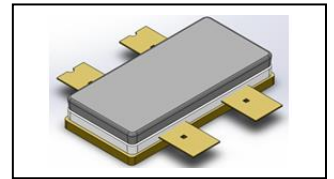




260W, 28V High Power RF LDMOS FETs

Description

The ITGH09260B4C is a 260W capable, internally matched, **single ended** 28V LDMOS designed for cellular and ISM application within 0.7-1GHz. It can be configured as Class AB or Class C for CW or pulsed CW



- Typical 791-821MHz 1 Carrier WCDMA Performance (on Innegration fixture with device soldered)

$V_{ds} = 28V$, $I_{dq} = 1.55A$, $V_{gs} = 2.68V$ WCDMA-1C-PAR10.5							
Freq (MHz)	Pout (dBm)	CCDF (dB)	Ppeak (dBm)	Ppeak (W)	ACPR (dBc)	Gain (dB)	Efficiency (%)
791	46	8.40	54.42	276.8	-41.4	19.8	24.9
806		8.27	54.29	268.4	-41.6	19.6	27.1
821		8.06	54.07	255.2	-40.3	19.8	29.7
791	45	8.93	53.94	247.5	-44.8	19.8	21.9
806		8.88	53.88	244.3	-44.5	19.6	23.7
821		8.70	53.70	234.7	-43.6	19.8	26.1
791	44	9.46	53.48	222.7	-46.6	19.8	19.3
806		9.39	53.38	218.0	-46.5	19.6	20.8
821		9.32	53.33	215.0	-46.0	19.8	22.9

- Typical 900-1000MHz broadband RF performance with device soldered

Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff (%)	P1dB Gain (dB)	P3dB (dBm)	P3dB (W)	P3dB Eff (%)
900	53.68	233.5	52.6	16.2	54.75	298.4	57.1
960	53.86	243.4	62.2	17.25	54.75	298.5	65.7
1000	53.5	223.8	66.4	17.47	54.29	268.8	69.2

CW data upon request

Features

- High Efficiency and Linear Gain Operations
- Integrated ESD Protection
- Internally Matched for Ease of Use
- Large Positive and Negative Gate/Source Voltage Range for Improved Class C Operation
- Excellent thermal stability, low HCI drift
- Compliant to Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC



Figure 1: Pin Connection definition as single ended

Transparent top view (Backside grounding for source)

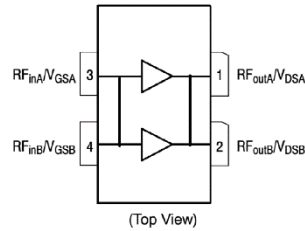


Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DS}	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 $T_{case} = 25^{\circ}\text{C}$, DC Power supply	$R_{\theta JC}$	0.35	°C/W

Table 3. ESD Protection Characteristics

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

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

Characteristic	Symbol	Min	Typ	Max	Unit
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DC Characteristics

Drain-Source Breakdown Voltage ($V_{GS}=0\text{V}$; $I_D=100\mu\text{A}$)	V_{DSS}	65	—	—	V
Zero Gate Voltage Drain Leakage Current ($V_{DS} = 28\text{ V}$, $V_{GS} = 0\text{ V}$)	I_{DSS}	—	—	10	μA
Gate--Source Leakage Current ($V_{GS} = 6\text{ V}$, $V_{DS} = 0\text{ V}$)	I_{GSS}	—	—	1	μA
Gate Threshold Voltage ($V_{DS} = 28\text{V}$, $I_D = 600\text{ uA}$)	$V_{GS(th)}$	—	1.75	—	V
Gate Quiescent Voltage ($V_{DD} = 28\text{V}$, $I_{DQ} = 1500\text{ mA}$, Measured in Functional Test)	$V_{GS(Q)}$		2.7		V

Load Mismatch (In Innogrator Test Fixture, 50 ohm system): $V_{DD} = 28\text{ Vdc}$, $I_{DQ} = 100\text{ mA}$, $f = 915\text{MHz}$

VSWR 10:1 at 260W pulse CW Output Power	No Device Degradation
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758-803MHz

Figure 1 Efficiency and power gain as function of Pout at Vds=28V

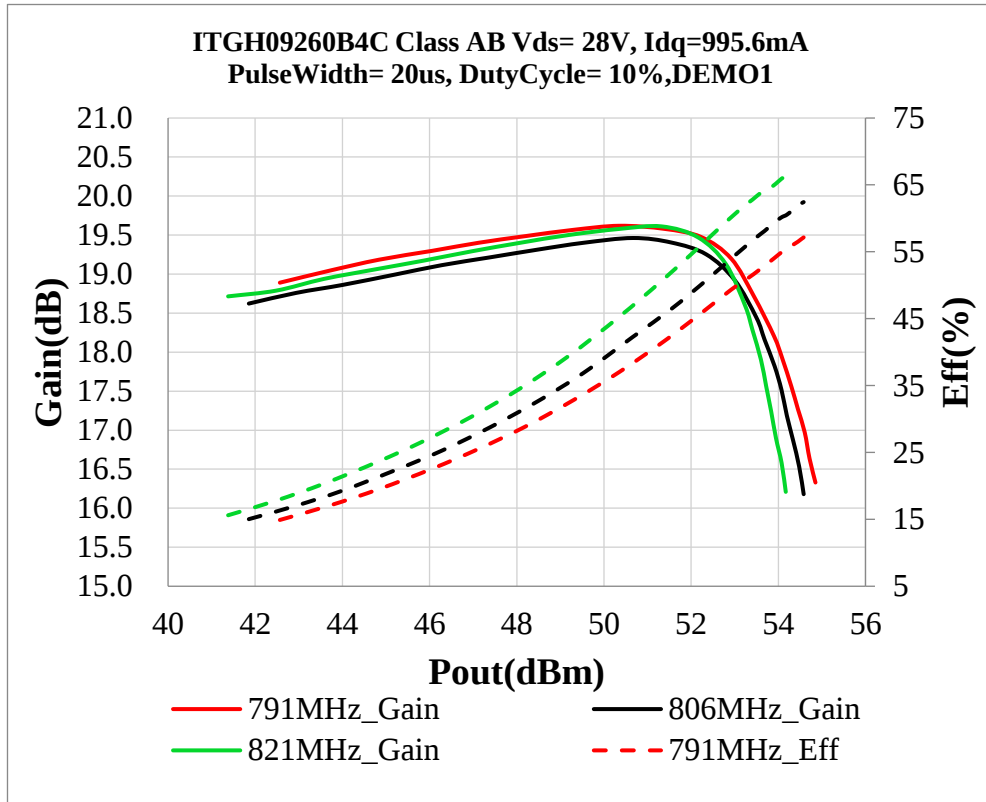


Figure 3: Network analyzer output, S11 and S21





Figure 4: Layout picture (original Gerber file upon request)

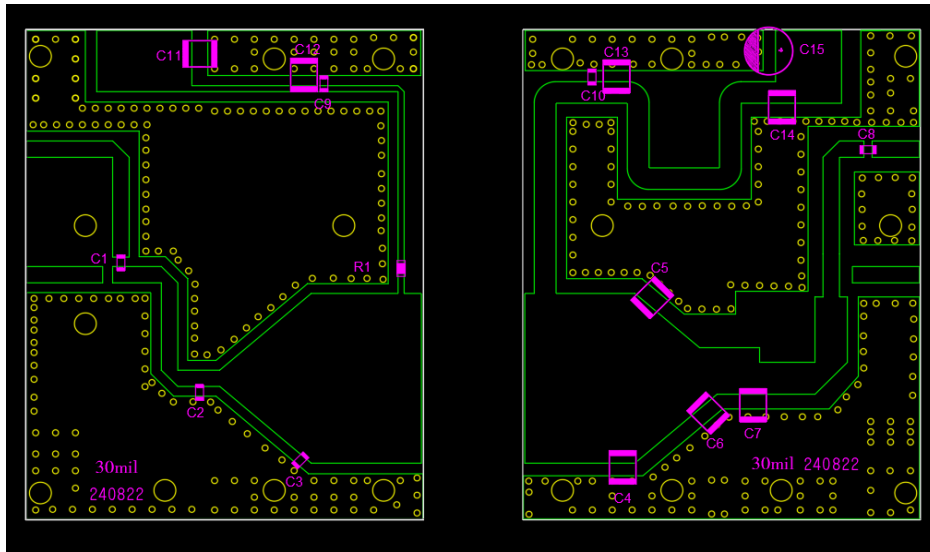


Table 5. List of components

Component	Value	Quantity
U1	ITGH09260B4C	1
C1 、 C8、 C9、 C10	68pF	4
C2、 C5	10pF	2
C3	12pF	1
C4	15pF	1
C6	8.2pF	1
C7	7.5pF	1
C11、 C12、 C13、 C14	10uF/63V	4
C15	470uF/63V	1
R1	10 Ω	1

900-1000MHz

Figure 6 Efficiency and power gain as function of Pout at Vds=28V

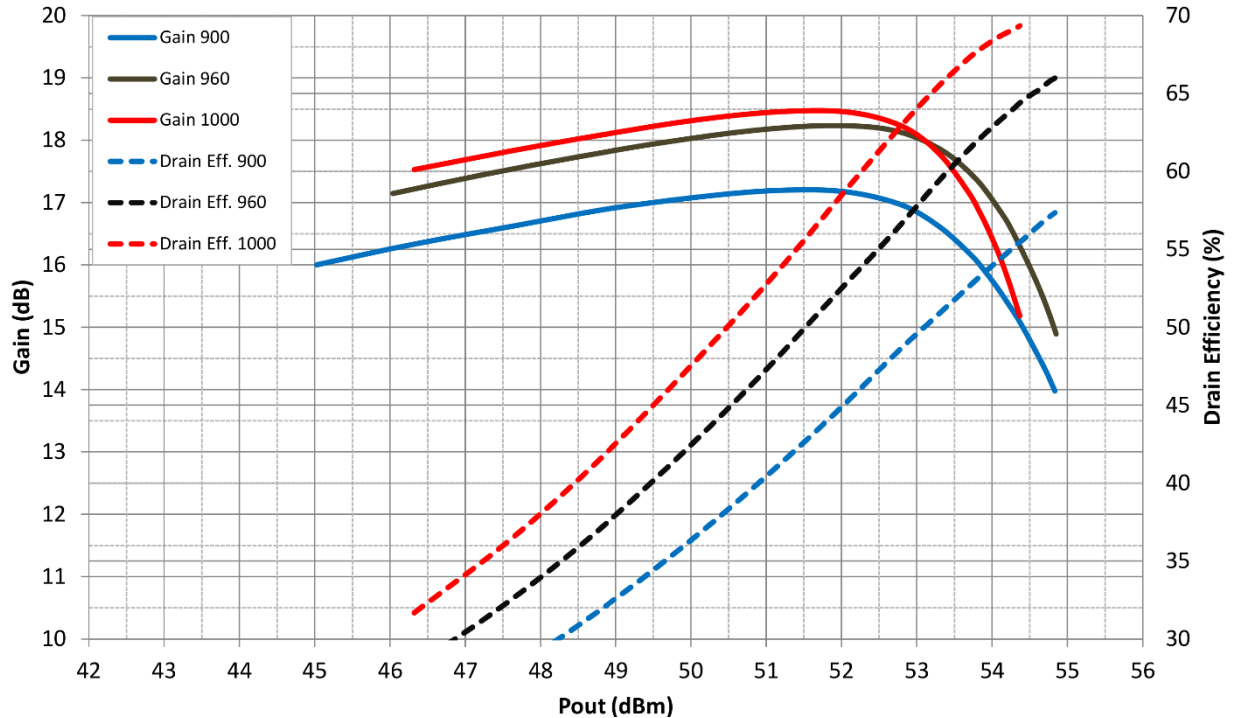


Figure 7: Network analyzer output, S11 and S21

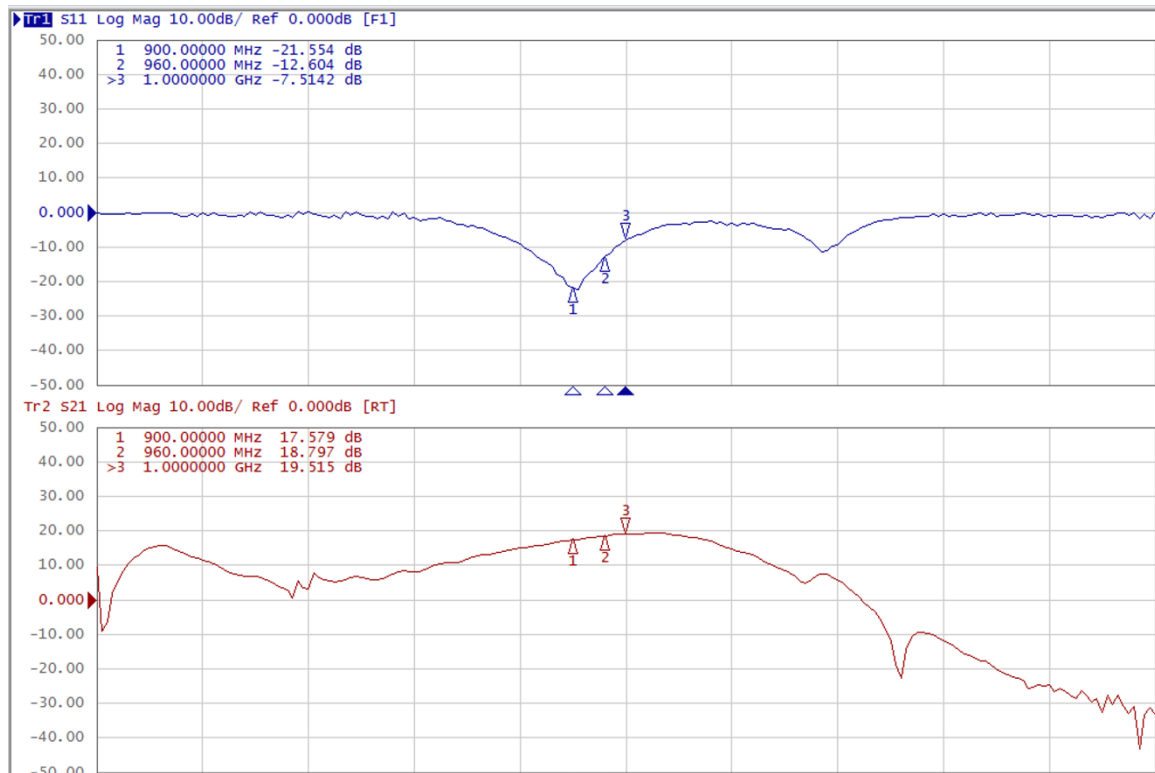




Figure 8: Layout picture (original Gerber file upon request)

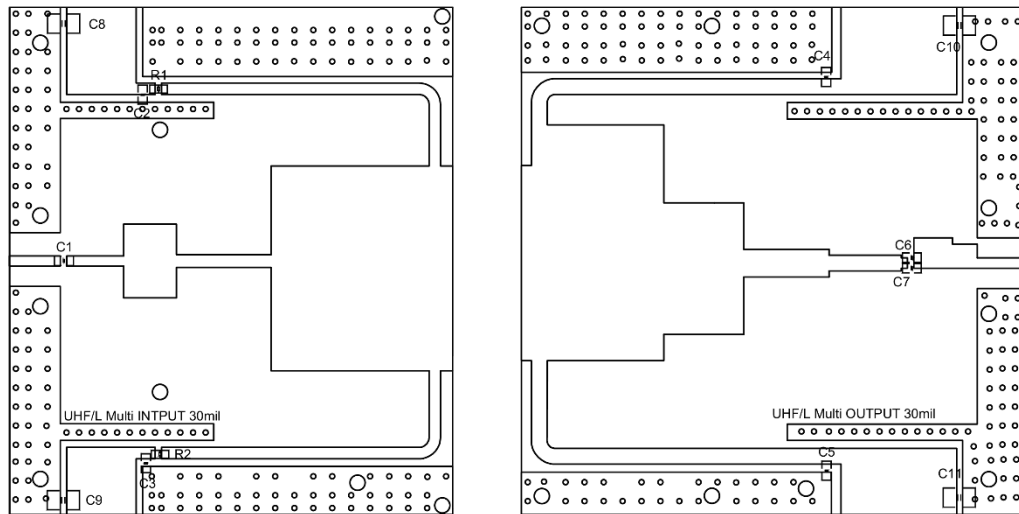


Table 6. List of components

Reference	Footprint	Value	Quantity
C1, C2, C3, C4, C5	0805	47pF/250V	5
C6, C7	0805	27pF/250V	2
C8, C9, C10, C11	1210	10uF/100V	4
R1, R2	0603	47R	2
	B4C	ITGH09260B4C	1



Earless Flanged Plastic Air Cavity Package; 4 leads

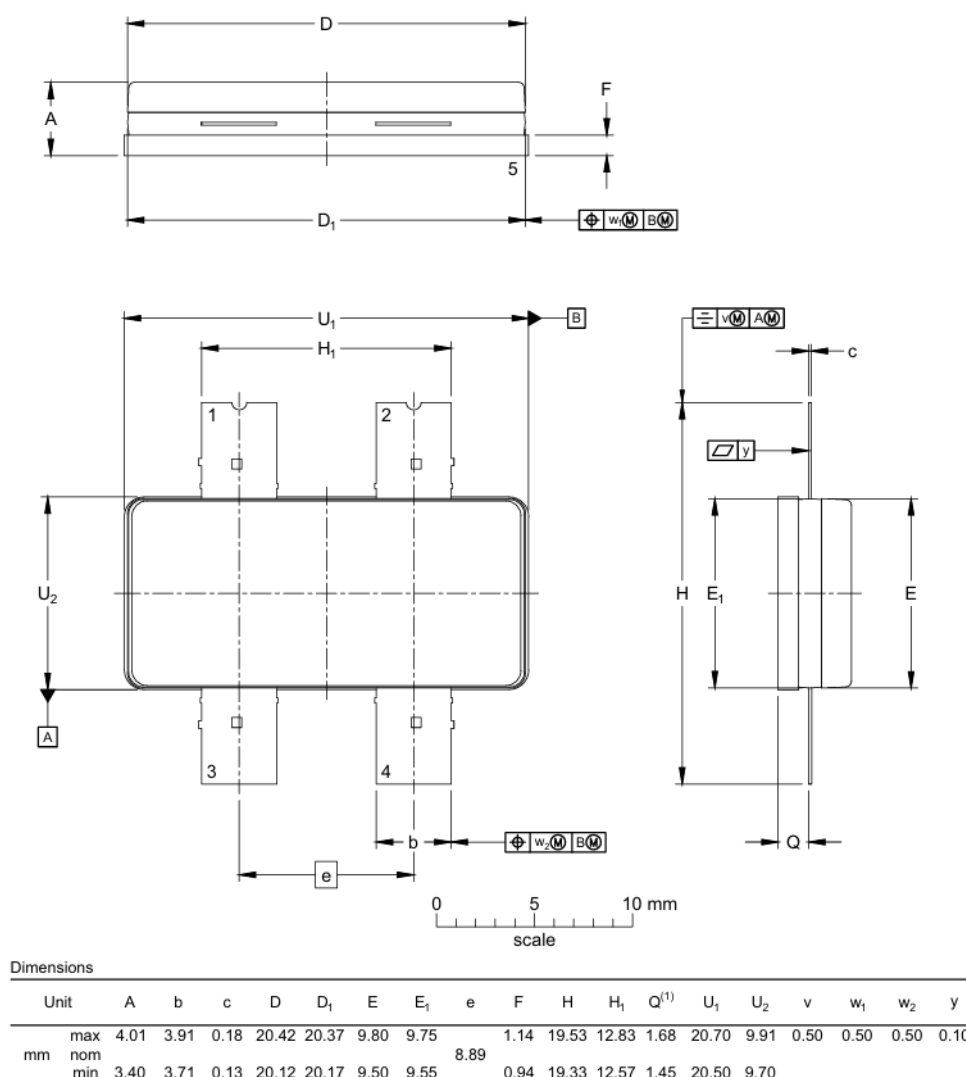


Table 5. Document revision history

Date	Revision	Datasheet Status
2024/9/25	V1	Preliminary Datasheet Creation
2024/11/29	V1.1	Add 0.9-1GHz multi section matching broadband application data

Application data based on ZYX-24-62/ZBB-24-54

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