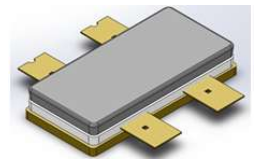


ITEV01450B4C LDMOS TRANSISTOR

Document Number: ITEV01450B4C
Product Datasheet V1.0

400W, 50V Single Ended High Power RF LDMOS FETs

ITEV01450B4C



Description

The ITEV01450B4C is a 400-watt capable, high performance, unmatched and single ended LDMOS FET, designed for HF/VHF up to 200MHz. It can be used for both CW and pulse application.

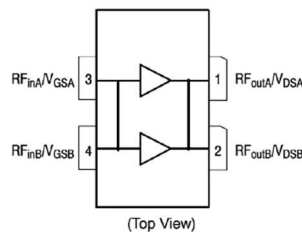
It is featured for high power and high ruggedness, low cost, suitable for ISM RF Energy application.

- Typical Performance (On Innogration 40.68MHz fixture with device soldered):

ITEV01450B4C VGS=3.25V Vds=50V Idq=100mA CW						
Freq(MHz)	Pin(dBm)	Pout(dBm)	Pout(W)	IDS(A)	Gain(dB)	Eff(%)
40.68	32.36	56.30	427	10.47	23.9	81.49
40.68	31.36	56.2	417	10.20	24.8	81.74
40.68	30.35	56.02	400	9.90	25.7	80.80
40.68	29.35	55.76	377	9.49	26.4	79.39
40.68	28.35	55.43	349	9.00	27.1	77.59
40.68	27.35	55	316	8.47	27.7	74.67
40.68	26.35	54.7	295	7.92	28.4	74.53
40.68	25.35	54.2	263	7.36	28.9	71.47

Figure 1: Pin Connection definition as single ended

Transparent top view (Backside grounding for source)



Features

- High Efficiency and Linear Gain Operations
- Integrated ESD Protection
- On chip RC network enable high stability and ruggedness
- 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

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DS}	135	Vdc
Gate--Source Voltage	V_{GS}	-7 to +10	Vdc
Operating Voltage	V_{DD}	+55	Vdc

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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 ,Case Temperature 80°C, 600W CW, 50 Vdc, I _{DQ} = 200 mA	R _{θJC}	0.4	°C/W
Transient thermal impedance from junction to case T _j = 150° C; t _p = 100 us; Duty cycle = 20 %	Z _{th}	0.08	°C/W

Table 3. ESD Protection Characteristics

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

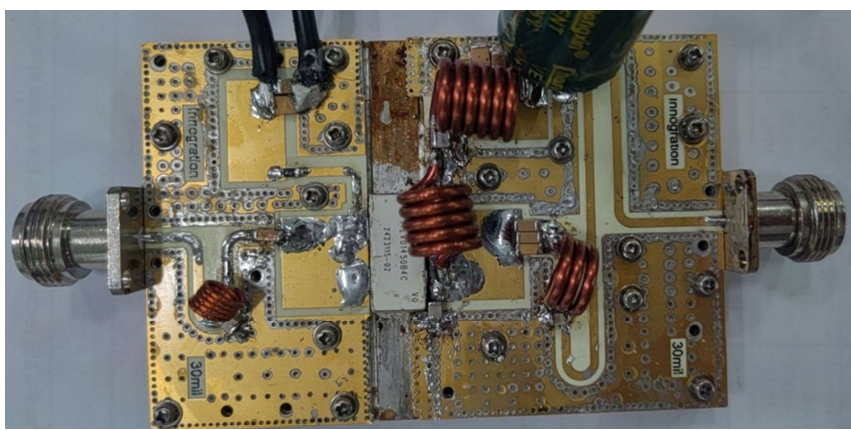
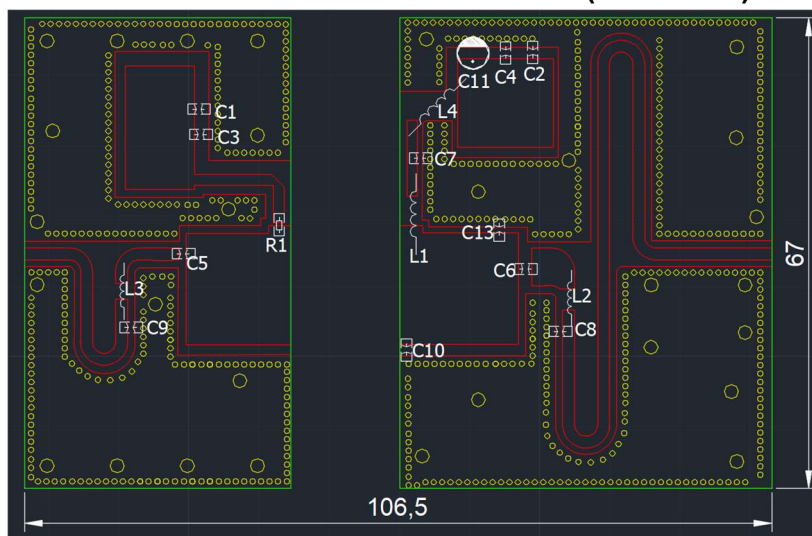
Table 4. Electrical Characteristics (TA = 25 °C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
DC Characteristics (Per Side)					
Drain-Source Voltage V _{GS} =0, I _{DS} =18.0mA	V _{(BR)DSS}		140		V
Zero Gate Voltage Drain Leakage Current (V _{DS} = 50V, V _{GS} = 0 V)	I _{DSS}			1	μA
Gate—Source Leakage Current (V _{GS} = 10 V, V _{DS} = 0 V)	I _{GSS}			1	μA
Gate Threshold Voltage (V _{DS} = 50V, I _D = 600 μA)	V _{GS(th)}		2.6		V
Gate Quiescent Voltage (V _{DD} = 50 V, I _D = 100 mA, Measured in Functional Test)	V _{GS(Q)}		3.25		V
Common Source Input Capacitance (V _{GS} = 0V, V _{DS} =50 V, f = 1 MHz)	C _{ISS}		470		pF
Common Source Output Capacitance (V _{GS} = 0V, V _{DS} =50 V, f = 1 MHz)	C _{OSS}		100		pF
Common Source Feedback Capacitance (V _{GS} = 0V, V _{DS} =50 V, f = 1 MHz)	C _{RSS}		2.2		pF

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Reference Circuit of Test Fixture (40.68MHz)

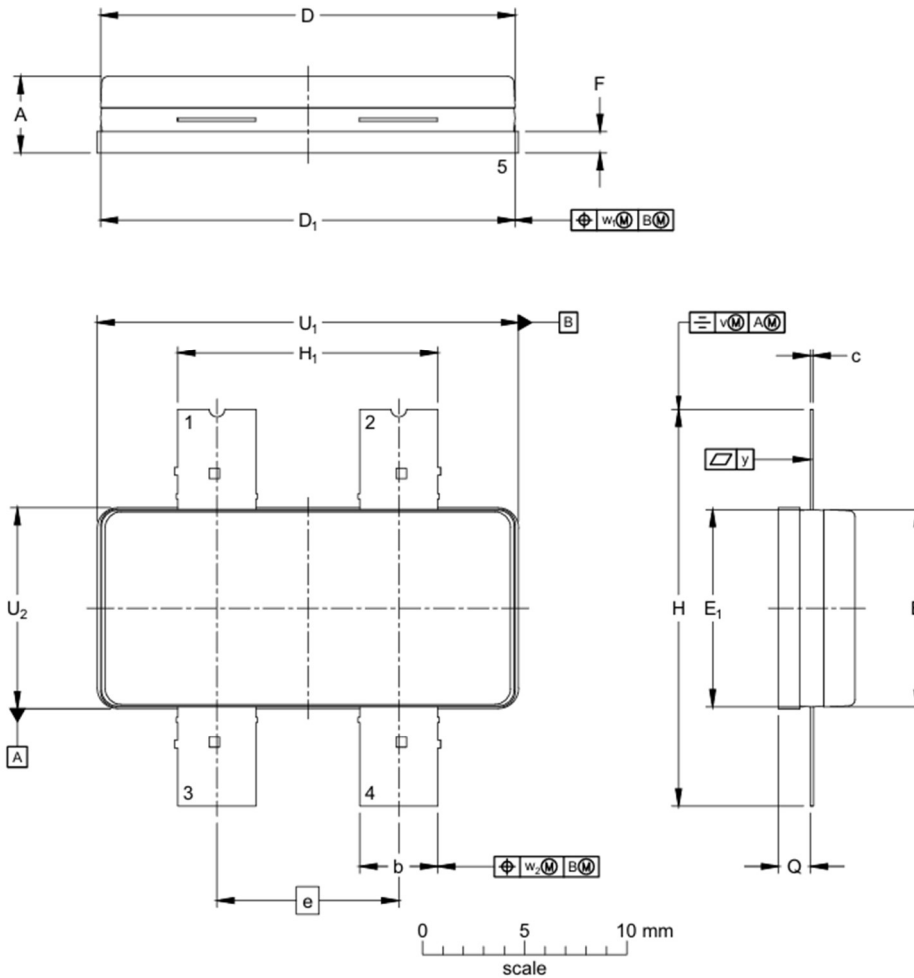


Component	Description	Suggested Manufacturer
C1,C2	10uF/ 1210	10uF/100V
C3~C6	10nF/ 1210	10nF/100V
C7	36pF/ MQ101111	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
C8,C10	270pF/ MQ101111	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
C9	150pF/ MQ101111	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
C11	4700uF/63V	Electrolytic Capacitor
R1	10 Ω /0805	Chip Resistor
L1	0.8mm wire , 5.5mm inner diameter 5Turns	DIY
L2	2mm wire , 8mm inner diameter 3Turns	DIY
L3	2mm wire , 10mm inner diameter 5Turns	DIY
L4	2mm wire , 10mm inner diameter 6Turns	DIY
PCB	30Mil Rogers4350	

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Earless Flanged Plastic Air Cavity Package; 4 leads



Dimensions		Unit	A	b	c	D	D ₁	E	E ₁	e	F	H	H ₁	Q ⁽¹⁾	U ₁	U ₂	v	w ₁	w ₂	y	
mm	max	4.01	3.91	0.18	20.42	20.37	9.80	9.75			1.14	19.53	12.83	1.68	20.70	9.91	0.50	0.50	0.50	0.10	
	nom									8.89											
	min	3.40	3.71	0.13	20.12	20.17	9.50	9.55			0.94	19.33	12.57	1.45	20.50	9.70					

Revision history

Table 5. Document revision history

Date	Revision	Datasheet Status
2024/6/24	Rev 1.0	Preliminary Datasheet

Application data based on SYX-24-17

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