



30W*2,50V Plastic RF LDMOS Transistor

ITGV22060C6

Description

The ITGV22060C6 is a dual path 60W , highly rugged, LDMOS transistor, designed for any general applications at frequencies up to 2.2GHz, **with independent 2 ways of 30W Class AB in 10*6mm QFN plastic package**, supporting surface mounted on PCB through high density grounding vias.

Typically it is recommended as the class AB driver for both main and peak path of Doherty transistor below 2.2GHz to further improve the lineup efficiency from the driver stage



- Typical 1.8-2.2GHz Class AB RF Performance of **single path** (On Innegration fixture with device soldered).

$V_{ds}=50V$, $I_{dq}=30mA$, Pulsed CW

Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff (%)	P1dB Gain (dB)	P3dB (dBm)	P3dB (W)	P3dB Eff (%)
1800	44.86	30.7	50.9	16.63	45.3	33.9	51.4
1900	44.64	29.1	50.4	18.01	45.08	32.2	50.1
2000	44.48	28.1	48.8	16.82	45.31	34.0	51.7
2100	44.53	28.4	52.4	17.96	45.16	32.8	53.7
2200	44.13	25.9	48.3	17.07	44.77	30.0	49.2

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

- L, S band power amplifier
- All 4G/5G cellular application within 0.7 to 2.2GHz

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_{DO}	+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 $T_c=85^{\circ}C$, $T_J=200^{\circ}C$, DC test	$R_{\theta JC}$	1	°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
DC Characteristics of single section					
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 = 30mA, Measured in Functional Test)	V _{GS(Q)}	—	3.3	—	V

Load Mismatch (In Innegration Test Fixture, 50 ohm system): V_{DD} = 50Vdc, I_{DQ} = 30 mA, f = 2200 MHz

VSWR 10:1 at 30W 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,	Vgs1/RFin 1	Vgs and RF input of path 1
32,33,34,35	Vds1/RFout 1	Vds and RF output of path 1
14,15,16,17	Vgs2/RFin 2	Vgs and RF input of path 2
26,27,28,29	Vds2/RFout 2	Vds and RF output of path 2
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.

1.8-2.2GHz application board

Reference Circuit of Test Fixture Assembly Diagram

20mils RO4350B

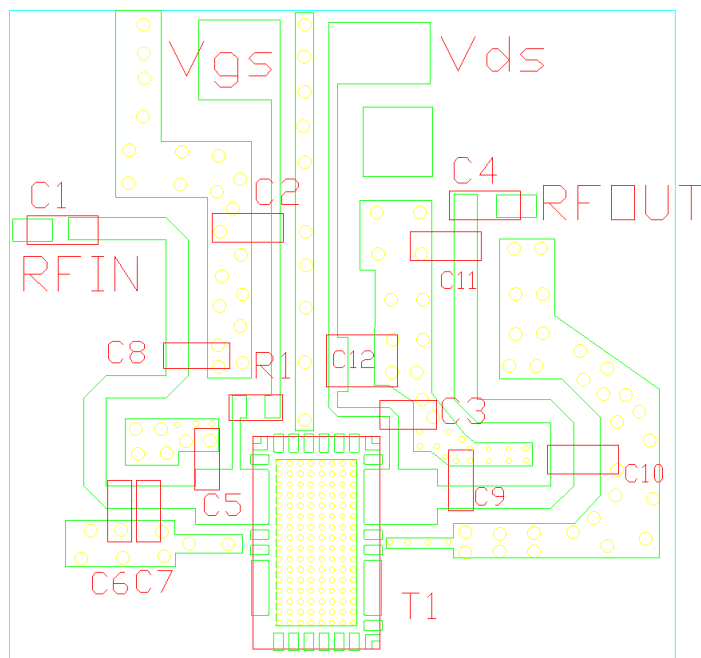


Figure 2. Test Circuit Component Layout

Table 5. Test Circuit Component Designations and Values

Part	Quantity	Description	Part Number	Manufacture
C1,C2,C3,C4	4	20pF High Q Capacitor	251SHS200BSE	TEMEX
C5	1	3.9pF High Q Capacitor	251SHS3R9BSE	TEMEX
C6	1	2.0pF High Q Capacitor	251SHS2R0BSE	TEMEX
C7	1	0.9pF High Q Capacitor	251SHS0R9BSE	TEMEX
C8	1	0.7pF High Q Capacitor	251SHS0R7BSE	TEMEX
C9,C10	2	1.5pF High Q Capacitor	251SHS1R5BSE	TEMEX
C11	1	0.1pF High Q Capacitor	251SHS0R1BSE	TEMEX
R1	1	10 Ω Power Resistor	ESR03EZPF100	ROHM
C12	1	10uF MLCC	GRM32EC72A106ME05	Murata
T1	1	60W Dual Transistor	ITGV22W060C6	Innegration



TYPICAL CHARACTERISTICS

Figure 5. Power Gain and Drain Efficiency as function of Power Output

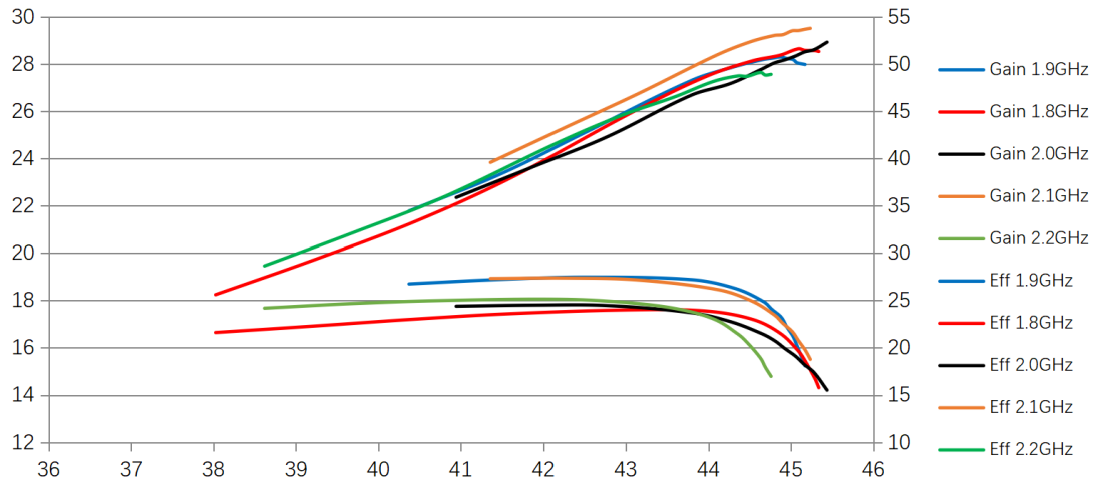
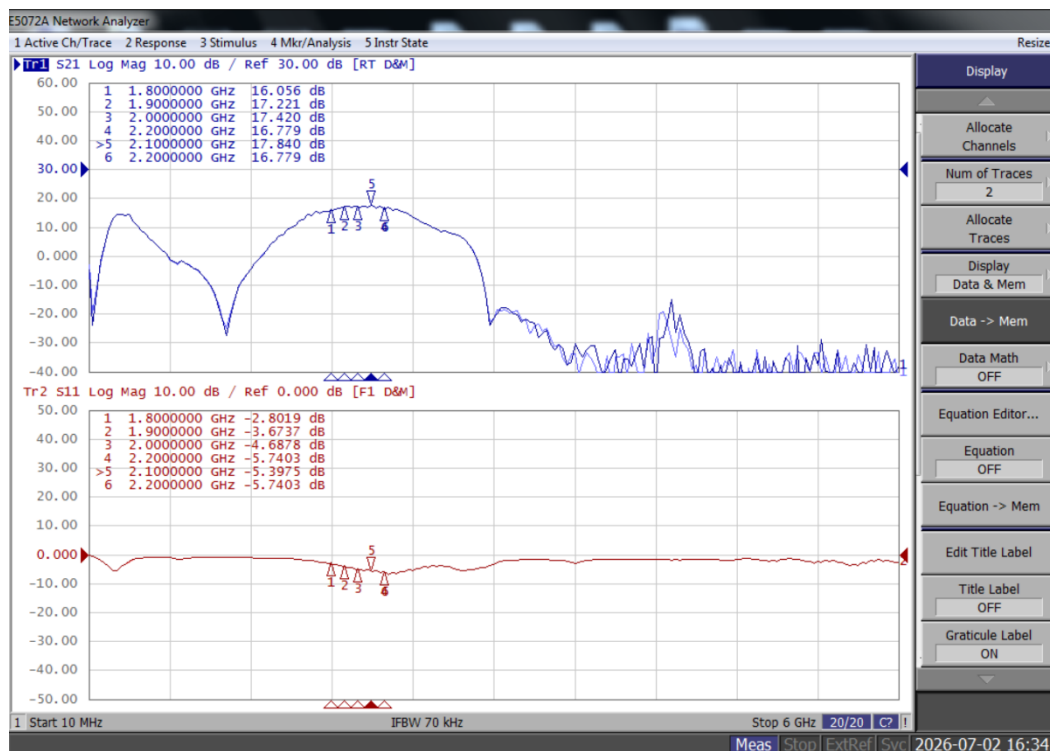


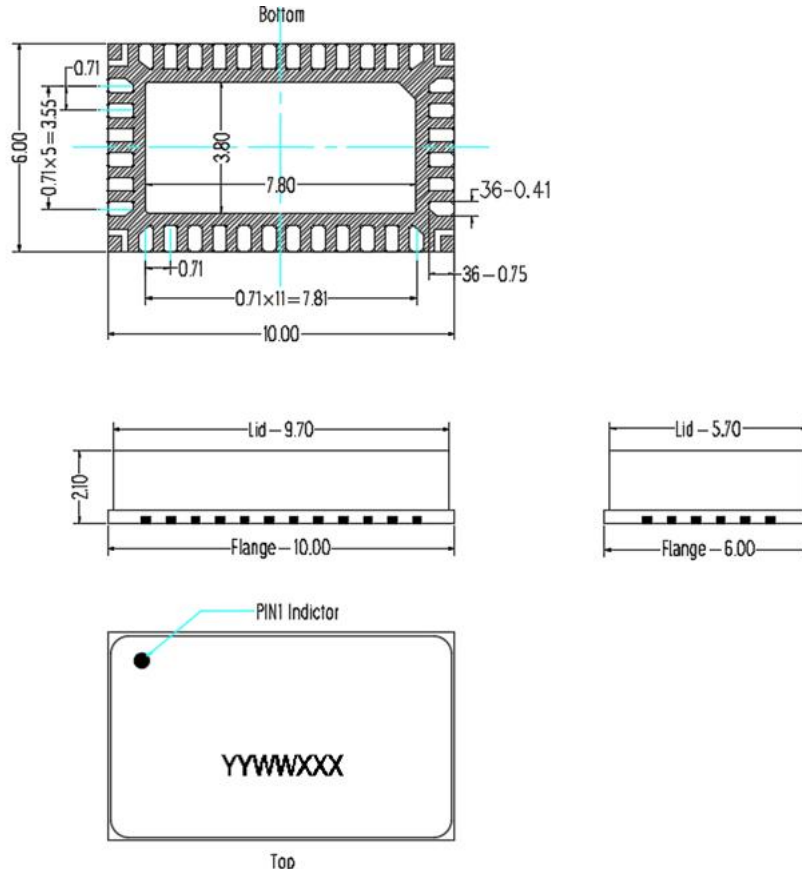
Figure 5. Network analyzer output S11/S21





Package Dimensions

10*6 Plastic Package



Notes:

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

Revision history

Table 7. Document revision history

Date	Revision	Datasheet Status
2026/7/6	Rev 1.0	Preliminary Datasheet

Application data based on LWH-26-16

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