

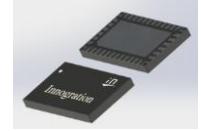


30W,28V Plastic RF LDMOS Transistor

ITGV10055C6

Description

The ITGV10055C6 is a 30-watt, highly rugged, thermally enhanced LDMOS transistor, designed for any general applications at frequencies up to 1GHz, in 10*6mm QFN plastic package, supporting surface mounted on PCB through high density grounding vias.



- Typical Class AB RF Performance **with 2 pcs in form of push pull**(On Innegration fixture with device soldered).

2*ITGV10055C6 Push Pull, VDD=28V VGS=3.5V IDQ=300mA CW						
F (MHz)	Pin (dBm)	Psat (dBm)	Psat (W)	I (A)	Gain (dB)	Eff (%)
100	33.5	47.85	61	3.62	14.4	60.1
150	33.5	48.42	70	3.65	14.9	68.0
200	33.5	48.94	78	4.00	15.4	69.9
250	33.5	48.85	77	3.93	15.4	69.7
300	33.5	48.54	71	3.70	15.0	69.0
350	33.5	48.47	70	3.49	15.0	71.9
400	33.5	48.07	64	3.47	14.6	66.0
450	33.5	47.98	63	3.48	14.5	64.5
500	33.5	48.00	63	3.54	14.5	63.7

Recommended driver: ITGV10020P3

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 UHF amplifier
- P band power amplifier
- All 4G/5G cellular application within 0.5 to 1GHz

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DS}	+110	Vdc
Gate--Source Voltage	V_{GS}	-10 to +10	Vdc
Operating Voltage	V_{DD}	+55	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	$R_{\theta JC}$	0.8	°C/W



T_C = 85°C, DC test

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
DC Characteristics					
Drain-Source Voltage V _{GS} =0, I _{DS} =100uA	V _{(BR)DSS}		110		V
Zero Gate Voltage Drain Leakage Current (V _{DS} = 90V, 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} = 50V, I _D = 600 μA)	V _{GS(th)}	—	2	—	V
Gate Quiescent Voltage (V _{DD} = 50V, I _D = 160mA, Measured in Functional Test)	V _{GS(Q)}	—	3.36	—	V

Load Mismatch (In Innegration Test Fixture, 50 ohm system): V_{DD} = 50Vdc, I_{DQ} = 160mA, f = 1000 MHz

VSWR 10:1 at 50W 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,	Vgs/RF In	Vgs and RF input
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.

100-500MHz application board

Reference Circuit of Test Fixture Assembly Diagram 30mils RO4350B

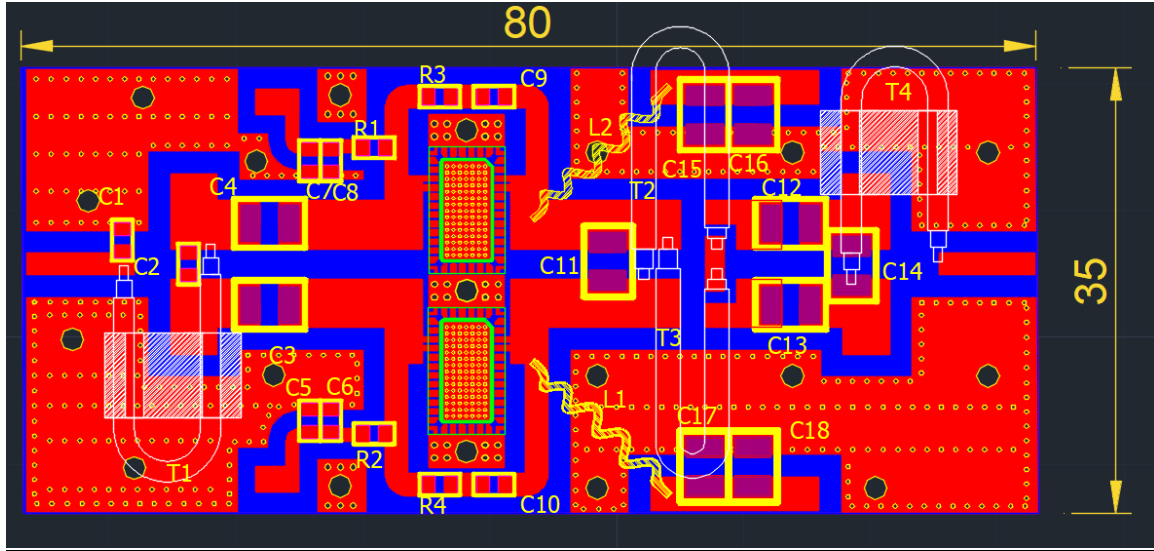


Figure 2. Test Circuit Component Layout

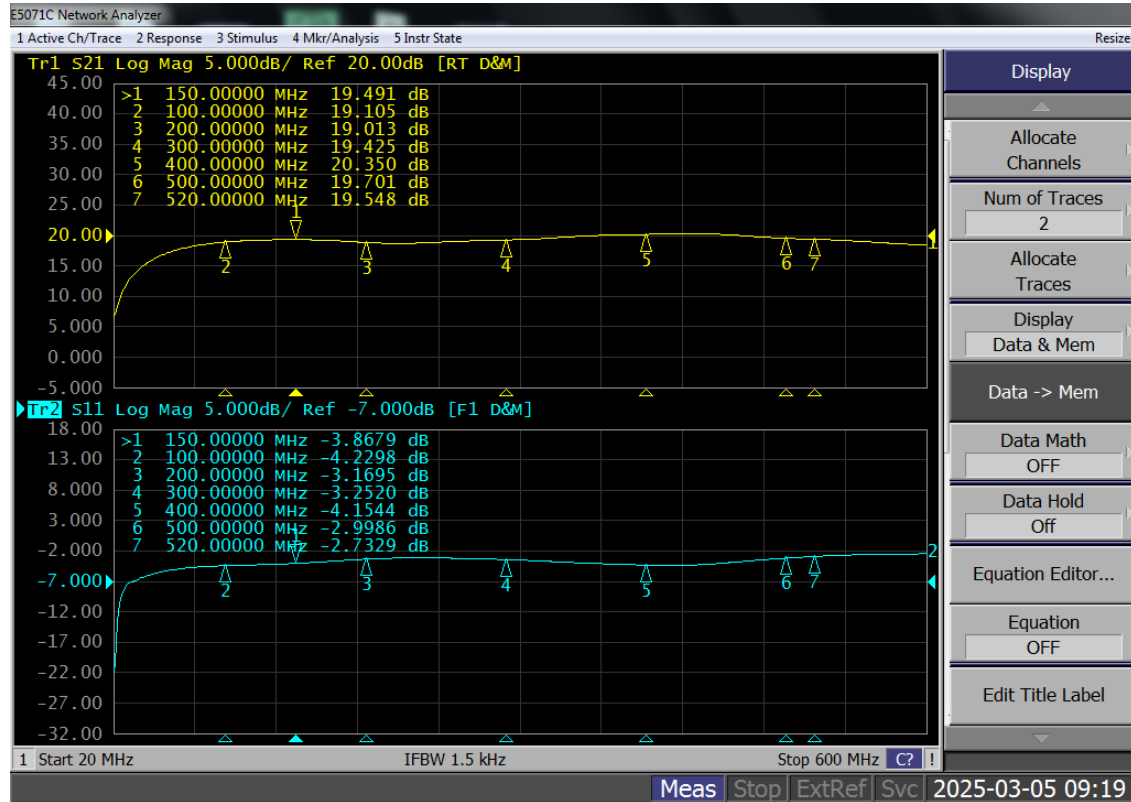
Table 5. Test Circuit Component Designations and Values

Component	Description	Suggestion
C16,C18	10uF 1210	/
R1,R2	300 Ω 0805	/
R3,R4	360 Ω 1206	
C5,C7,C9,C10	10nF 0805	
C1	20pF MQ0805	
C2	8.2pF MQ300805	
C3,C4,C12,C13	390pF MQ301111	
C6,C8	150pF MQ300805	
C11	5.1pF MQ301111	
C14	2.2pF MQ301111	
C13	15pF MQ301111	
C15,C17	10nF 1210	
T1	RFSFBIU-086-50 60mm BN-61-1502	/.
T2,T3	RFSFBIU-086-50 60mm	/.
T4	RFSFBIU-086-50 60mm BN-61-202	/.
L1,L2	1.0mm wire, 8Turns , 3mm inner diameter,	/



TYPICAL CHARACTERISTICS

Figure 3. Network analyzer output S11/S21

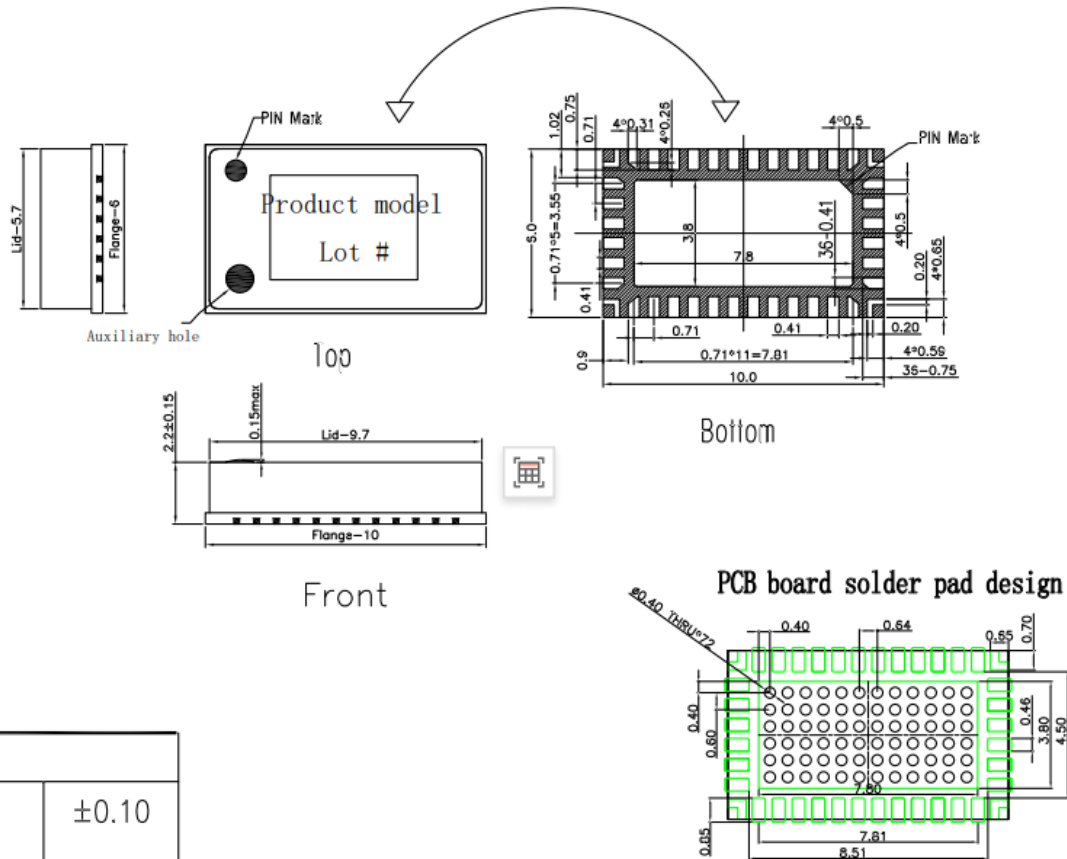




Package Dimensions

10*6 Plastic Package

QFN10*6 (C6) POD



1.

Revision history

Table 7. Document revision history

Date	Revision	Datasheet Status
2025/3/5	Rev 1.0	Preliminary Datasheet

Application data based on SYX-25-10

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