Initial Version

WG050058090I

5.0 – 5.8GHz 90 Watt GaN Amplifier

Production Description

Wavice's WG050058090I is a high-power, C-Band amplifier fabricated on 0.3um Durable GaN on SiC process. Covering the frequency range of 5.0 to 5.8GHz, the WG050058090I typically provides 49dBm of saturated output power and 9dB of power gain while achieving 30% power-added-efficiency.

The WG050058090I is matched to 50-ohms on the input and 50-ohms on the output. It is ideal for use in both commercial and military radar systems.

ROHS compliant.

Evaluation boards are available upon request.

Product Features

- 50-Ohm Input/Output Matched
- Frequency Range : 5.0 – 5.8 GHz
- Pout: 49.0dBm (P_{IN} = 40dBm)
- Power Gain: 9dB (P_{IN} = 40dBm)
- PAE: >30% (P_{IN} = 40dBm)
- Bias : V_D = 50V, I_{DQ} = 0mA, V_G = -2.7V(Typ)
- Characterized at CW

Applications

- Military Radar
- Commercial Radar

Package Type

- Package Type : SCF-GG2
- Package Dimensions: 9.96 x 20.3 x 4.4 mm

Ordering information

Type	Description	Package Type
WG050058090I	5.0-5.8 GHz 90W IMFET	SCF-GG2

46, Samsung 1-ro 5-gil, Hwaseong-si, Gyeonggi-do, Korea(18449)
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Typical Performance

- Test Conditions : 25℃, Frequency : 5.0 ~ 5.8 GHz

	5.0GHz	5.2GHz	5.4GHz	5.6GHz	5.8GHz
Output Power [dBm]	50.2	50.6	50.7	50.4	49.8
Power Gain [dB]	10.2	10.6	10.7	10.4	9.8
Power Added Efficiency [%]	35.0	40.2	40.5	39.8	37.7

DC Characteristics

- Test Conditions : 25℃

	Sym	Units	Min	Typ	Max.	Conditions
Gate Threshold Voltage	V_{TH}	V	-3.4	-2.7	-2.0	V_{DS}= 10V, I_D= 21mA
Drain-Source Breakdown Voltage	V_{BD}	V	150			V_{GS}= -8V, I_D= 21mA
Drain Current[1)]	I_{DMAX}	A	7.9	10		V_{DS}= 10V, V_{GS}= 2.0V
Gate Forward Voltage	V_{G-ON}	V	-	2	-	I_{GS}= 21mA

RF Characteristics

- Test Conditions : 25℃, Frequency : 5.0 ~ 5.8 GHz

	Min	Typ.	Max.	Units	Conditions
Small Signal Gain	13.7		16.1	dB	V_{DD}= 50V, I_{DQ}=400mA, P_{IN}=-5 dBm
Input Return Loss	-15		-4	dB	V_{DD}= 50V, I_{DQ}=400mA, P_{IN}=-5 dBm
Output Return Loss	-20		-6	dB	V_{DD}= 50V, I_{DQ}=400mA, P_{IN}=-5 dBm
Power Output	49.8		50.7	dBm	V_{DD}= 50V, I_{DQ}=0mA, P_{IN}=40 dBm
Power Added Efficiency	35.0		40.5	%	V_{DD}= 50V, I_{DQ}=0mA, P_{IN}=40 dBm
Power Gain	9.8		10.7	dB	V_{DD}= 50V, I_{DQ}=0mA, P_{IN}=40 dBm

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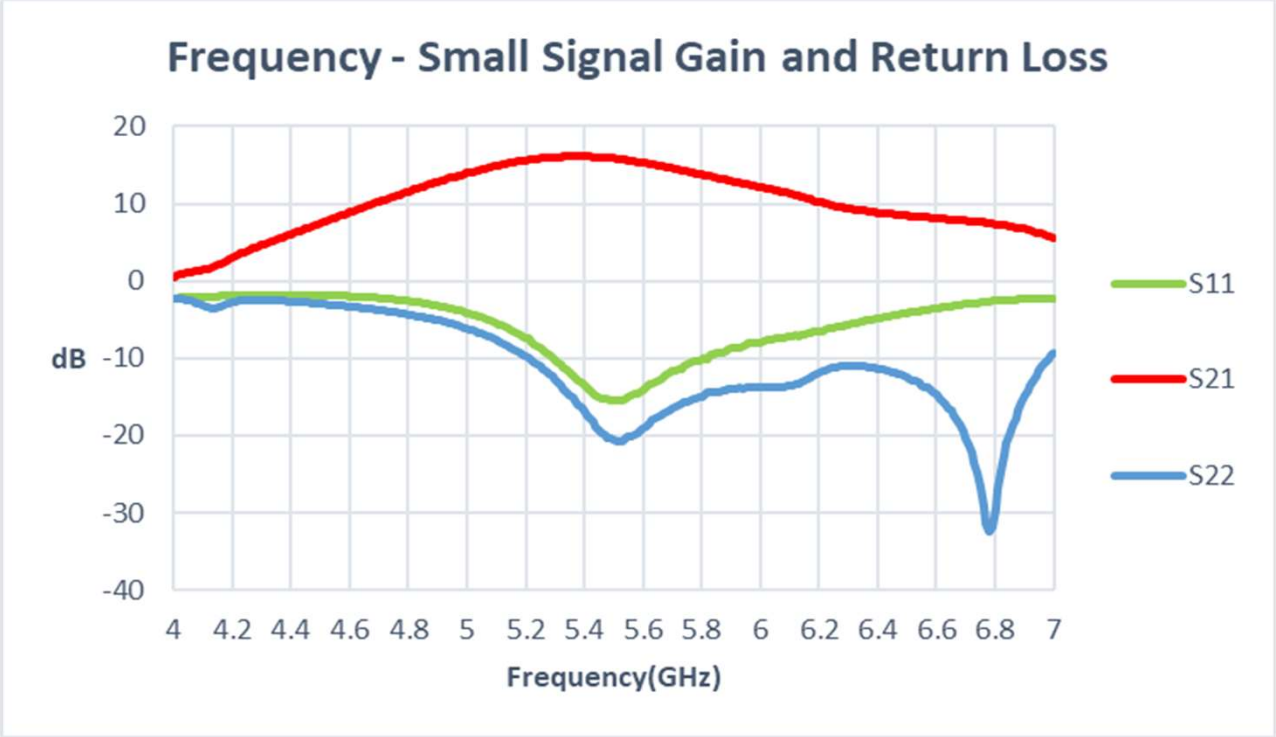
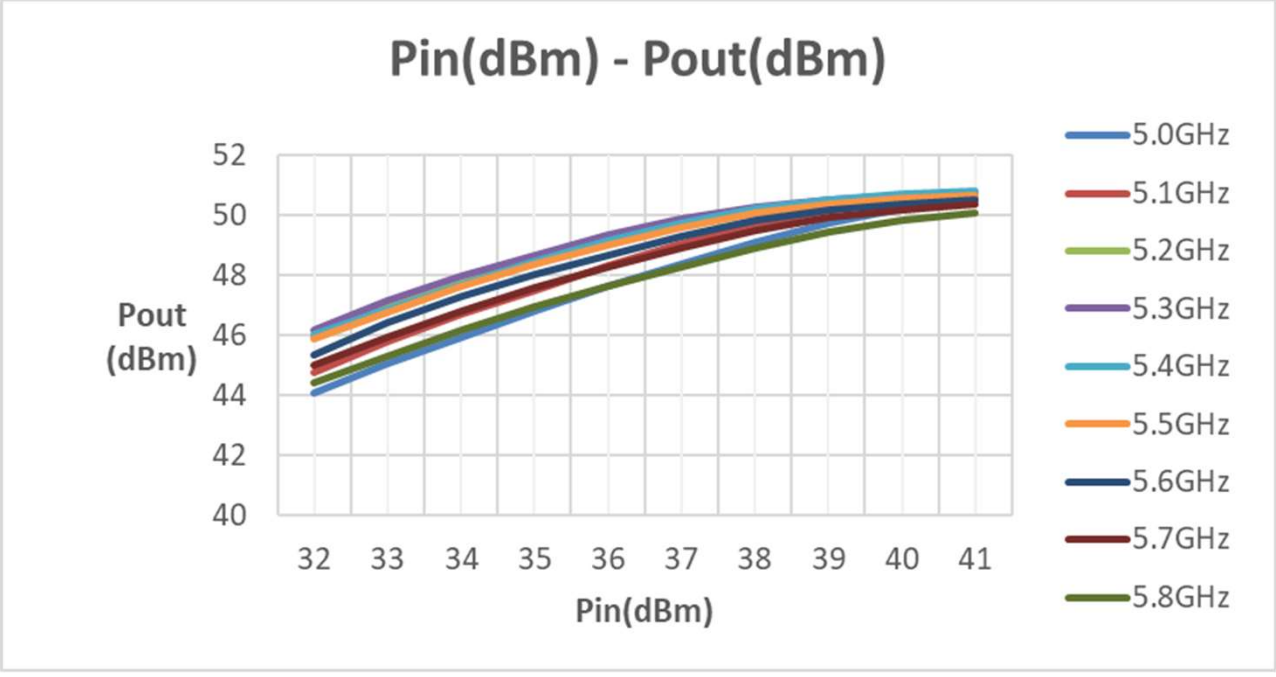
Typical S-Parameters

- VDD = 50V, ID = 400mA, PIN = -5dBm



Output Power[dBm] vs Input Power[dBm]

- VDD = 50V, CW TEST



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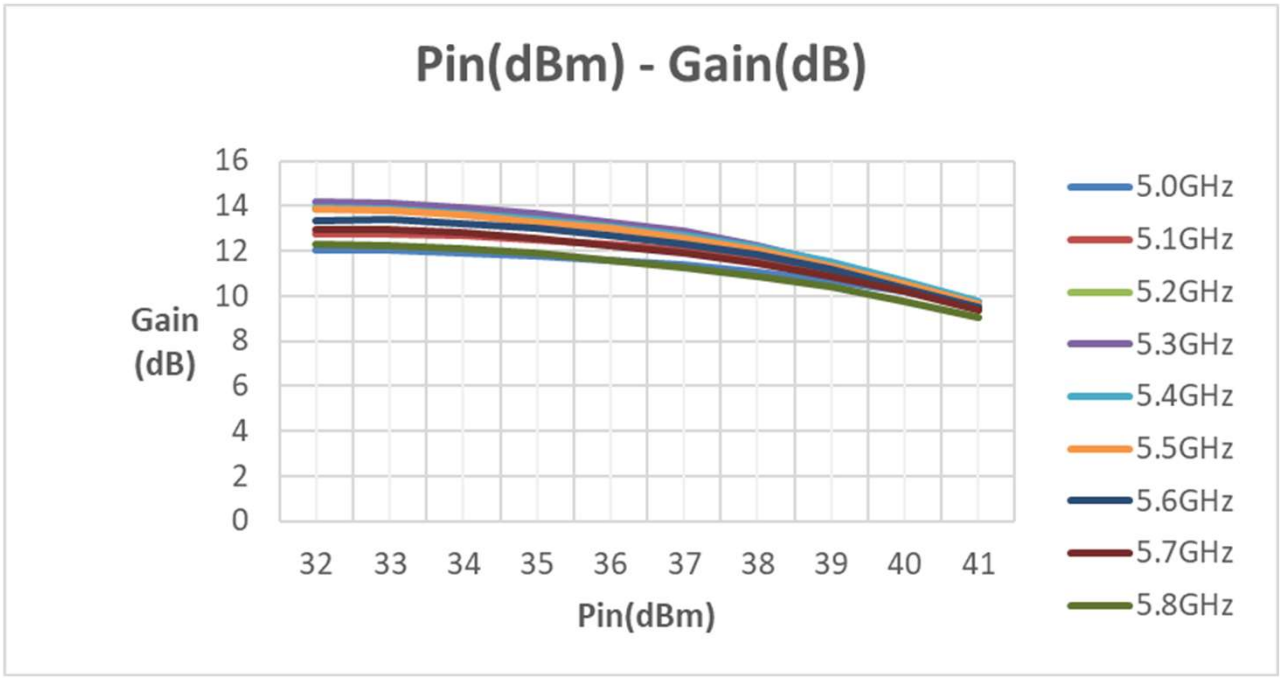
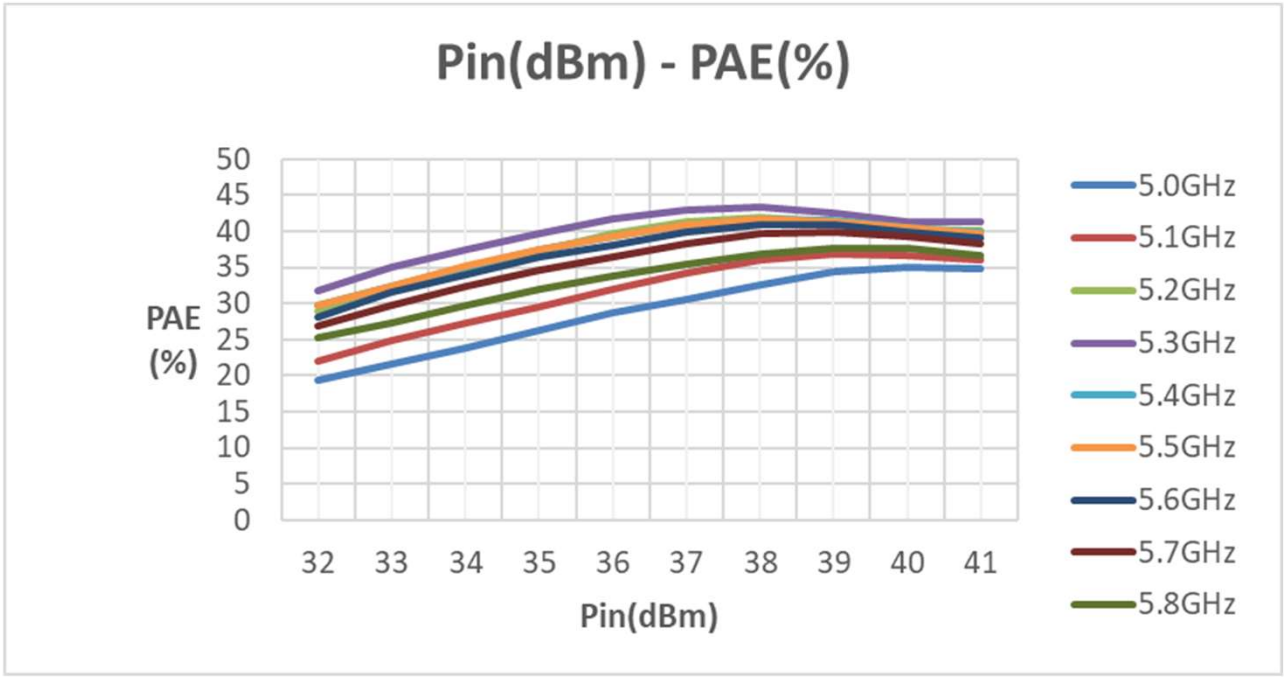
Power Gain[dB] vs Input Power[dBm]

- VDD = 50V, CW TEST



PAE[%] vs Input Power[dBm]

- VDD = 50V, CW TEST



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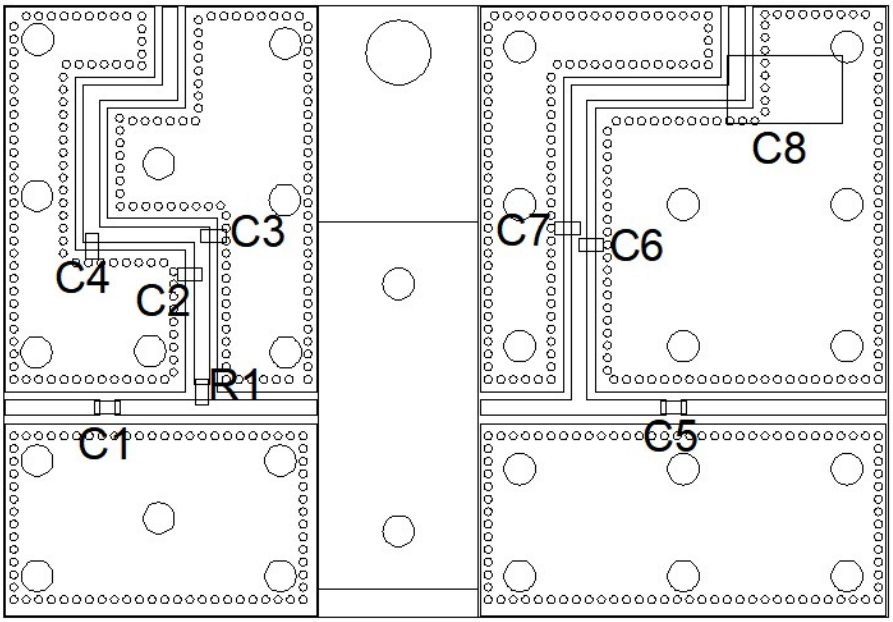
Evaluation Board



Bill of Materials

Designator	Part Name	Manufacturer	Qty
C1	800A3R9BT250XT	American technical ceramics	1
C2	GRM1885C2A100JA01D	Murata Electronics	1
C3	GRM1885C2A470JA01D	Murata Electronics	1
C4	GRM1885C2A820JA01D	Murata Electronics	1
C5	800A5R6BT250XT	American technical ceramics	1
C6	800A200J250XT	American technical ceramics	1
C7	800A560J250XT	American technical ceramics	1
C8	EEE-1HA221P	Panasonic	1
R1	CR-03JL7---51R	VIKING	1
Amplifier	WG050058090I	Wavice	1
PCB	Rogers, RO4350B 20mil, 1oz	Rogers Corporation	1

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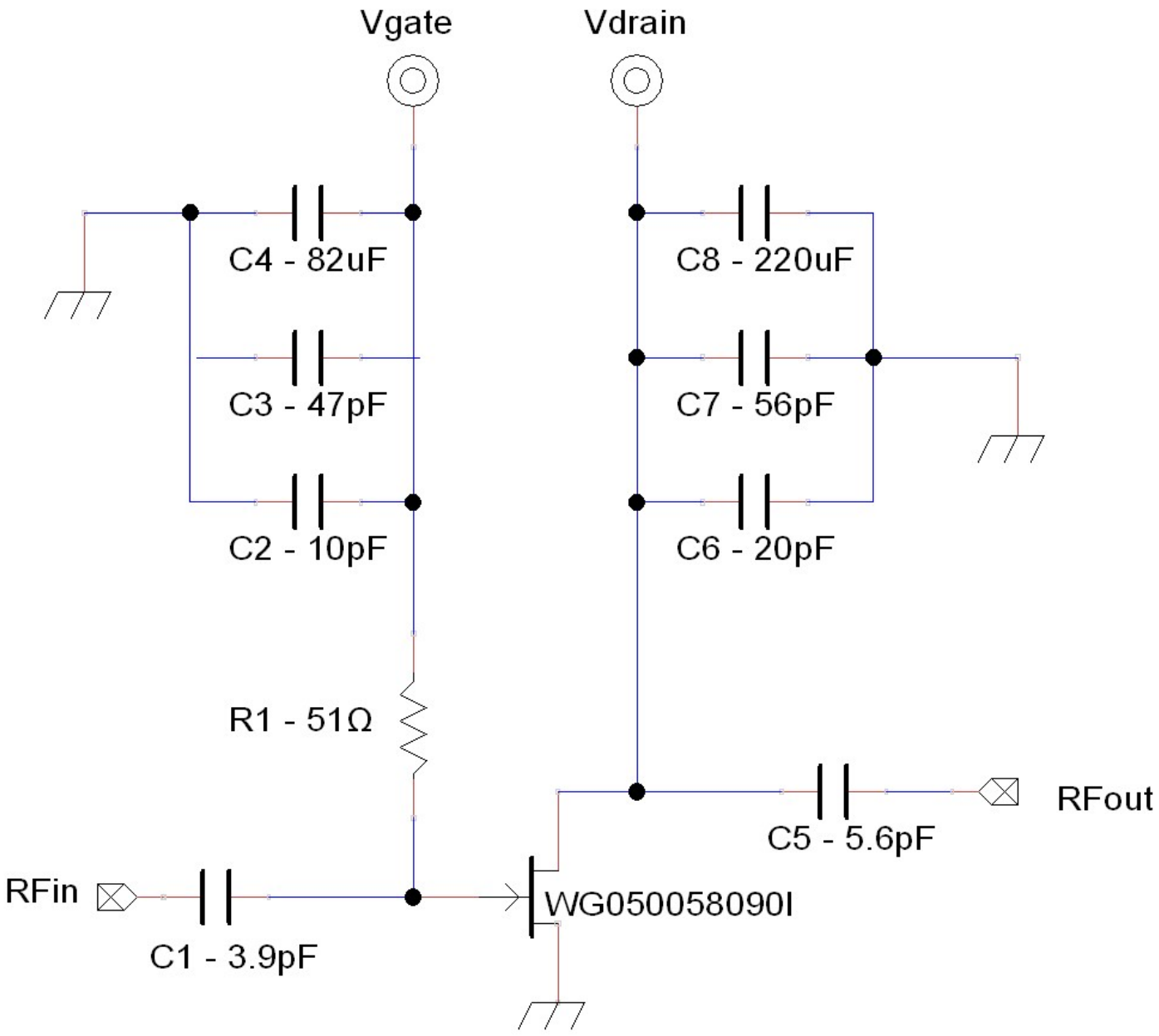
Application Circuit



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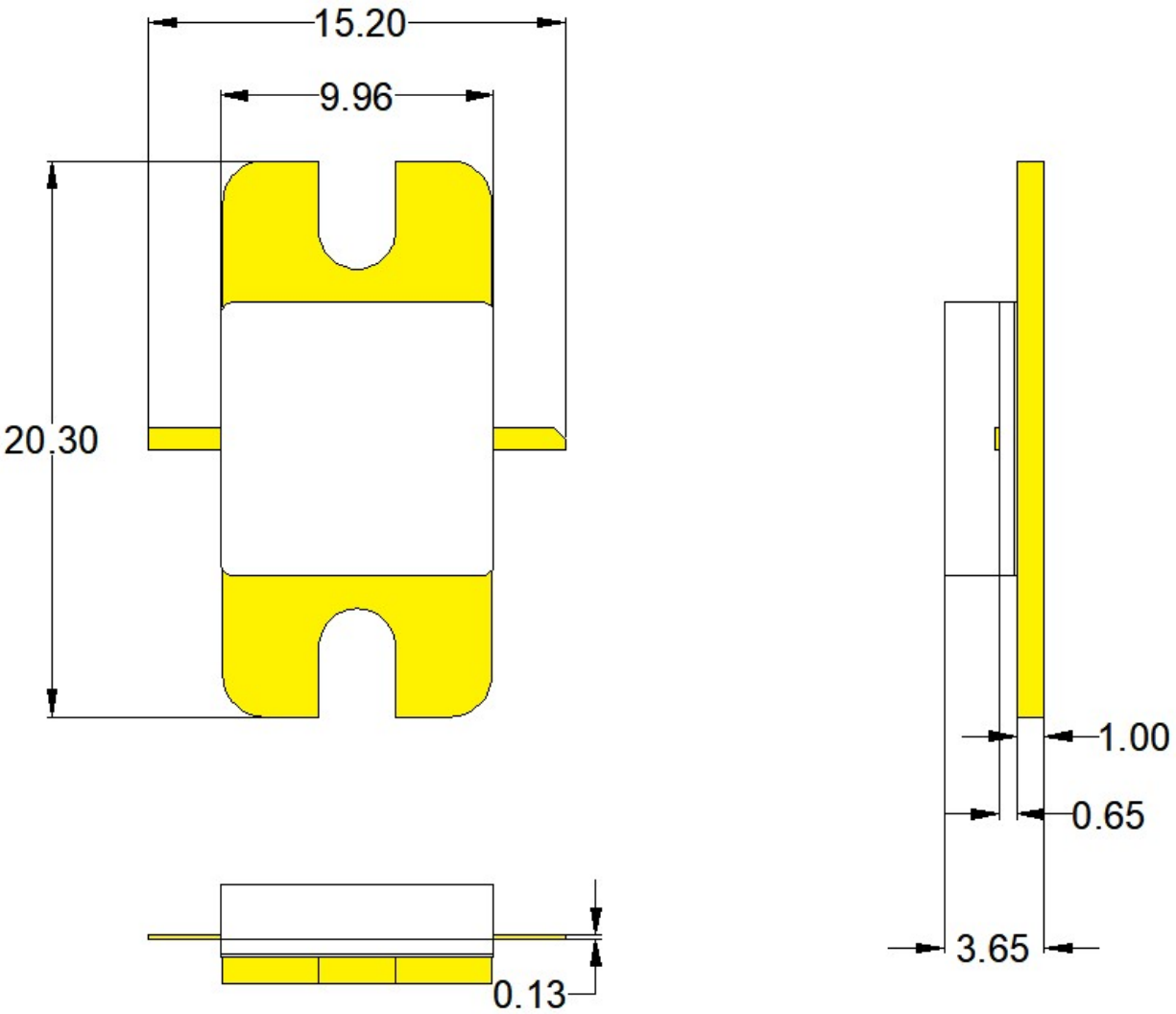
Product Dimensions



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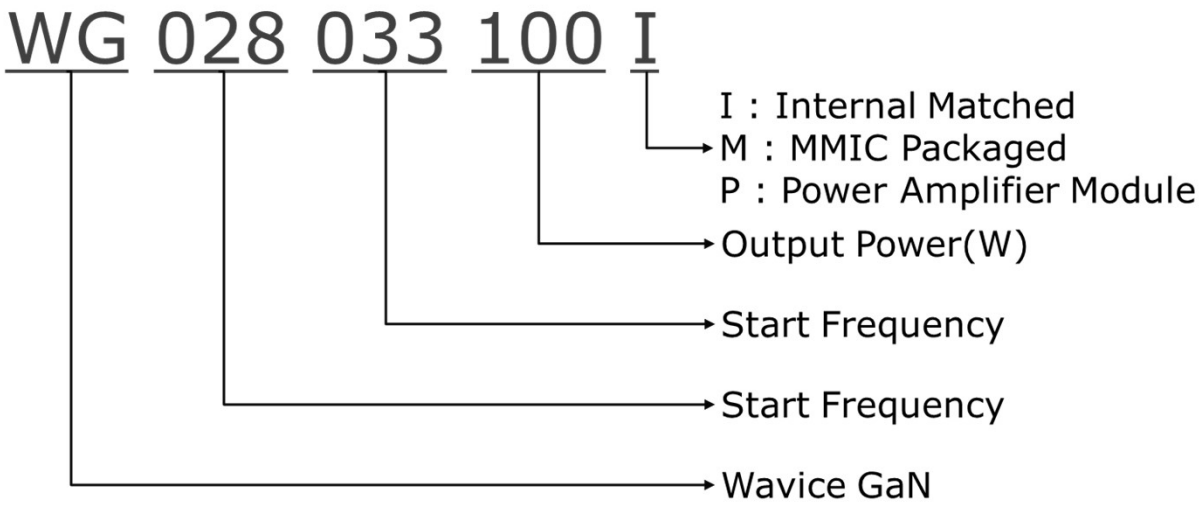
Naming Rule



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