



## 40W,28V Plastic RF LDMOS Transistor

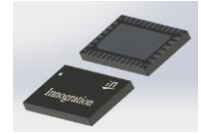
**ITEH25040C6**

### Description

The ITEH25040C6 is a 40-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, CW



Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff (%)	P1dB Gain (dB)	P3dB (dBm)	P3dB (W)	P3dB Eff (%)
2400	46.02	40.0	55.3	14.34	46.6	45.7	56.2
2450	45.82	38.2	55.6	14.26	46.39	43.6	56.2
2500	45.59	36.3	56.4	14.39	46.15	41.2	56.5

### 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

- 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 <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, T <sub>j</sub> =200°C, DC test	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

Drain-Source Voltage V <sub>GS</sub> =0, I <sub>DS</sub> =100uA	V <sub>(BR)DSS</sub>		65		V
Zero Gate Voltage Drain Leakage Current	I <sub>loss</sub>	—	—	1	μA



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

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

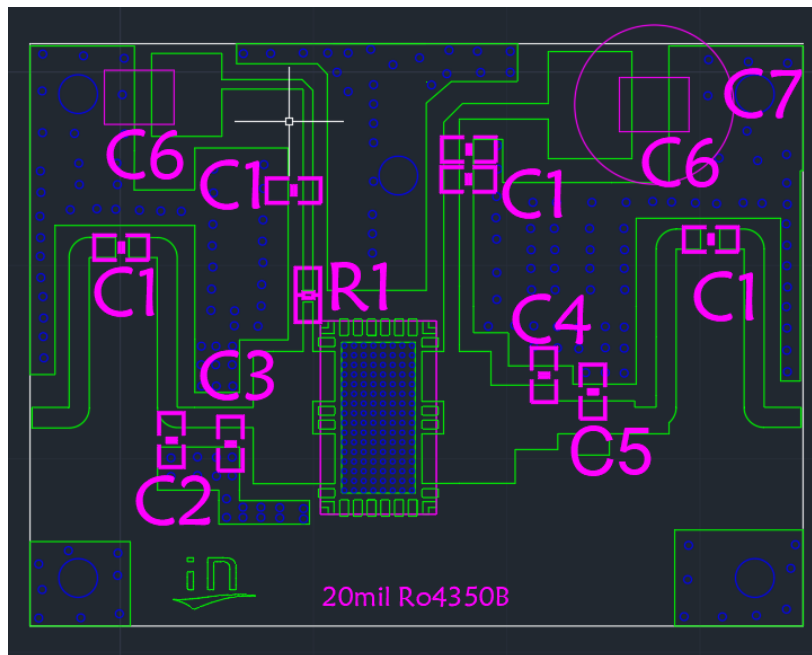
VSWR 10:1 at 35W pulse CW Output Power	No Device Degradation
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**Figure 1: Pin Definition (Top View)**



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	20pF	4
C6	10uF/63V	2
R1	10 ohm	1
C7	470uF	1
C2	1pF	1
C3	2.2pF	1
C4	0.2pF	1
C5	1.8pF	1
C8	1nF	1

### TYPICAL CHARACTERISTICS

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

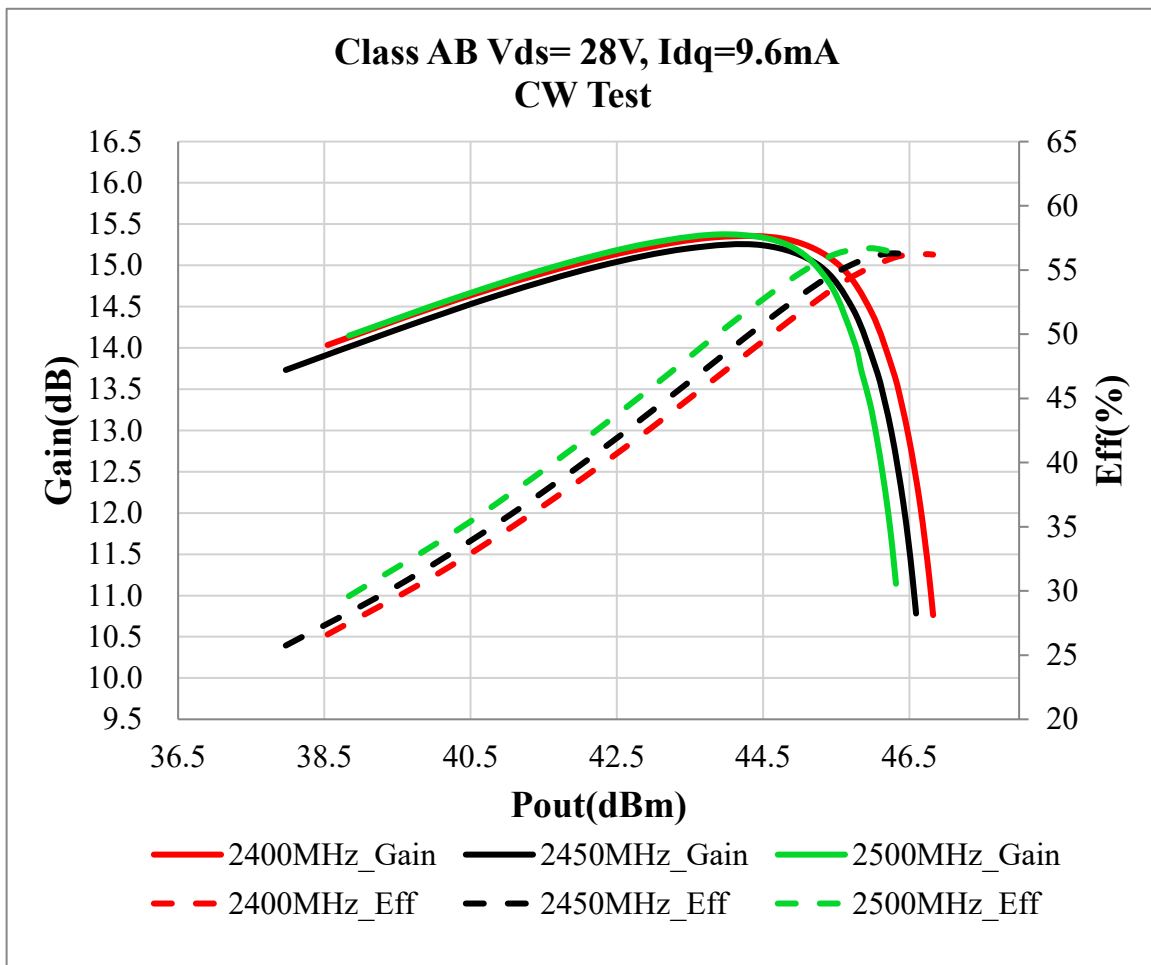
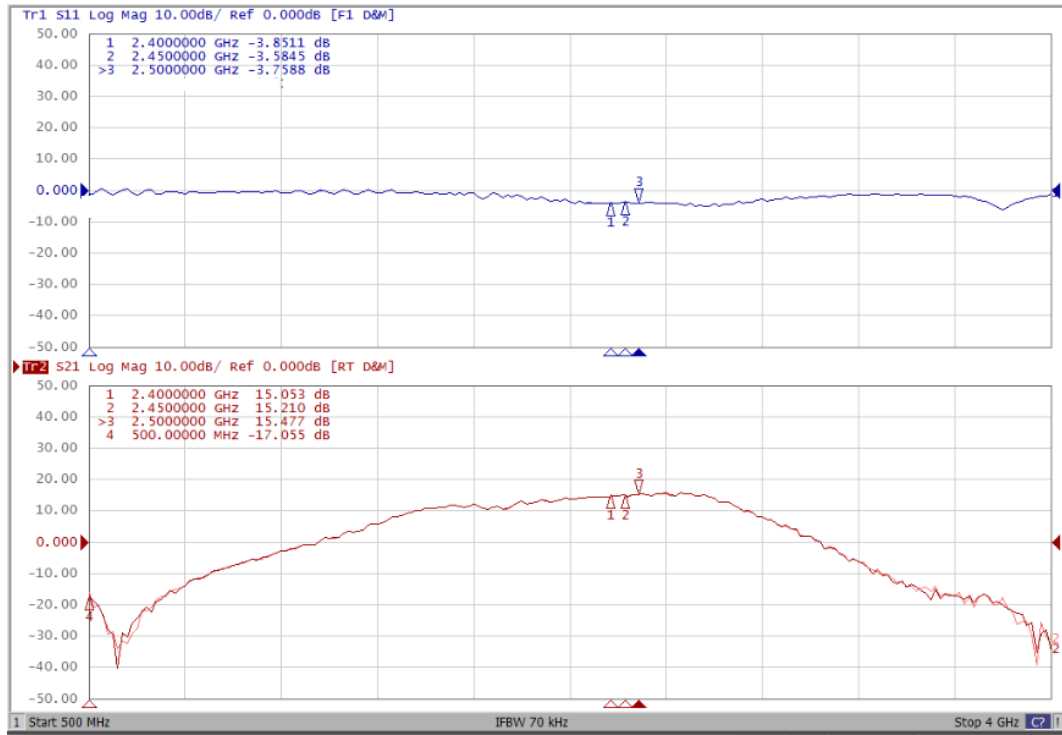




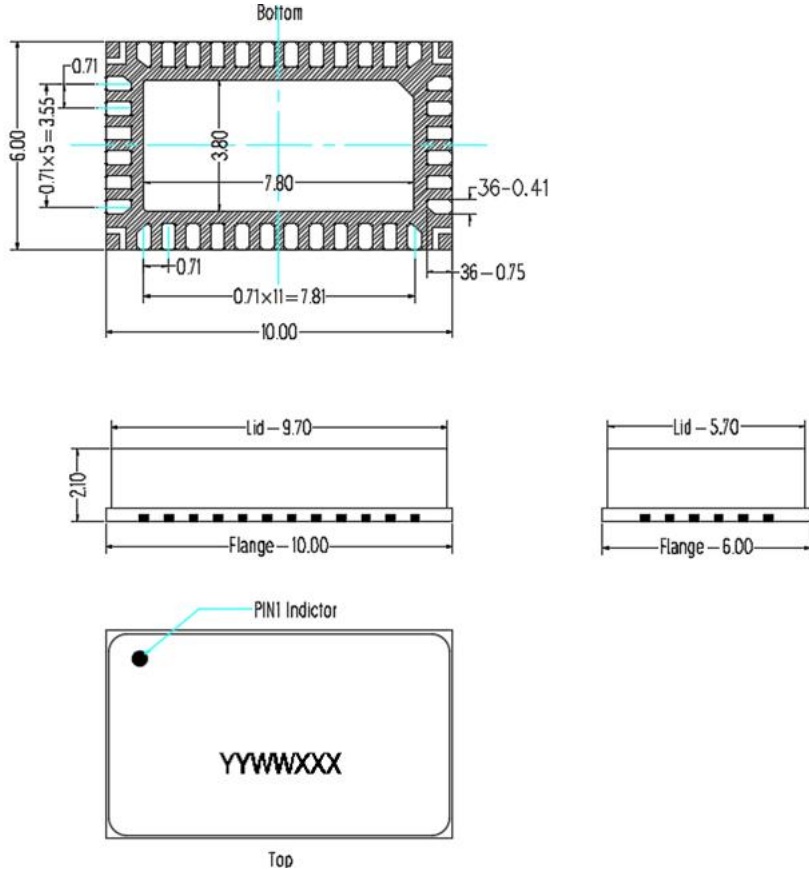
Figure 4. Network analyzer output S11/S21





### Package Dimensions

#### 10\*6 Plastic Package



Notes:

1. All dimensions are in mm;
2. The tolerances unless specified are  $\pm 0.2$ mm.

### Revision history

Table 7. Document revision history

Date	Revision	Datasheet Status
2026/4/27	Rev 1.0	Preliminary Datasheet

#### Application data based on ZXY-26-05

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