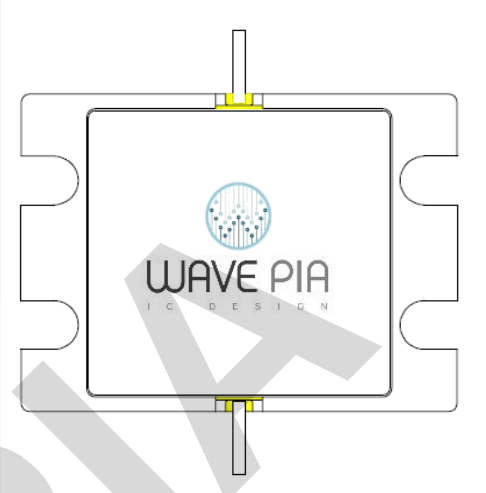
WP481P03078MH

78W RF GaN Power Transistor

Product Features

- 1.03 to 1.09 GHz Operation
- 19 dB Small Signal Gain at 1.03 GHz
- TBC W Typical Psat
- TBC % Efficiency at P_{sat}
- 48 V Operation



Applications

- Broadband Amplifiers
- Cellular Infrastructure
- Test Instrumentation
- Radar application

Absolute Maximum Ratings

Parameter	Symbol	Rating	Units	Conditions
Drain-Source Voltage	V_{DSS}	160	Volts	25˚C
Gate-to-Source Voltage[3]	V_{GS}	-10, +2	Volts	25˚C
Storage Temperature[3]	T_{STG}	-65, +150	˚C	
Operating Junction Temperature[13]	T_J	225	˚C	
Maximum Forward Gate Current[3]	I_{GMAX}	30	mA	25˚C
Maximum Drain Current[2]	I_{DMAX}	1	A	Id@ Vd =10V, Vg= 1V
Soldering Temperature[3]	T_S	245	˚C	
Storage Temperature[3]	T_{STG}	-65, +150	˚C	

Note:
1. Continuous use at maximum temperature will affect MTTF.
2. Current limit for long term, reliable operation
3. After additional updates

DC Characteristics[1] (TC = 25°C)

Parameter	Symbol	MIN	TYP	MAX	Units	Conditions
Gate Threshold Voltage	$V_{GS(th)}$		-3.1		V_{DC}	VDS = 10 V, ID = 1 mA
Gate Quiescent Voltage	$V_{GS(Q)}$		-2.8		V_{DC}	VDS = 48 V, ID = 150 mA
Saturated Drain Current[2]	I_{DS}		1000		mA/mm	VDS = 10 V, VGS = 1 V
Drain-Source Breakdown Voltage	V_{BR}	160			V_{DC}	ID = 1 mA/mm

Note:
1. Measured on wafer prior to packaging.
2. Scaled from PCM data.

RF Characteristics (TC = 25°C, F0 = 1.03GHz unless otherwise noted)

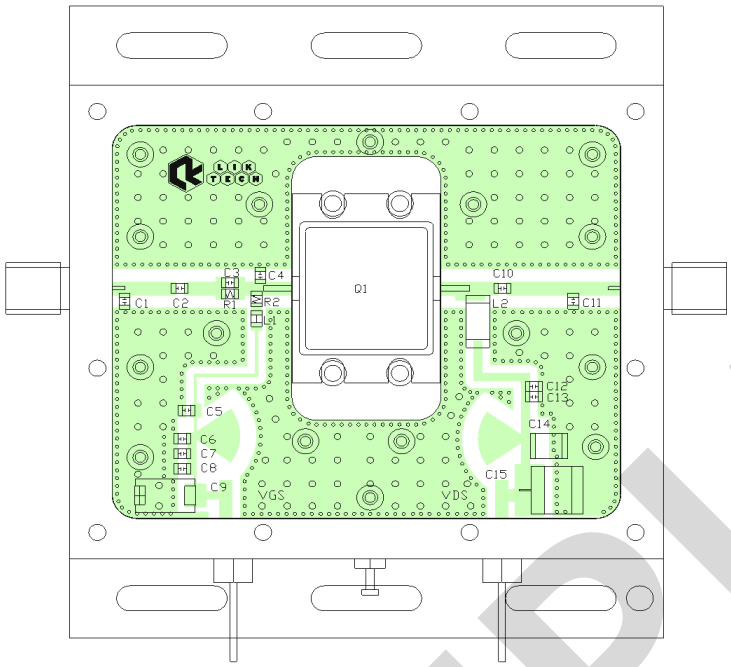
Parameter	Symbol	MIN	TYP	MAX	Units	Conditions
Gain	G_{SS}		19		dB	VDD = 48 V, IDQ = 150 mA, Pulse Width = 100 usec, Duty Cycle = 10%
Saturated Output Power	P_{SAT}		TBC		W	VDD = 48 V, IDQ = 150 mA, Pulse Width = 100 usec, Duty Cycle = 10%
Pulsed Drain Efficiency[1]	n		TBC		%	VDD = 48 V, IDQ = 150 mA, Pulse Width = 100 usec, Duty Cycle = 10%

Note:
1. Drain Efficiency = P_{OUT}/P_{DC}

Pulse Signal Performance (Tc=25℃, Measured in the test board amplifier circuit)

VDD = 48 V, IDQ = 150 mA

Demonstration board



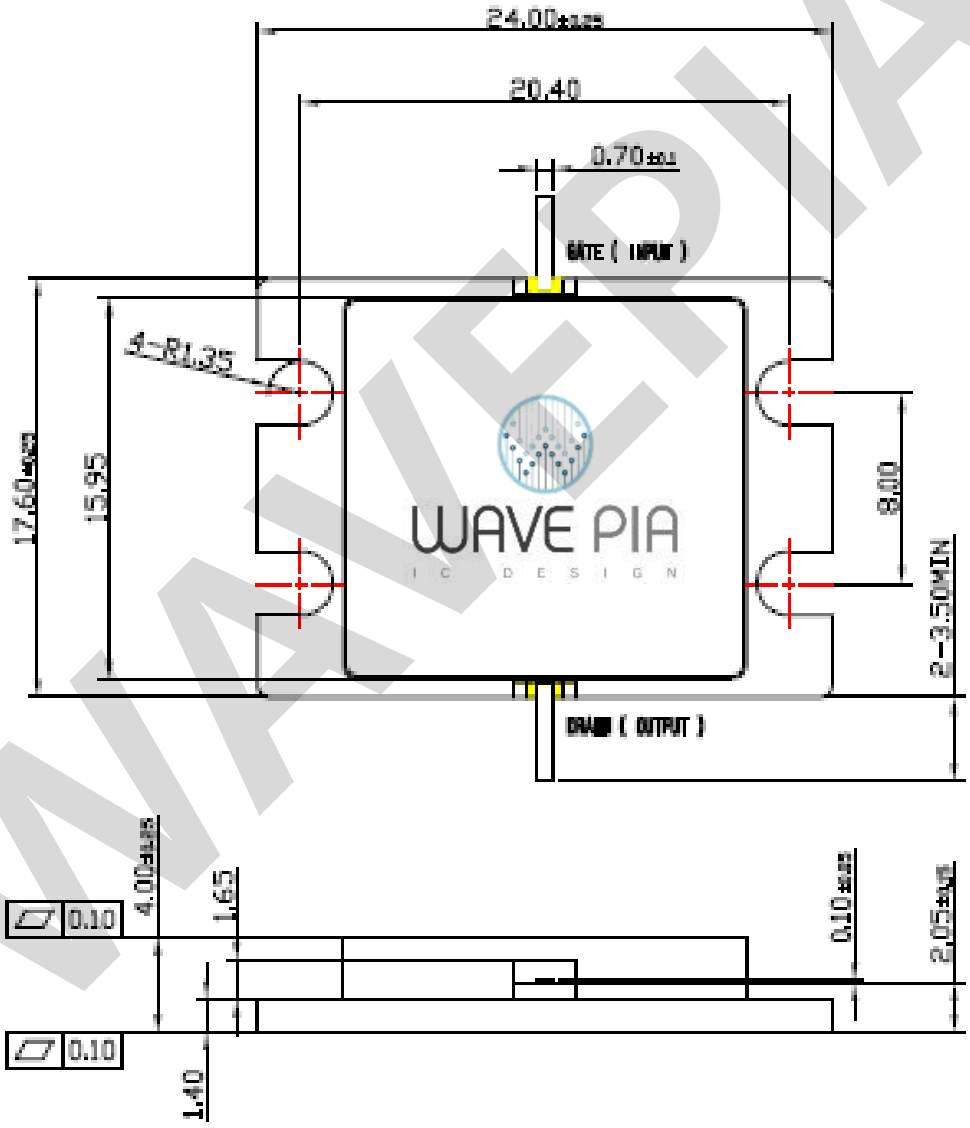
Reference	Value	Description	Package	Manufacturer
C1	3.3pF	High Q Capacitor	CHA	TEMEX
C2,C5	47pF	High Q Capacitor	CHA	TEMEX
C3	6.2pF	High Q Capacitor	CHA	TEMEX
C4	2.7pF	High Q Capacitor	CHA	TEMEX
C6	100pF	Ceramic Capacitor	2010	Murata
C7	1000pF	Ceramic Capacitor	2010	Murata
C8	1uF	Ceramic Capacitor	2010	Murata
C9	10uF	Tantalium Capacitor		
C10	33pF	High Q Capacitor	CHA	TEMEX
C11	1.2pF	High Q Capacitor	CHA	TEMEX
C13	100pF	High V Capacitor	2010	Murata
C12	33pF	High V Capacitor	2010	Murata
C14	470nF	High V Capacitor	3528	Johanson Dielectrics
C15	47uF	Tantalium Capacitor		
L1	47nH	Wire Wounded Inductor	2010	AVX
L2	28nH	Air Core Inductor	B08T	Coilcraft
R1	300Ω	Chip Resistor	2010	Walsin
R2	20Ω	Chip Resistor	2010	Walsin

Part number code

WP483P5100UH

- S (Surface), H (Screw Hole)
- M (Matched), U (Unmatched)
- Power (Watt)
- Frequency (GHz)
- Drain Voltage (DC)

Package Dimensions



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