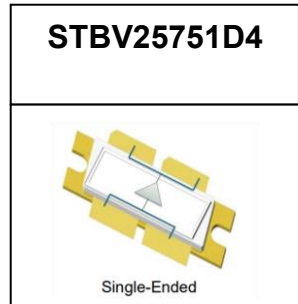




GaN 46V, 750W, 2.4-2.5GHz RF Power Transistor



Description

The STBV25751D4 is a 750W capable, internally matched GaN HEMT, ideal for ISM or RF energy applications at 2.4-2.5G full band

There is no guarantee of performance when this part is used outside of stated frequencies.

Please notice that both leads at input and output side are internally connected, to configure this device as single ended ,shown as right picture.

- Typical RF performance at 2450MHz applications
Vds=46V, Vgs=-4.8V, CW, Tc=25 degree C, Air cooling

Freq (MHz)	Pin (dBm)	Pout (W)	Gain-Pout (dB)	Ids (A)	Pout-Eff (%)
2400	43.20	800	15.83	24.50	71
2450	42.90	778	16.01	23.75	71
2500	42.80	756	15.98	23.10	71

Applications

- 2.45GHz RF Energy
- S band power amplifier

Important Note: Proper Biasing Sequence for GaN HEMT Transistors

Turning the device ON

1. Set VGS to the pinch-off (VP) voltage, typically -5 V
2. Turn on VDS to nominal supply voltage
3. Increase VGS until IDS current is attained
4. Apply RF input power to desired level

Turning the device OFF

1. Turn RF power off
2. Reduce VGS down to VP, typically -5 V
3. Reduce VDS down to 0 V
4. Turn off VGS

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V _{DSS}	+200	Vdc
Gate--Source Voltage	V _{GS}	-8 to +0.5	Vdc
Operating Voltage	V _{DD}	50	Vdc
Maximum gate current	I _{gs}	108	mA
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 by FEA T _c = 25°C, at Pd=300W	R _{θJC}	0.4	°C /W

Table 3. Electrical Characteristics (TA = 25°C unless otherwise noted)

DC Characteristics

Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	VGS=-8V; IDS=108mA	V _{DSS}		200		V



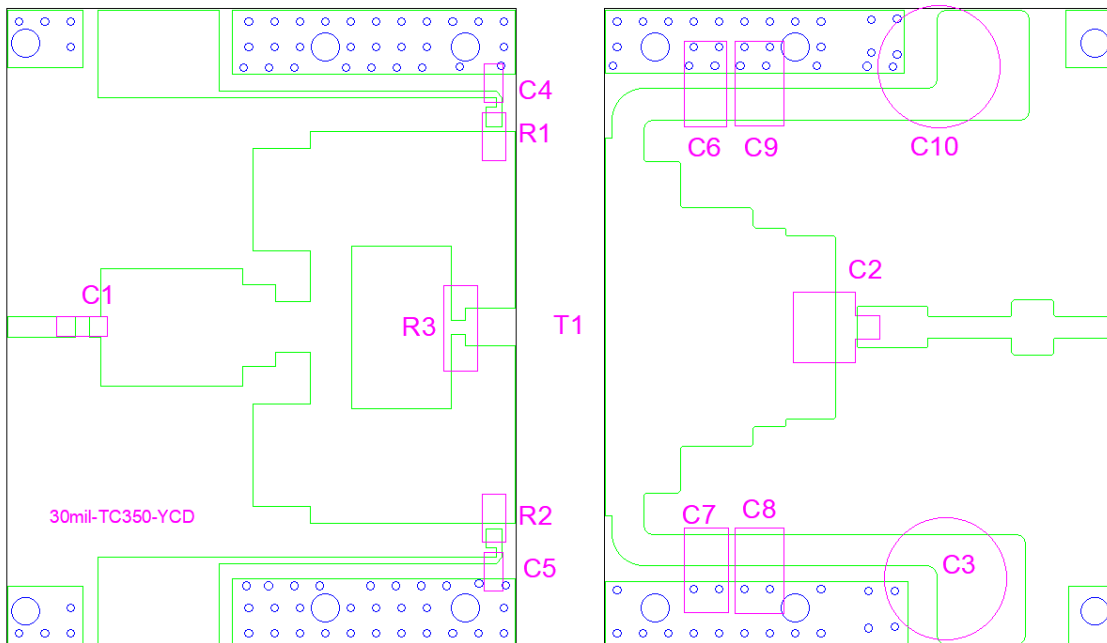
Gate Threshold Voltage	VDS =10V, ID =108mA	V _{GS(th)}	-4	-	-2	V
Gate Quiescent Voltage	VDS =50V, IDS=800mA, Measured in Functional Test	V _{GS(Q)}		--3.3		V

Ruggedness Characteristics

Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Load mismatch capability	2.45GHz, Pout=750W pulse CW All phase, No device damages	VSWR		10:1		

Reference Circuit of Test Fixture Assembly Diagram

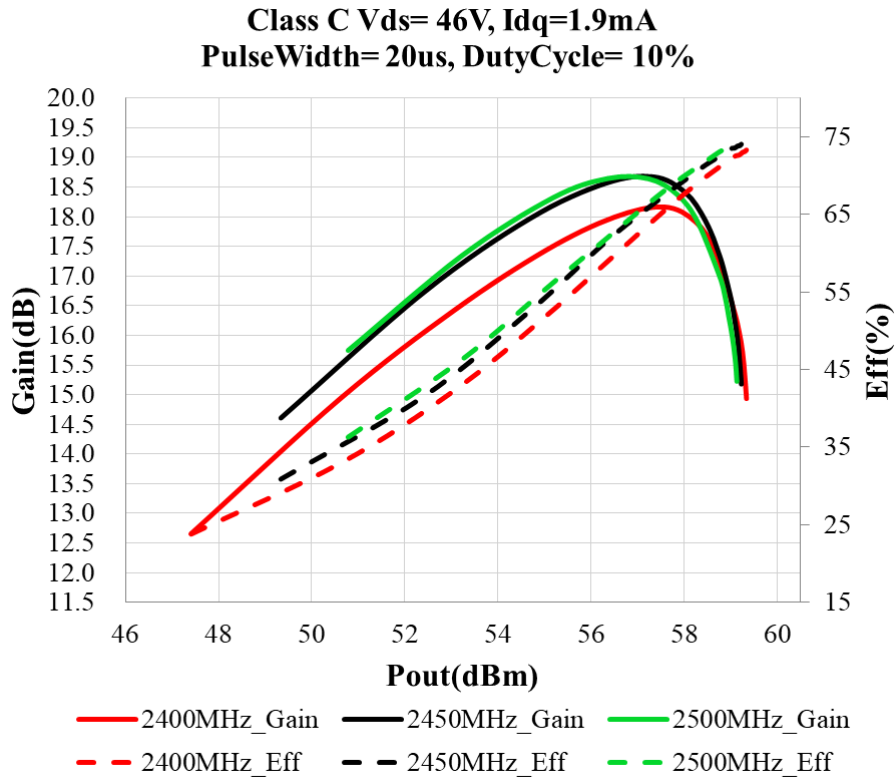
DXF file upon request
(20mm copper heatsink used underneath)



Part	Quantity	Description	Part Number	Manufacture
C1, C4,C5,C6,C7	5	12pF High Q Capacitor	251SHF120BSE	TEMEX
C2	1	9.1pF High Q Capacitor	MIN02-002CCQ9R1J-F, Dubilier-CDE	
C10, C3	2	1000uF/63V		
C8, C9	2	10uF MLCC	RS80R2A106M	MARUWA
R1, R2, R3	3	10 Ω Power Resistor	ESR03EZPF100	ROHM
T1	1	750W GaN Dual Transistor	STBV25751D4	Innogrations



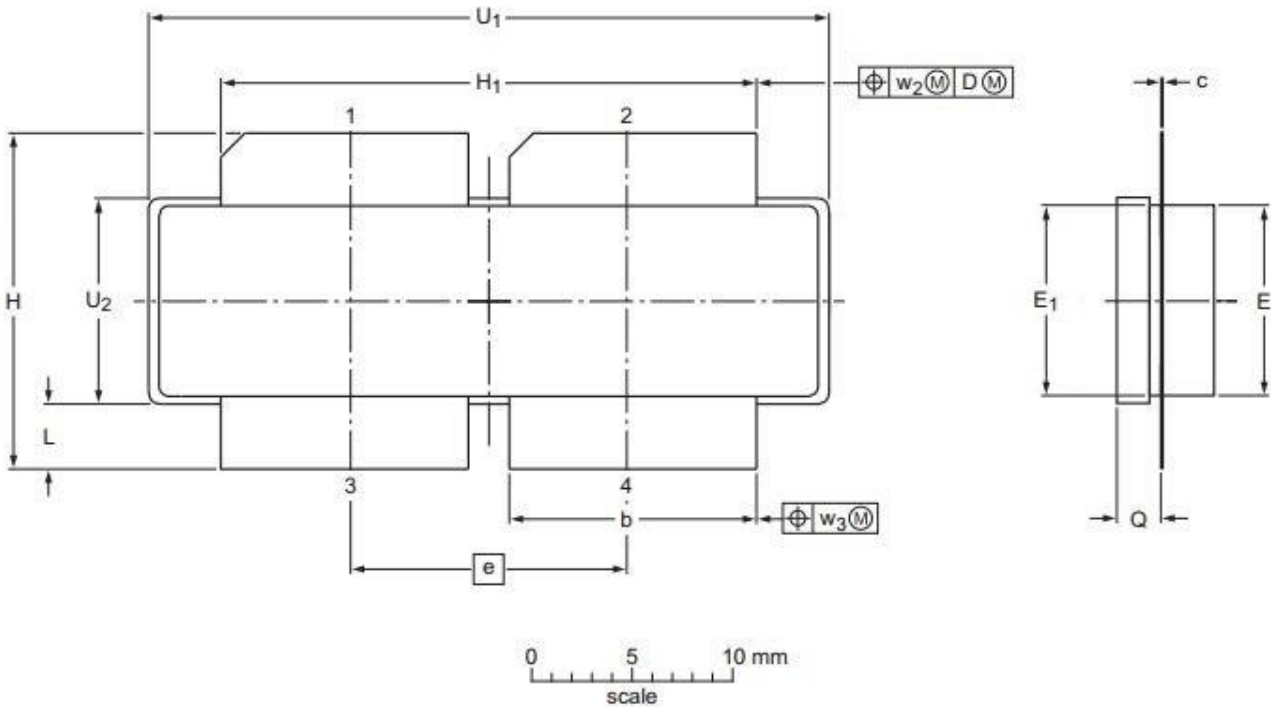
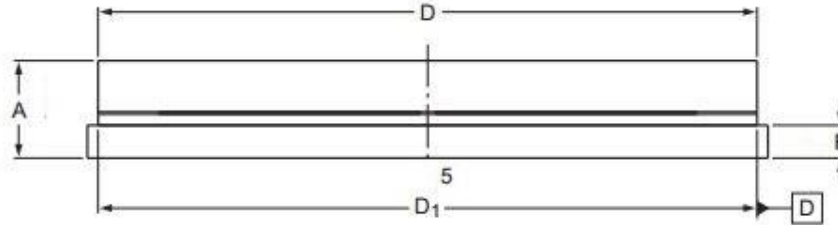
Figure 2: Power gain, Eff as function of Pout





Package Outline

Earless flanged ceramic package; 4 leads (1、2—DRAIN、3、4—GATE、5—SOURCE)



UNIT	A	b	c	D	D ₁	e	E	E ₁	F	H	H ₁	L	Q	U ₁	U ₂	W ₂	W ₂
mm	4.7	11.81	0.18	31.55	31.52	13.72	9.50	9.53	1.75	17.12	25.53	3.48	2.26	32.39	10.29	0.25	0.25
	4.2	11.56	0.10	30.94	30.96		9.30	9.27	1.50	16.10	25.27	2.97	2.01	32.13	10.03		
inches	0.185	0.465	0.007	1.242	1.241	0.540	0.374	0.375	0.069	0.674	1.005	0.137	0.089	1.275	0.405	0.01	0.01
	0.165	0.455	0.004	1.218	1.219		0.366	0.365	0.059	0.634	0.995	0.117	0.079	1.265	0.395		

OUTLINE VERSION	REFERENCE			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
PKG-D4					03/12/2013



Revision history

Table 4. Document revision history

Date	Revision	Datasheet Status
2026/4/1	Rev 1.0	Preliminary datasheet creation

Application data based on: LWH-26-08

Notice

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