■ Features

- High Power: 280W(Typ.) @ Pin=16W(42dBm)
- High Efficiency: 60%(Typ.) @ Pin=16W(42dBm)
- Broad Band: 2.75 to 3.3GHz
- Impedance Matched Zin/Zout = 50 ohm
- Hermetically Sealed Package

■ Description

Sumitomo Electric's GaN-HEMT SGN2833-200L-R offers high power, high efficiency and greater consistency covering 2.75 to 3.3 GHz for S-band radar applications with 50V operation.

ABSOLUTE MAXIMUM RATING (Case Temperature T_c=25 deg.C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	55	V
Gate-Source Voltage	V_{GS}	-15	V
Storage Temperature	T_{stg}	-55 to +125	deg.C
Channel Temperature	T_{ch}	+250	deg.C

RECOMMENDED OPERATING CONDITION

Item	Symbol	Condition	Limit	Unit
Drain-Source Voltage	V_{DS}		<=50	V
Forward Gate Current	I_{GF}	Rg=12ohm	<=152	mA
Reverse Gate Current	I_{GR}	Rg=12ohm	>=-10.4	mA
Channel Temperature	T_{ch}		<+200	deg.C
Output Power	P_{out}		<=P5dB	dBm

ELECTRICAL CHARACTERISTICS (Case Temperature T_c=25 deg.C)

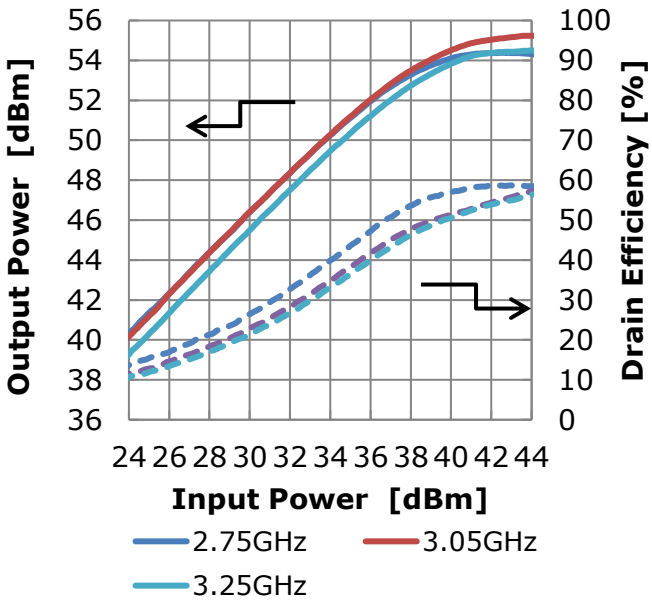
Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Pinch-off Voltage	V_p	V_{DS}=50V, I_{DS}=28mA	-3.45	-3.00	-2.45	V
Frequency Range	Freq.	V_{DS}=50V-typ. $I_{DS(DC)}$=0.5A-typ. Pulse Width=200µsec. Duty=10% Pin=42dBm	2.75	-	3.3	GHz
Output Power	P_{sat}		53.0	54.5	-	dBm
Power Gain	G_p		11.0	12.5	-	dB
Drain Efficiency	DE		-	60.0	-	%
Gain Flatness	GF		-	1.2	-	dB
Load Mismatch Ruggedness	VSWR		-	10:1	-	-

CASE STYLE	IV
RoHS Compliance	YES

■ RF Characteristics

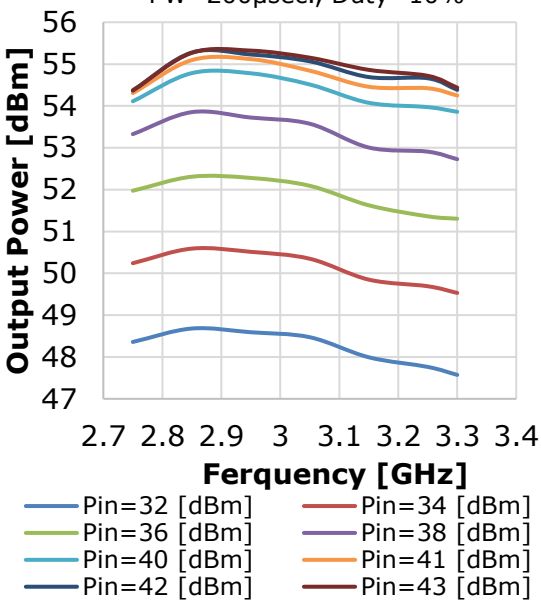
Output Power & Drain Efficiency vs. Input Power

V_{DS}=50V, $I_{DS(DC)}$=0.5A
PW=200μsec., Duty=10%



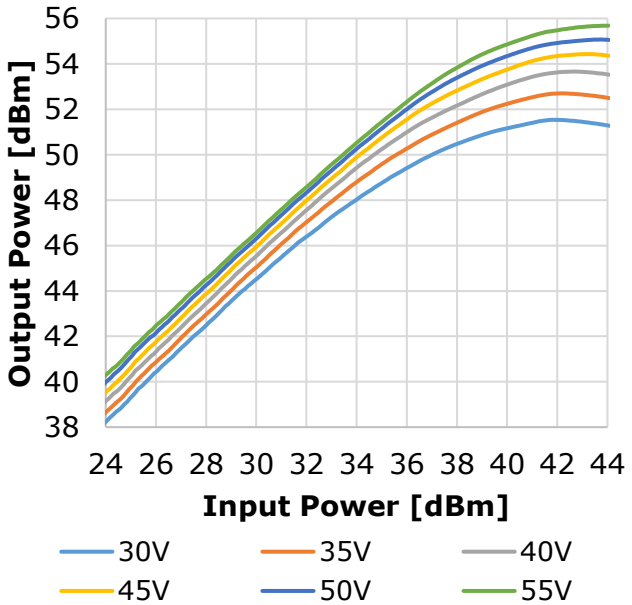
Output Power vs. Frequency by Pin

V_{DS}=50V, $I_{DS(DC)}$=0.5A
PW=200μsec., Duty=10%



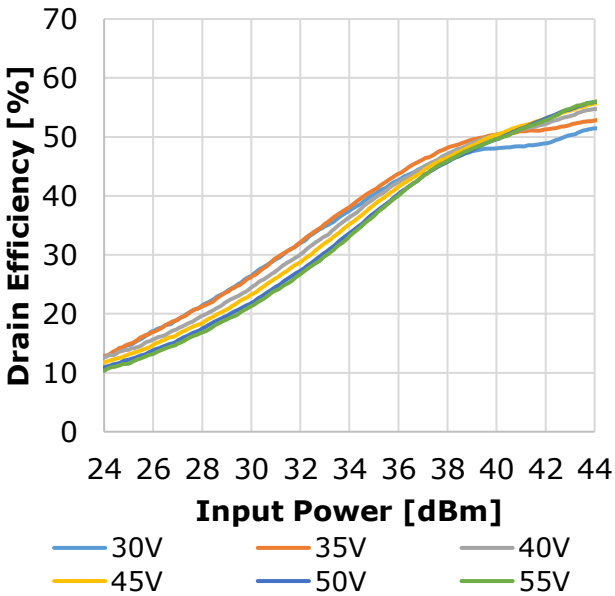
Output Power vs. Input Power by Drain Voltage

f=3.05GHz, $I_{DS(DC)}$=0.5A
PW=200μsec., Duty=10%



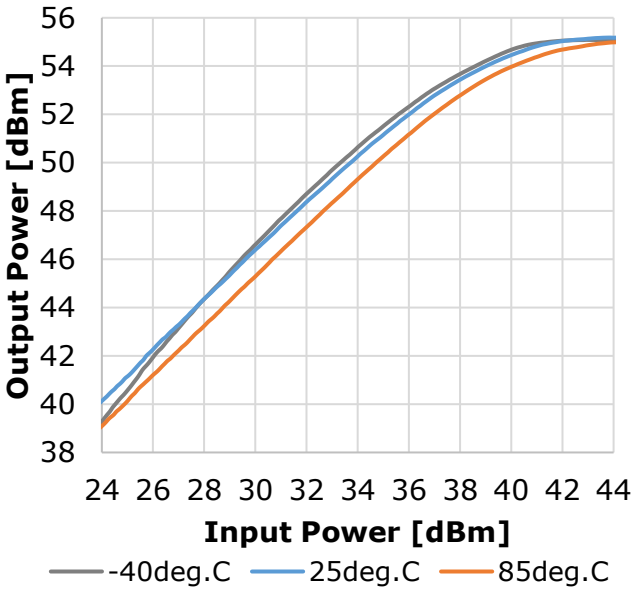
Drain Efficiency vs. Input Power by Drain Voltage

f=3.05GHz, $I_{DS(DC)}$=0.5A
PW=200μsec., Duty=10%

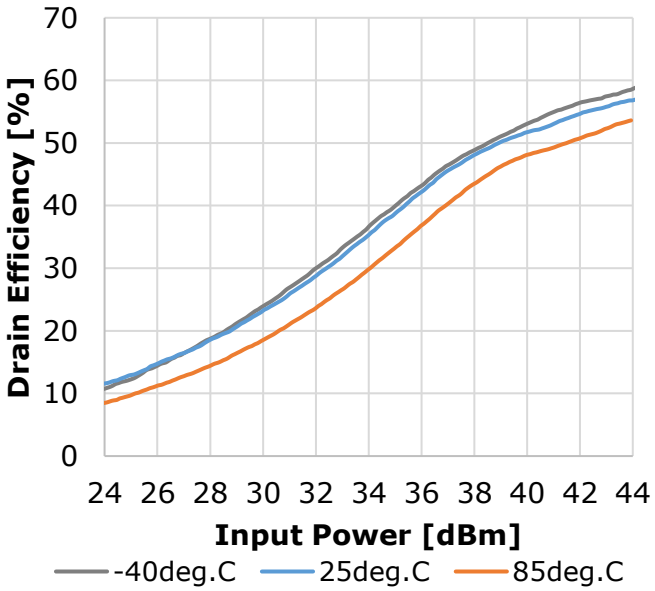


■ RF Characteristics

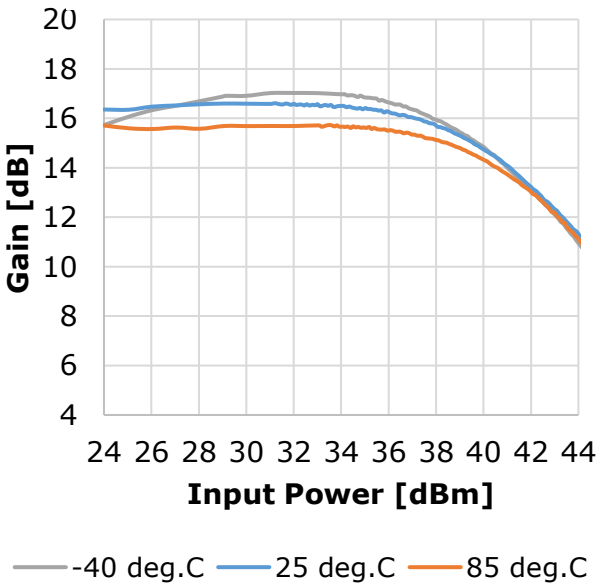
Output Power vs. Input Power
by case temperature
f=3.05GHz, V_{DS}=50V, $I_{DS(DC)}$=0.5A
PW=200μsec., Duty=10%



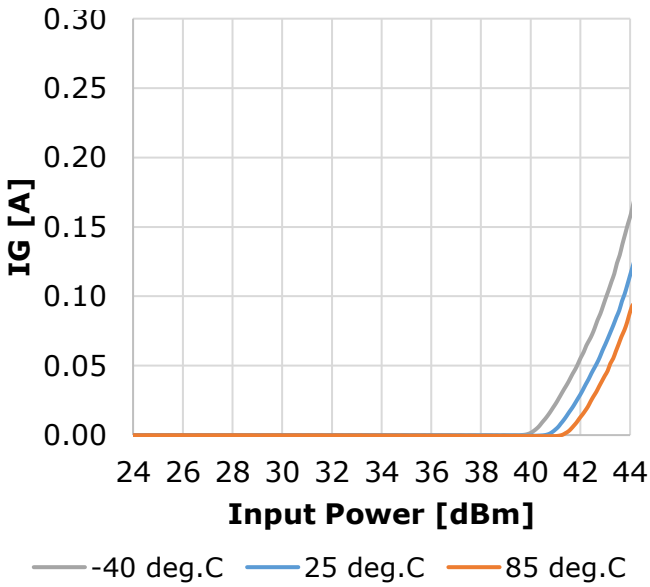
Drain Efficiency vs. Input Power
by case temperature
f=3.05GHz, V_{DS}=50V, $I_{DS(DC)}$=0.5A
PW=200μsec., Duty=10%



Gain vs. Input Power
by case temperature
f=3.05GHz, V_{DS}=50V, $I_{DS(DC)}$=0.5A
PW=200μsec., Duty=10%

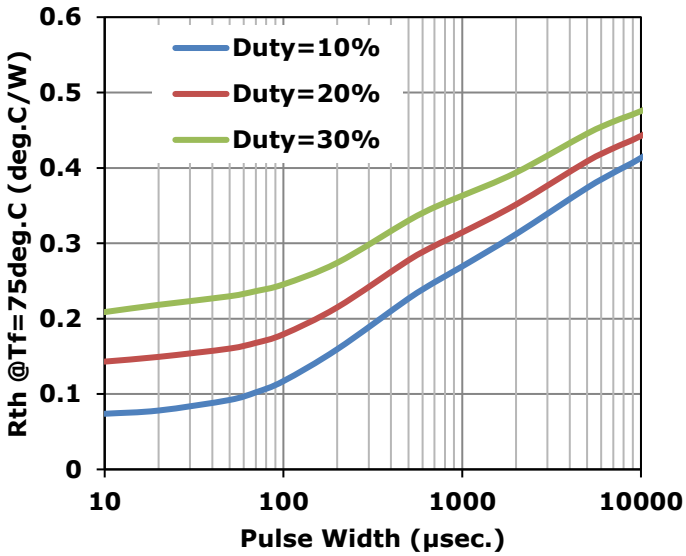


IG vs. Input Power
by case temperature
f=3.05GHz, V_{DS}=50V, $I_{DS(DC)}$=0.5A
PW=200μsec., Duty=10%

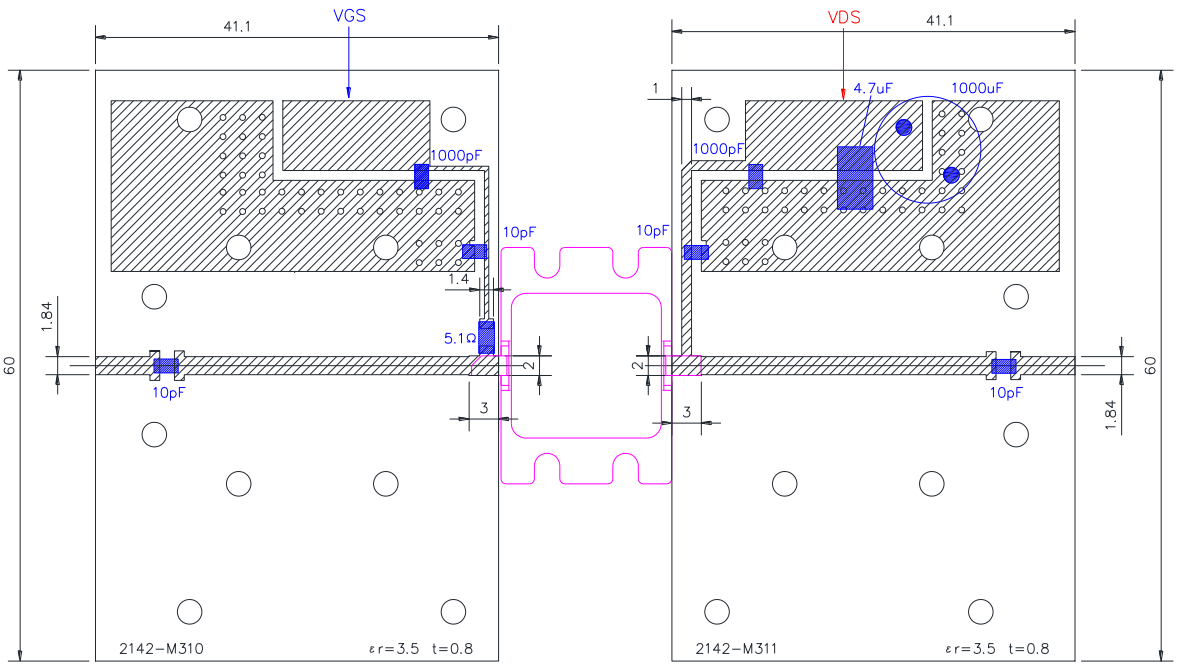


■ Thermal Characteristics In Pulsed Operation

Rth vs. Pulse Width by Duty



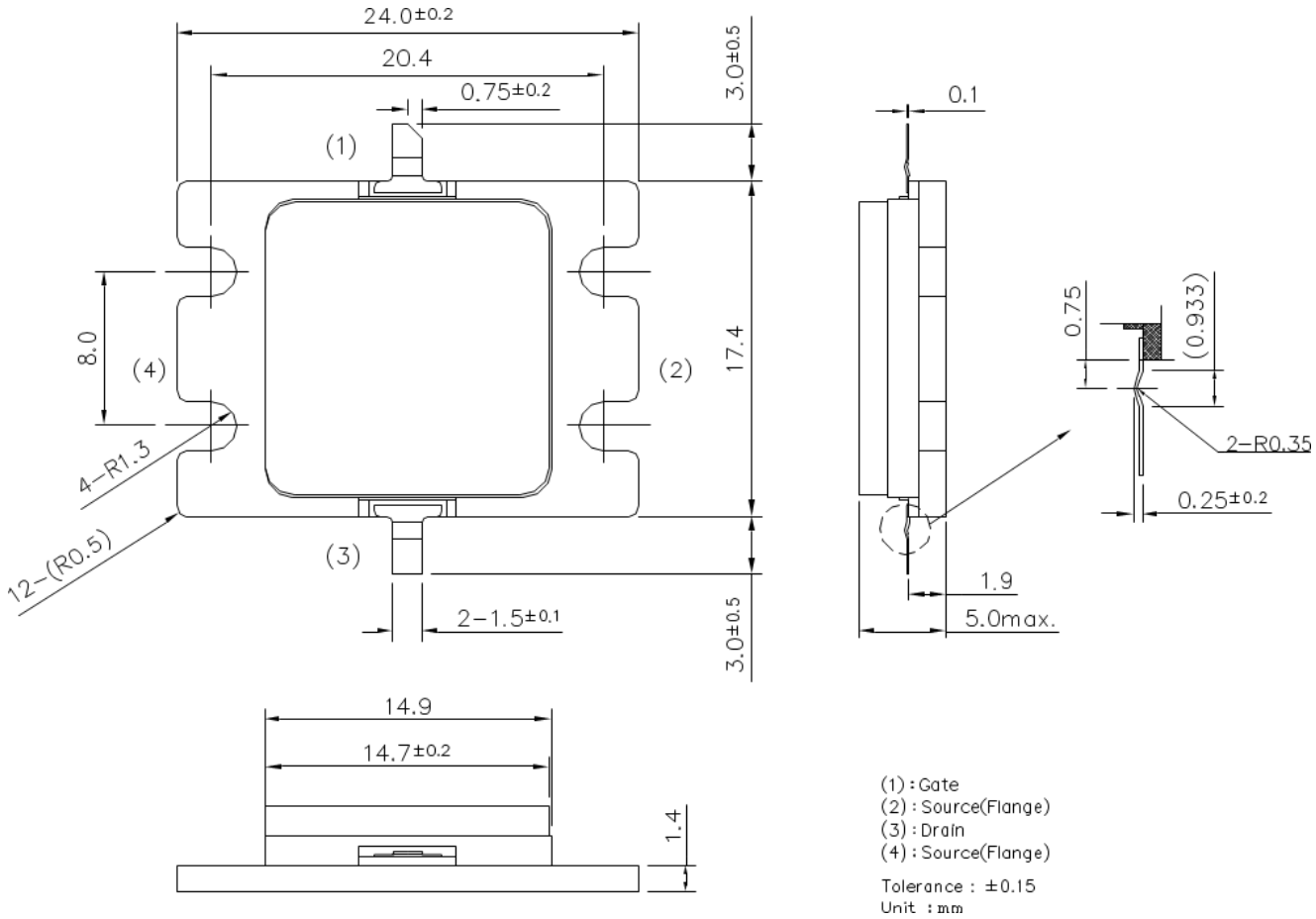
■ Test Fixture



PCB : h=0.8mm, er=3.5, Cu=18um
Unit : mm

Package Outline

Case Style : IV



For Safety, Observe the Following Procedures Environmental Management

- Do not put this product into the mouth.
- Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.
- Respect all applicable laws of the country when discarding this product.
  This product must be disposed in accordance with methods specified by applicable hazardous waste procedures.

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