS} = 28V, I_D = 600\mu A$)	$V_{GS(th)}$	---	2	---	V
Gate Quiescent Voltage ($V_{DD} = 28V, I_D = 10mA$, Measured in Functional Test)	$V_{GS(Q)}$	---	2.5	---	V

Load Mismatch (In Innogrations Test Fixture, 50 ohm system): $V_{DD} = 28Vdc, I_{DQ} = 10mA, f = 2500MHz$

VSWR 10:1 at 35W pulse CW Output Power	No Device Degradation
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Figure 1: Pin Definition (Top View)



Pin No.	Symbol	Description
8,9,10,11,14,15,16,17	Vgs/RF In	Vgs and RF input
26,27,28,29,32,33,34,35	Vds/RF out	Vds and RF output
2,5,7,12,13,18,20,23,25,30,31,36	GND	DC/RF Ground
Others	NC	No connection
Package Base	GND	DC/RF Ground.

Reference Circuit of Test Fixture Assembly Diagram
2400-2500MHz RO4350B 20mils

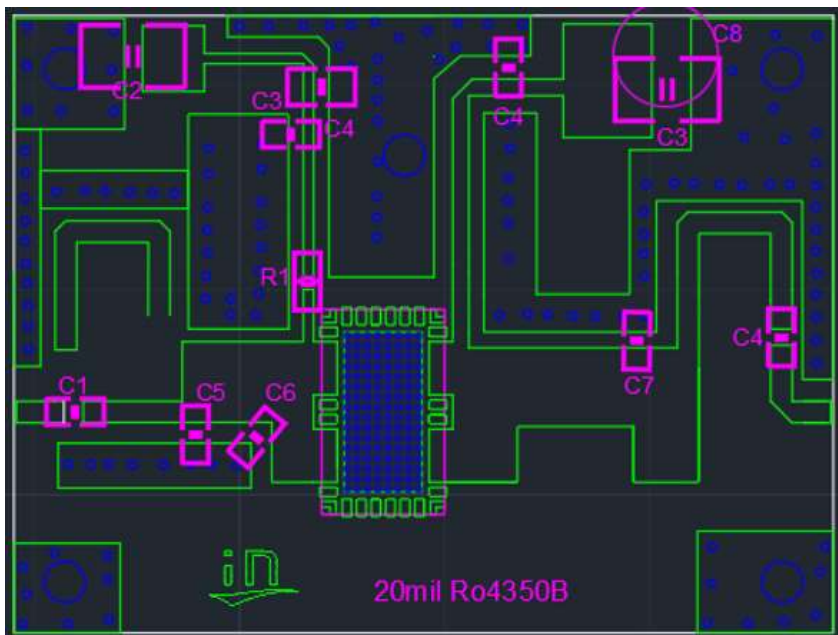


Figure 2. Test Circuit Component Layout



Table 5. Test Circuit Component Designations and Values

Component	Value	Quantity
C1	3.9pF	1
C2	10uF	2
R1	10 ohm	1
C3	1nF	1
C4	12pF	3
C5	0.1pF	1
C6	2.7pF	1
C7	1.6pF	1
C8	470uF	1

TYPICAL CHARACTERISTICS

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

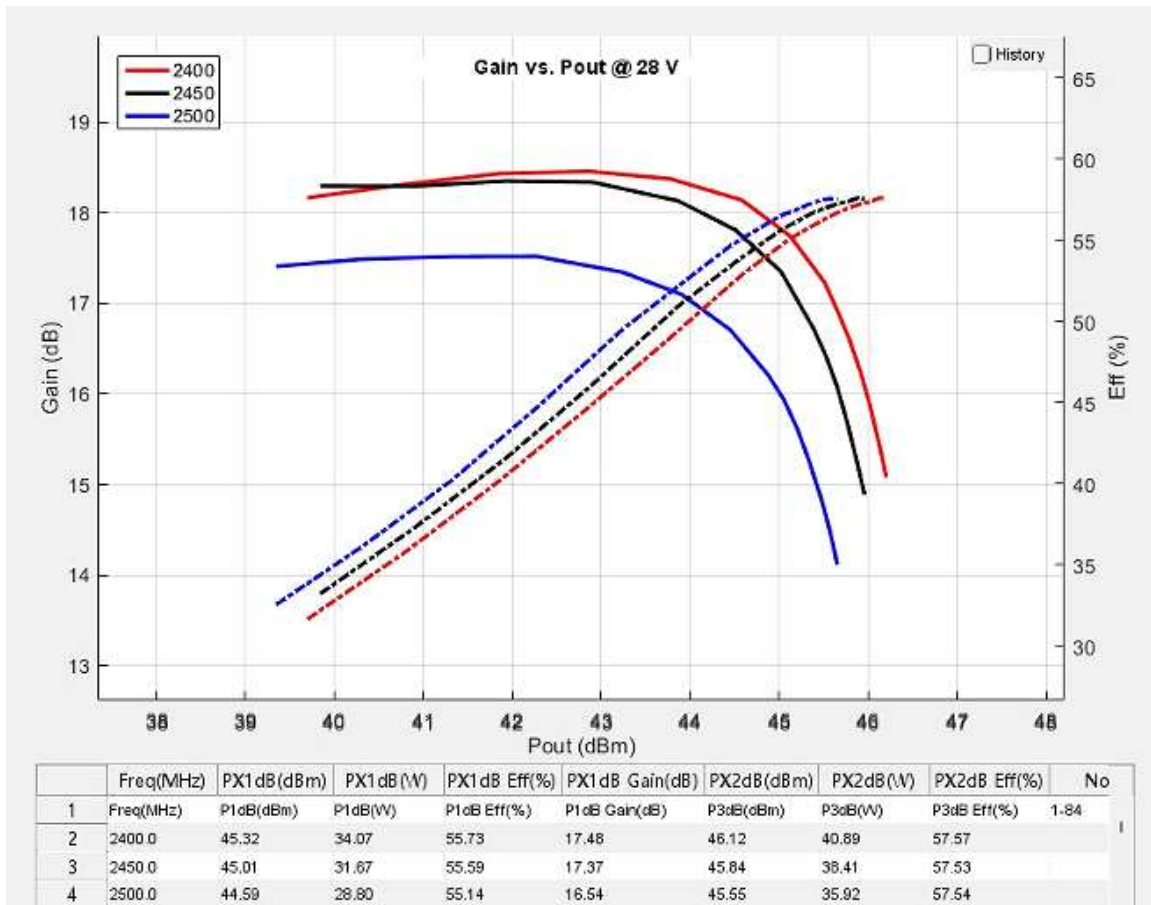
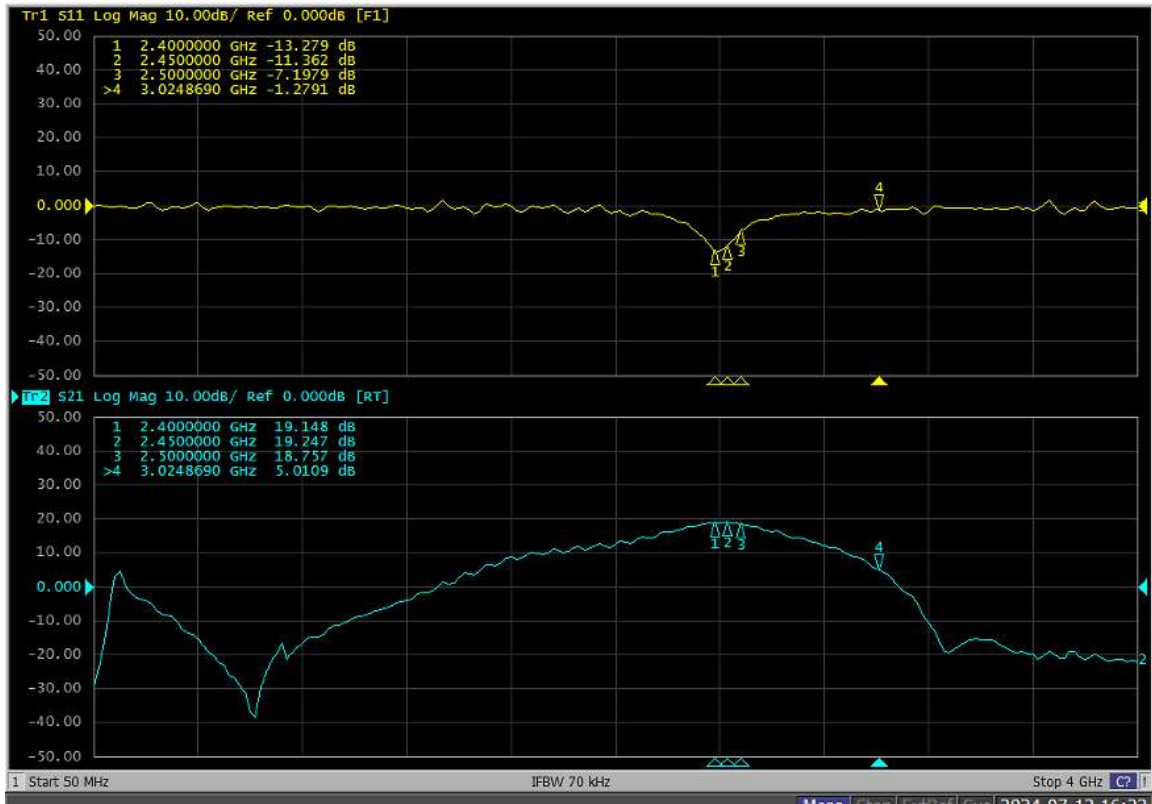




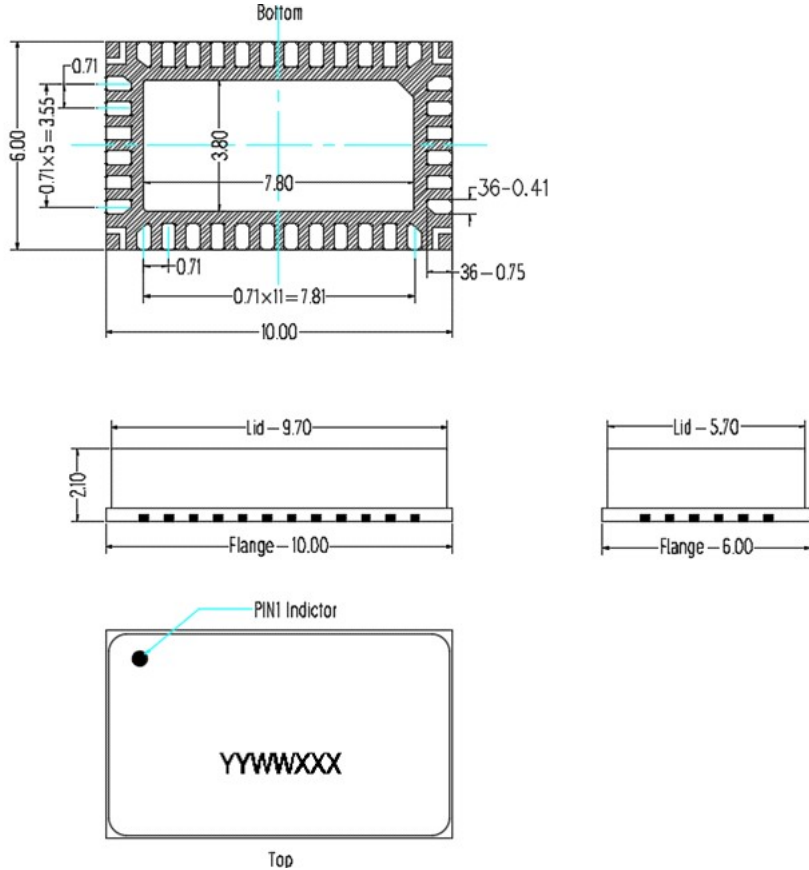
Figure 4. Network analyzer output S11/S21





Package Dimensions

10*6 Plastic Package



Notes:

1. All dimensions are in mm;
2. The tolerances unless specified are ± 0.2 mm.

Revision history

Table 7. Document revision history

Date	Revision	Datasheet Status
2024/7/17	Rev 1.0	Preliminary Datasheet

Application data based on ZXY-24-23

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