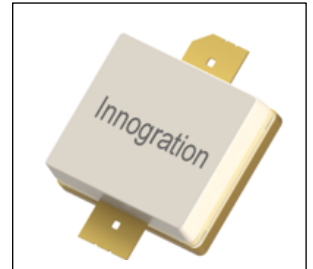




2.4-2.5GHz, 75W, High Power RF LDMOS FETs

Description

The ITEH25075A2C is a single-ended 75W, internally matched LDMOS FETs, designed for multiple use especially RF Energy application including cooking, heating and medical with frequencies from 2400 to 2500MHz.



- Typical CW Performance (on Innogrations fixture with device soldered)

V_{ds}=28V, V_{gs}=2.2V

Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff(%)	P1dB Gain(dB)	P3dB (dBm)	P3dB (W)	P3dB Eff(%)
2400	48.8	75.9	52.2	14.36	49.65	92	55.2
2450	48.51	70.9	53.7	14.45	49.32	85	55.5
2500	47.83	60.7	53.8	13.98	48.69	75	55.6

V_{ds}=32V, V_{gs}=2.2V

Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff(%)	P1dB Gain(dB)	P3dB (dBm)	P3dB (W)	P3dB Eff(%)
2400	49.52	89.5	51.7	14.88	50.42	110.1	54.2
2450	49.16	82.3	52.1	14.86	50.02	100.5	54.3
2500	48.63	73.0	52.6	14.73	49.49	88.9	54.5

Recommended driver: ITEH38007P3

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V _{DSS}	65	Vdc
Gate--Source Voltage	V _{GS}	-10 to +10	Vdc
Operating Voltage	V _{DD}	+32	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} = 85°C, T _j = 200°C, DC Power supply	R _{θJC}	0.7	°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 Breakdown Voltage (V _{GS} =0V; I _D =100uA)	V _{DSS}	65	---	---	V
Zero Gate Voltage Drain Leakage Current (V _{DS} = 28 V, V _{GS} = 0 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 ($V_{DS} = 28\text{ V}$, $I_D = 600\text{ }\mu\text{A}$)	$V_{GS(th)}$	-----	1.75	-----	V
Gate Quiescent Voltage ($V_{DD} = 28\text{ V}$, $I_{DQ} = 400\text{ mA}$, Measured in Functional Test)	$V_{GS(Q)}$		2.66		V

Load Mismatch (In Innegration Test Fixture, 50 ohm system): $V_{DD} = 28\text{ Vdc}$, $I_{DQ} = 5\text{ mA}$, $f = 2450\text{ MHz}$

VSWR 10:1 at 75W pulse CW Output Power	No Device Degradation
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Figure 2 Efficiency and power gain as function of Pout

Signal: CW, $V_{GS} = 2.24\text{ V}$, $V_{DD} = 28\text{ V}$, $I_{DQ} = 5\text{ mA}$

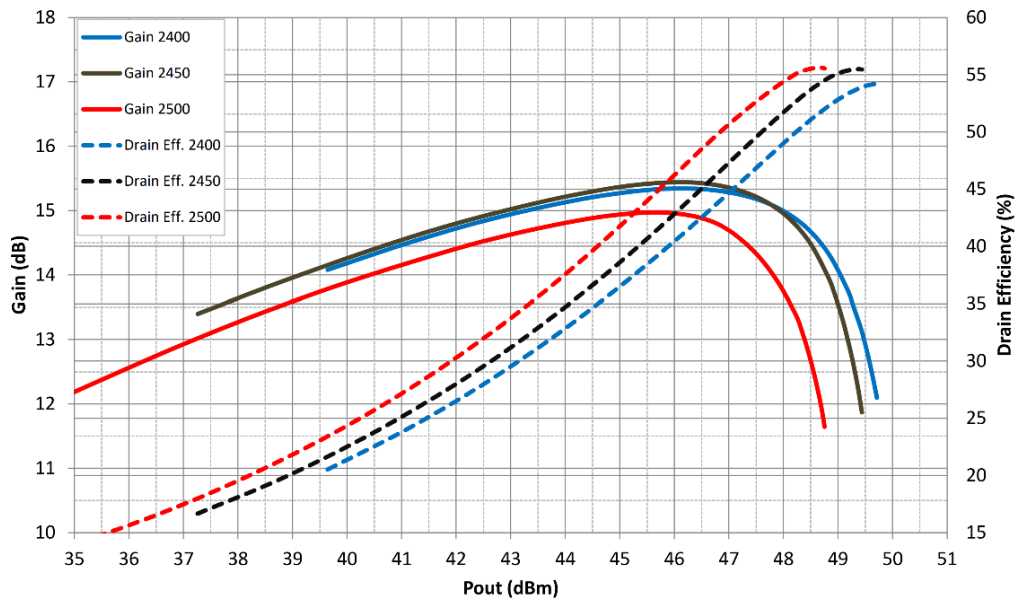


Figure 3: Network analyzer output, S11 and S21

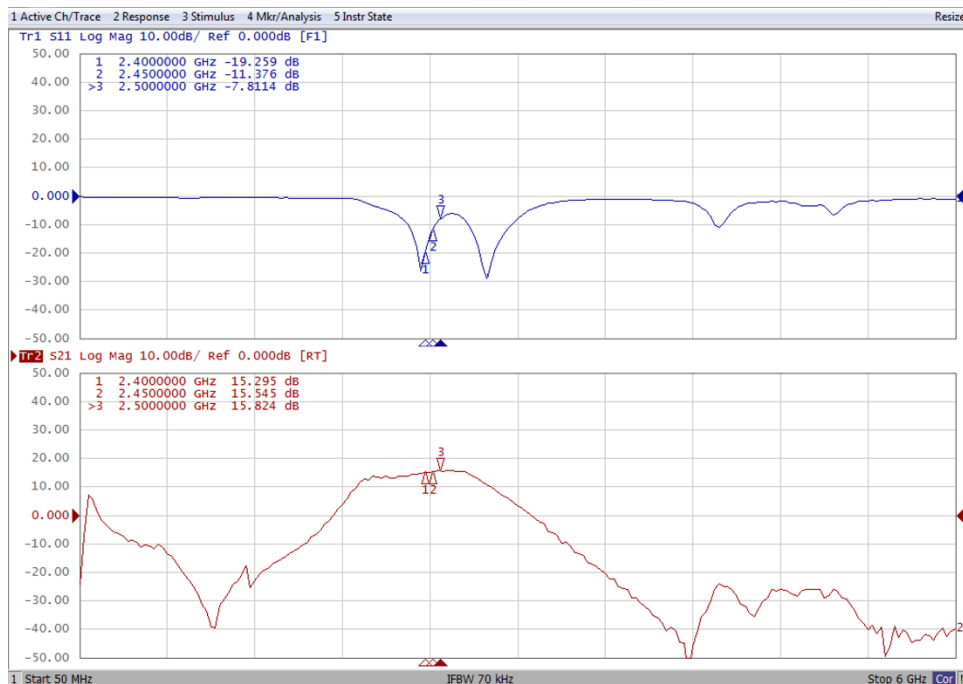


Figure 4: Layout picture (original Gerber file upon request)

Board material: Ro 4350B, Er = 3.48, thickness 20 mils, 1oz copper, unit mm ,

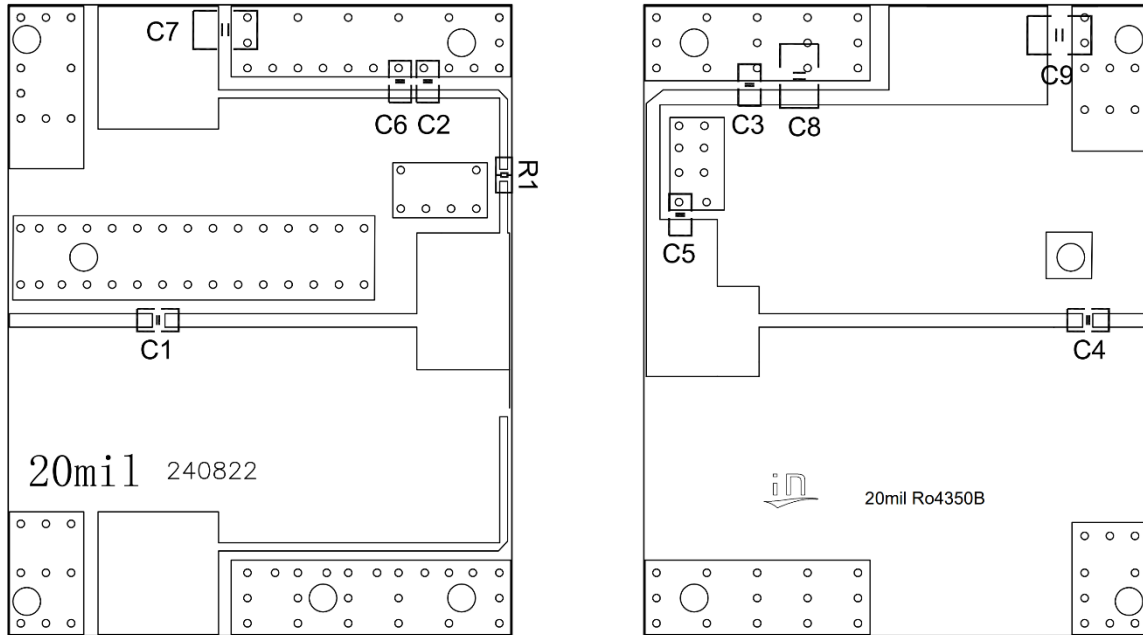
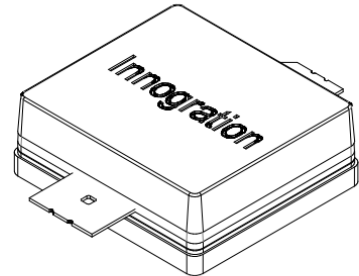
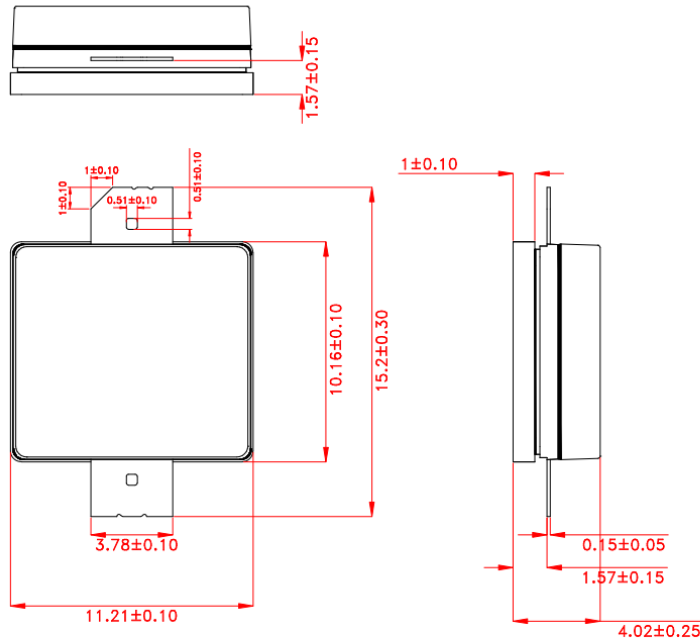


Table 5. List of components

Reference	Footprint	Value	Quantity
C1, C2, C3, C4	0805	12pF/250V	4
C5	0805	0.3pF/250V	1
C6	0805	10nF/50V	1
C7, C8, C9	1210	10uF/100V	3
R1	0603	10R	1
/	A2C	ITEH25075A2C	1



Package Dimensions (Unit:mm)



Unit:mm

Tolerance ±0.10mm, Except as Noted.

Revision history

Table 5. Document revision history

Date	Revision	Datasheet Status
2024/9/25	V1	Preliminary Datasheet Creation based on Path A 50W data
2026/3/27	V1.1	Add 32V Data

Application data based on ZBB-24-41/26-05

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