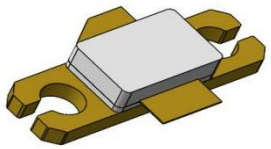
HTN9G10S130HB

130W, 1.8 - 1000 MHz LDMOS Amplifier

Product Datasheet

Description

The HTN9G10S130HB is a discrete LDMOS Power Amplifier with 130W saturated output power covering frequency range from 1.8 to 1000 MHz.



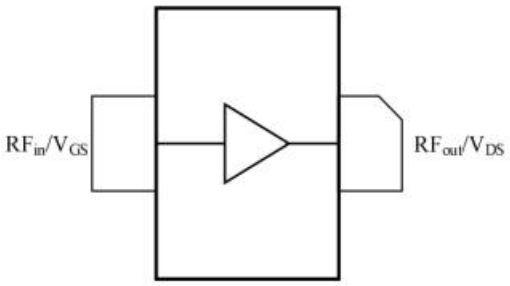
ACC0906B-2L

Flanged balanced

Air Cavity Ceramic Package; 2 Leads

2 Mounting Holes

HTN9G10S130HB



(Top View)

Note: Exposed backside of the package is the source terminal for the transistor

Pin Connections

Features

- Operating Frequency Range: 1.8 - 1000 MHz
- Operating Drain Voltage: +28V
- Saturation Output Power: 130W
- Excellent thermal stability due to low thermal resistance package
- Enhanced robustness design without device degradation

Applications

- Analog and Digital Broadcasting
- Meteorological and Aviation Radar
- Industrial Laser Sources and Plasma Equipment
- Various nuclear magnetic resonance instruments
- Particle accelerator

Ordering Information

Part Number	Description
HTN9G10S130HB	Reel Package
HTN9G10S130HB EVB	0.7 - 0.8GHz EVB

Typical Performance

RF Characteristics (Pulsed CW)

Freq (MHz)	Gain (dB)	P1dB (dBm)	Eff (%)@P1dB	P3dB (dBm)	Eff(%)@P3dB
700	19.3	52.2	71.4	52.8	73.2
750	20.9	51.4	71.4	52.3	74.7
800	19.3	50.8	69.7	51.8	73.4

Test conditions unless otherwise noted: 25 °C, VDD = +28Vdc, IDQ = 100mA PW = 100us, DC= 10% test on WATECH Application Board

RF Characteristics (CW)

Freq (MHz)	Gain (dB)	P1dB (dBm)	Eff (%)@P1dB	P3dB (dBm)	Eff(%)@P3dB
700	19.2	52.0	69.7	52.6	72.2
750	20.8	51.2	70.1	52.1	73.7
800	19.1	50.7	68.3	51.6	72.3

Test conditions unless otherwise noted: 25 °C, VDD = +28Vdc, IDQ = 100mA , CW test on WATECH Application Board

Absolute Maximum Ratings

Parameter	Range/Value	Unit
Drain voltage (VDSS)	-0.5 to +65	V
Gate voltage (VGS)	-15 to +10	V
Storage Temperature (TSTG)	-55 to +150	°C
Junction Temperature (TJ)	-40 to +225	°C

Electrical Specification

DC Characteristics

Parameter	Conditions	Min	Typ	Max	Unit
Breakdown Voltage V(BR)DSS	VGS=0V; IDS=210uA	65	68	-	Vdc
Gate-Source Threshold Voltage VGS(th)	VDS=10V; IDS=125uA	1.16	-	2	Vdc
Drain Leakage Current IDSS	VDS=65V; VGS=0V	-	-	2	uAdc
Gate Leakage Current IGSS	VDS=0V; VGS=10V	-	-	2	uAdc

Load Mismatch Test

Condition	Test Result
VSWR=65:1, at all Phase Angles, V_{DD} = +28Vdc, I_{DQ}= 100mA, Pout = P3dB(130W), CW signal, Freq = 750MHz, test on WATECH Application Board	Pass

Thermal Information

Symbol	Parameter	Condition	Value (Typ)	Units
Rth(s-c)(IR)	thermal resistance from active die surface to case by Infrared measurement	V_{DD} = +28Vdc, $I_{DQ_Carrier}$=0.26A, Measured under DC condition	3.8	℃/W

Load Pull Performance

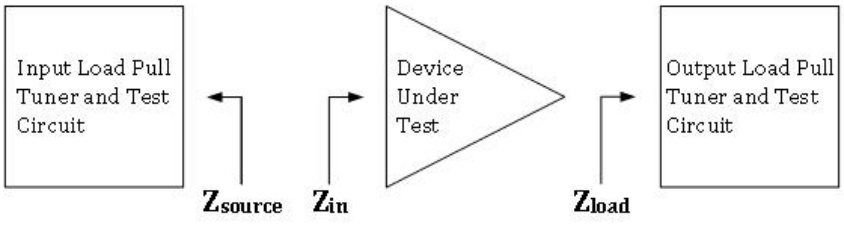
Test conditions unless otherwise noted: 25 °C, VDD = +28Vdc, IDQ= 600 mA, PW = 40us, DC= 4%

Max Output Power						
Freq (MHz)	Z_source (Ω)	Z_load [1] (Ω)	Gain (dB)	P3dB (dBm)	P3dB (W)	Eff (%)
860	0.71+j*0.23	1.45-j*0.42	22.8	53.0	199.5	71.2

[1] Load impedance for optimum P3dB pout

Max Drain Efficiency						
Freq (MHz)	Z_source (Ω)	Z_load [2] (Ω)	Gain (dB)	P3dB (dBm)	P3dB (W)	Eff (%)
860	0.71+j*0.23	2.02+j*0.57	25.1	51.4	138.0	78.3

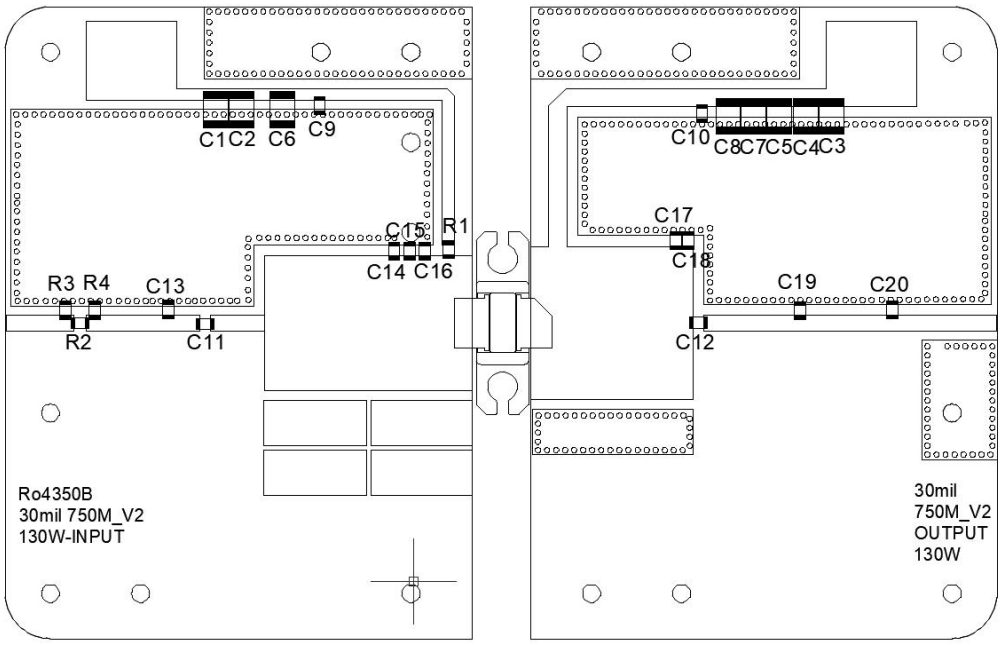
[2] Load impedance for optimum P3dB efficiency



Z_source : Measured impedance presented to the input of the device at the package reference plane

Z_load : Measured impedance presented to the output of the device at the package reference plane

HTN9G10S130HB 0.7 - 0.8GHz Reference Design



Rogers 4350B, thickness=30mil

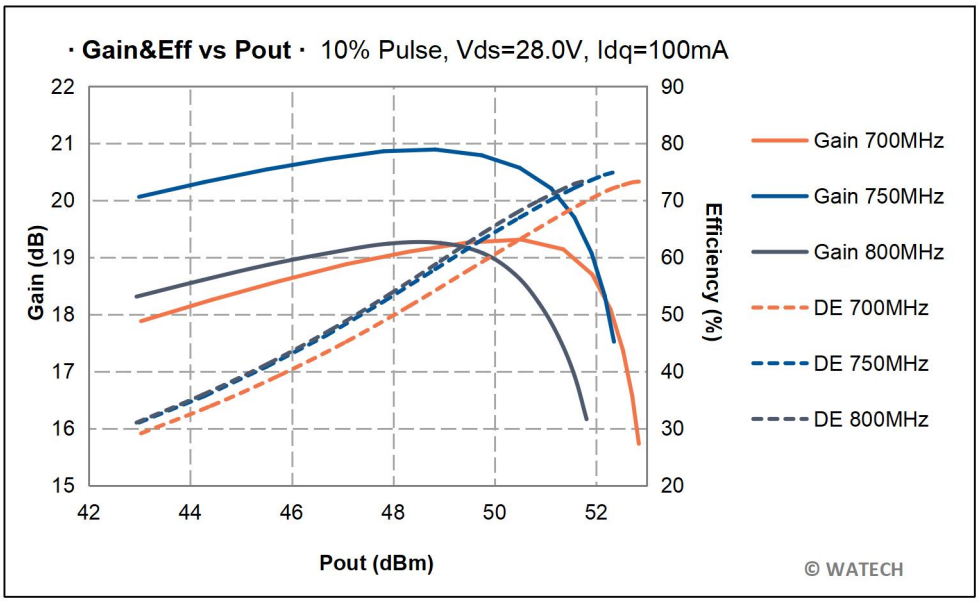
PCB is soldered on a 110 mm by 70 mm copper base plate with 10 mm thickness

EVB Layout

Bill of Materials (BoM) - HTN9G10S130HB 0.7 -0.8GHz Reference Design

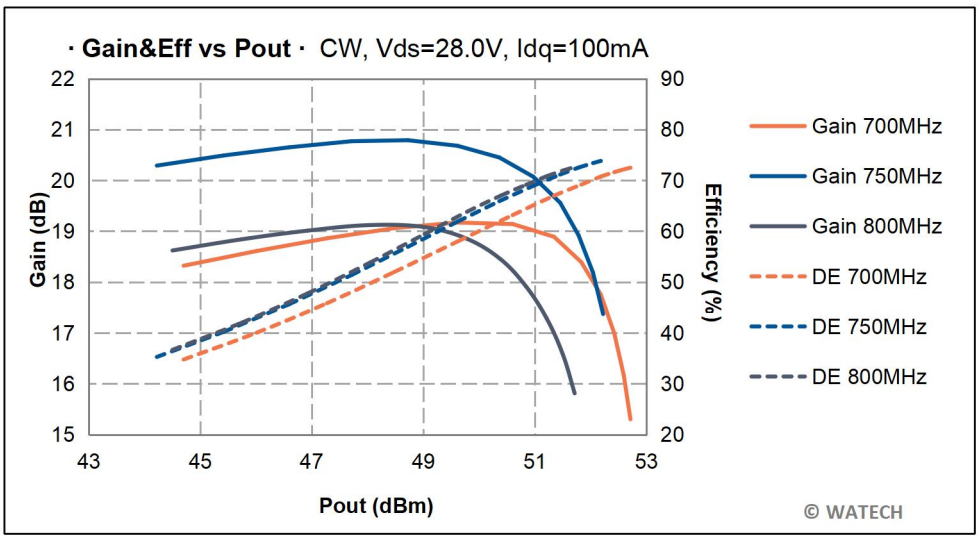
Reference	Value	Description	Manufacturer	P/N
Q1	130W	0.4-1 GHz LDMOS PA	Watech	HTN9G10S130HB
C1-C5	10uF	1210 Chip Capacitor	Murata	GRM32ER61H106KA12L
C6,C7	1nF	1210 Chip Capacitor	Murata	GRJ32ER71E102KE11
C8	390pF	1111 Chip Capacitor	Beijing YuanLu	MQ101111M7G3A391JNMB
C9-C12	100pF	0805 Chip Capacitor	Murata	GQM2195C2E101JB12D
C13,C19	8.2pF	0805 Chip Capacitor	Murata	GQM2195C2E8R2JB12D
C14-C16	11pF	0805 Chip Capacitor	Murata	GQM2195C2E110JB12D
C17-C18	10pF	0805 Chip Capacitor	Murata	GQM2195C2E100JB12D
C20	3.3pF	0805 Chip Capacitor	Murata	GQM2195C2E3R3JB12D
R1	100Ω	0805 Chip Resistor		
R2	12Ω	0805 Chip Resistor		
R3-R4	430Ω	0805 Chip Resistor		
PCB	Rogers 4350B (er = 3.5), 30 mil, 35 µm (1oz)			

Performance Plots



Pulsed CW, Gain and Efficiency vs Pout

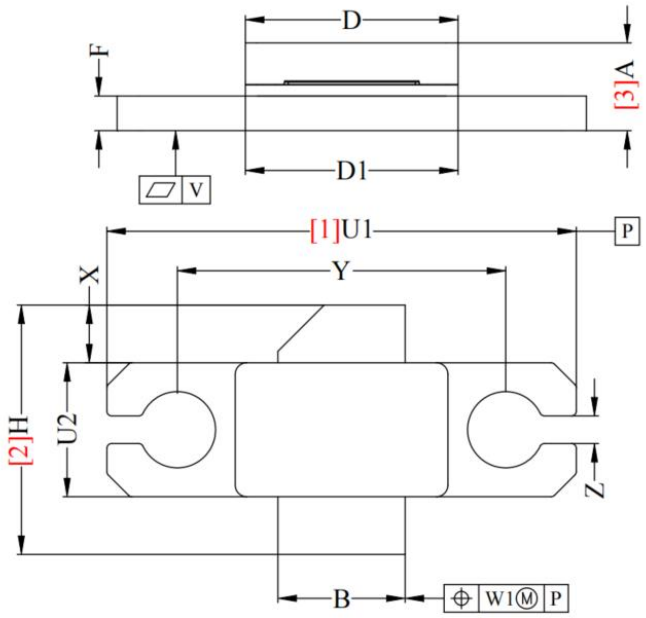
Test conditions unless otherwise noted: 25 °C, VDD = +28Vdc, IDQ = 100mA , PW = 100us, DC= 10%, test on WATECH Application Board



CW, Gain and Efficiency vs Pout

Test conditions unless otherwise noted: 25 °C, VDD = +28Vdc, IDQ = 100mA , CW, test on WATECH Application Board

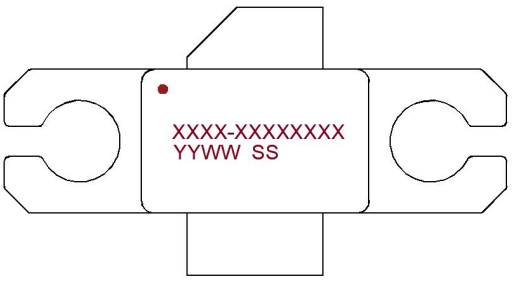
Package Marking and Dimensions



unit: mm

	A	B	C	D	D1	E	E1	F	H	Q	U1	U2	X	Y	Z	V	W1
max	4.250	5.550	0.170	9.200	9.330	5.800	5.930	1.550	11.300	2.200	20.400	5.900	2.630	14.330	1.300	0.025	0.250
nom	3.950	5.500	0.150	9.200	9.200	5.800	5.800	1.500	10.800	2.100	20.300	5.800	2.500	14.200	1.200	/	/
min	3.650	5.450	0.130	9.070	9.070	5.670	5.670	1.450	10.300	2.000	20.200	5.700	2.370	14.070	1.100	/	/

Package Dimensions

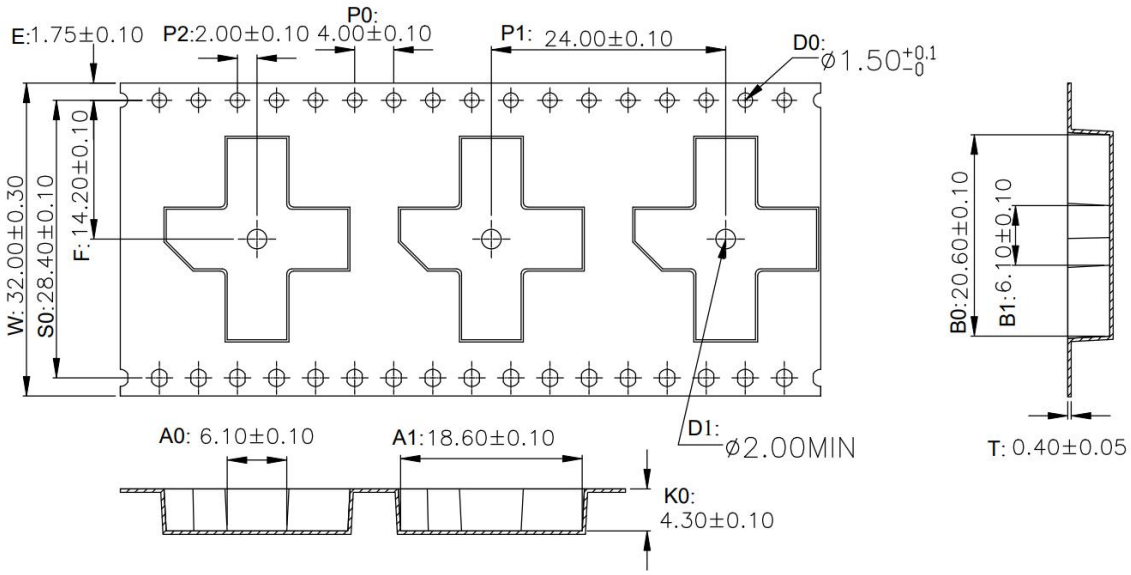


- Line1 (unfixed): Marking Lot No in W/O (Sample: E694-EETT0001)
- Line2 (unfixed):DC+Sub Lot No of W/O

Marking

Tape and Reel Information

Package Type	Reel Size(inch)	Qty/Reel(pcs)	Qty/Box(pcs)	Qty/Carton(pcs)
ACC0906B-2L	13	500	500	1000



Tape & Reel Packaging Descriptions

Handling Precautions

Parameter	Grade
Moisture Sensitivity Level MSL	3

Parameter	Rating	Standard
ESD – Human Body Model (HBM)	NA	JESD22-A114
ESD – Charged Device Model (CDM)	NA	JESD22-C101



RoHS Compliance

This product is compliant with the 2011/65/EU RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment), as amended by Directive 2015/863/EU.

Datasheet Status

Document status	Product status	Definition
Objective Datasheet	Design simulation	Product objective specification
Preliminary Datasheet	Customer sample	Engineering samples and first test results
Product Datasheet	Mass production	Final product specification

Abbreviations

Acronym	Definition
GAN	Gallium Nitride
CW	Continuous Waveform
RoHS	Restriction of Hazardous Substances
VSWR	Voltage Standing Wave Ratio

Revision history

Document ID	Datasheet Status	Release Date	Revision Version
Rev 1.0	Product	Aug. 2025	New Product Version
Rev 1.1	Product	Jan. 2026	Update thermal information

Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations and information about WATECH:

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