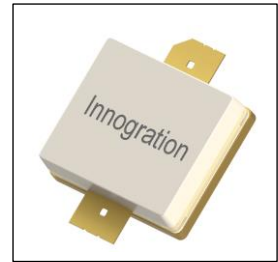


80W, HF to UHF, 28V High Power RF LDMOS FETs

Description

The ITGV10160A2C is a 80-watt capable, high performance, highly rugged, unmatched LDMOS transistor, designed for any general applications at frequencies from HF to UHF, in new generation highly cost effective open cavity package.



- Typical CW performance

$V_{DS}=28V$, $I_{DQ}=500mA$, $V_{GS}=3.58V$

Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff (%)	P1dB Gain (dB)	P3dB (dBm)	P3dB (W)	P3dB Eff (%)
390	50.12	102.9	55.1	23.61	50.72	118.2	58.9
410	48.99	79.3	56.9	25.06	50.33	107.9	64.8
430	47.9	61.7	58.6	23.46	49.4	87.1	68.2

Recommended driver: ITEH40001P3

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

- 30-88MHz (Ground communication)
- 54-88MHz (TV VHF I)
- 88-108MHz (FM)
- 136-174MHz (Commercial ground communication)
- Laser Exciter
- Synchrotron
- MRI
- Plasma generator
- Weather Radar

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_{DB}	+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 $T_c=85^\circ\text{C}$, $T_j=200^\circ\text{C}$, DC test	$R_{\theta JC}$	0.9	°C/W

Table 3. ESD Protection Characteristics

Test Methodology	Class
Human Body Model (per JESD22--A114)	Class 2

Table 4. Electrical Characteristics ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
DC Characteristics (per half section)					
Drain-Source Voltage $V_{GS}=0, I_{DS}=1.0\text{mA}$	$V_{(BR)DSS}$		110		V
Zero Gate Voltage Drain Leakage Current ($V_{DS} = 75\text{V}, V_{GS} = 0\text{V}$)	I_{loss}	—	—	1	μA
Zero Gate Voltage Drain Leakage Current ($V_{DS} = 28\text{V}, V_{GS} = 0\text{V}$)	I_{loss}	—	—	1	μA
Gate--Source Leakage Current ($V_{GS} = 10\text{V}, V_{DS} = 0\text{V}$)	I_{gss}	—	—	1	μA
Gate Threshold Voltage ($V_{DS} = 28\text{V}, I_D = 600\text{ }\mu\text{A}$)	$V_{GS(th)}$	—	2.65	—	V
Gate Quiescent Voltage ($V_{DD} = 28\text{V}, I_D = 750\text{mA}$, Measured in Functional Test)	$V_{GS(Q)}$	—	3.5	—	V

Load Mismatch (In Innogration Test Fixture, 50 ohm system): $V_{DD} = 28\text{Vdc}, I_{DQ} = 750\text{mA}, f = 700\text{MHz}$, pulse width:100us, duty cycle:10%

Load 10:1 All phase angles, at 80W Pulsed CW Output Power	No Device Degradation
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TYPICAL CHARACTERISTICS

Figure 1: CW Gain and Power Efficiency as a Function of Pout at 390-430MHz

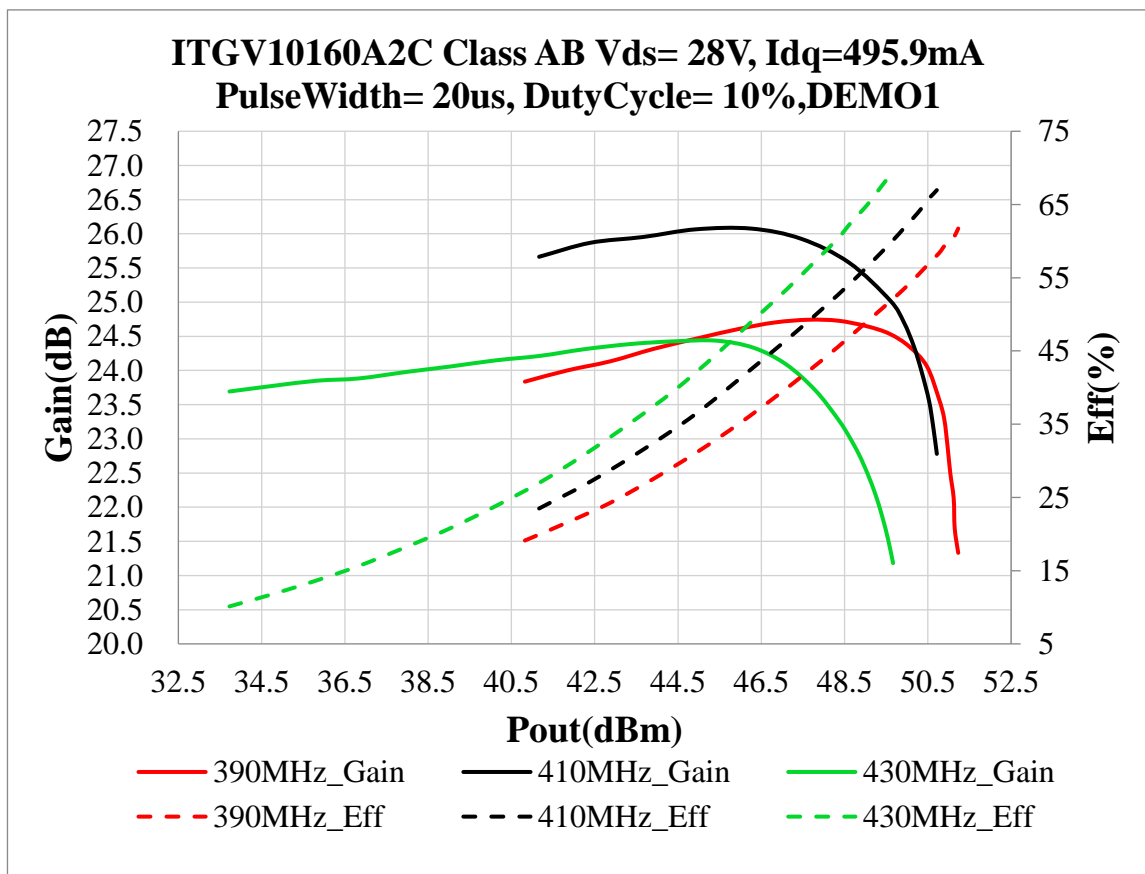
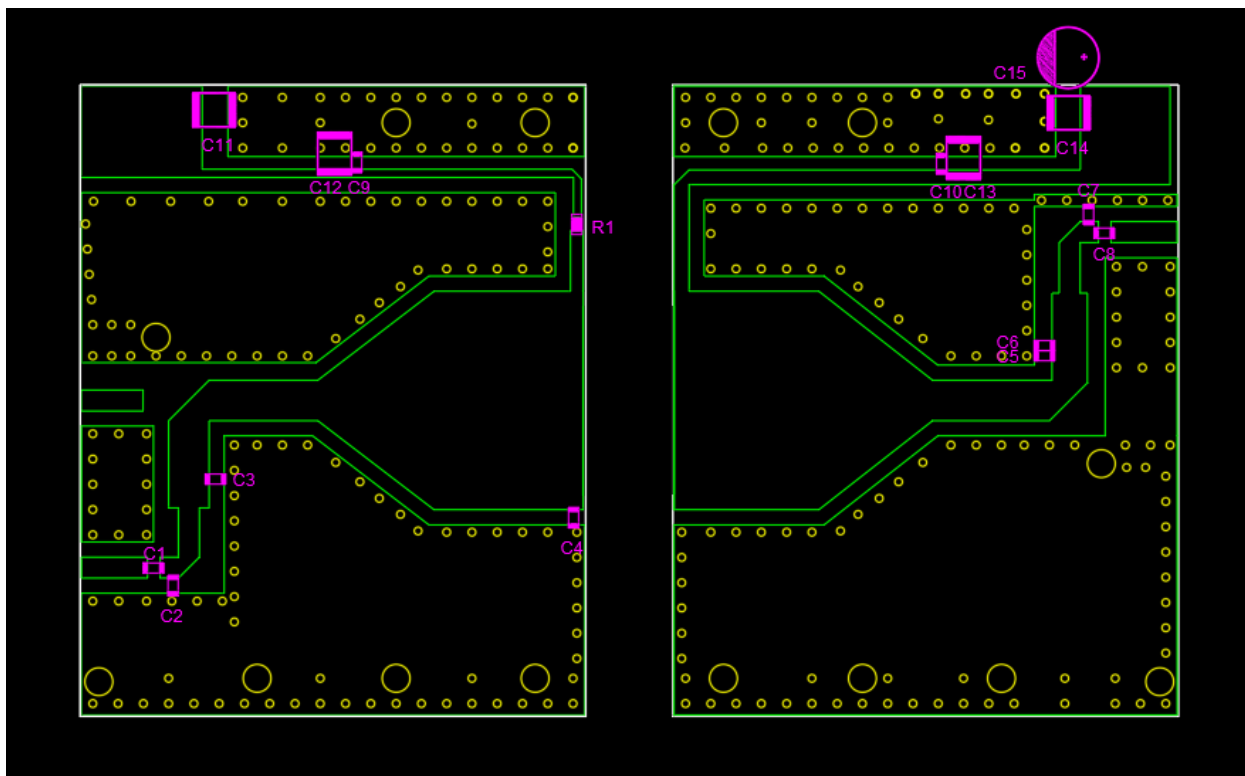


Figure 2: Network analyzer output S11/221



Reference Circuit of Test Fixture Assembly Diagram



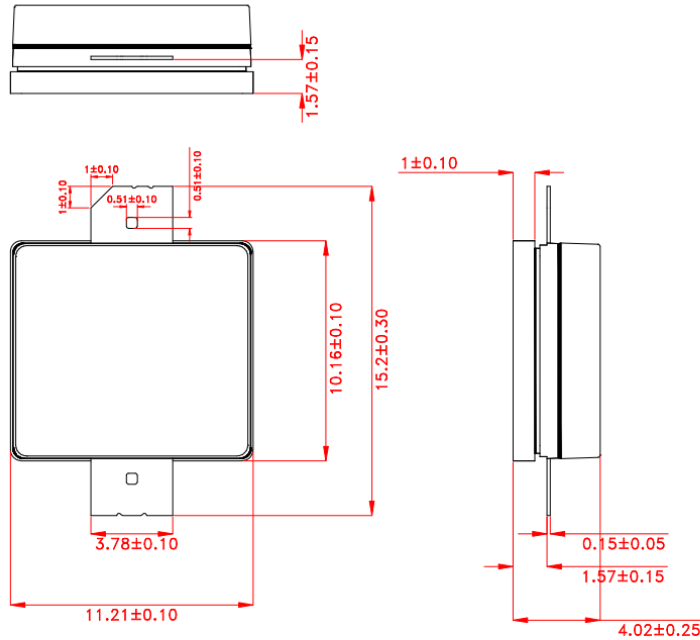
ITGV10160A2C LDMOS TRANSISTOR

Document Number: ITGV10160A2C
Preliminary Datasheet V1.0

Table 5. Test Circuit Component Designations and Values

Reference	Footprint	Value	Quantity
C8, C9, C10	0603	100pF	3
C1	0603	30pF	1
C2, C7	0603	12pF	2
C3, C4	0603	24pF	2
C5	0603	15pF	1
C6	0603	3pF	1
R1	0603	10R	1
C11, C12, C13, C14	1210	10uF/63V	4
C15		470uF/63V	1
U1	C6	ITGV10160A2C	1

Package Dimensions



Unit:mm
Tolerance ± 0.10 mm, Except as Noted.

Revision history

Table 5. Document revision history

Date	Revision	Datasheet Status
2024/9/13	Rev 1.0	Preliminary Datasheet Creation

Application data based on ZYX-24-61

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