

■ Features

- High Power GaN HEMT for DC to 4GHz
- High Power: 110W @ 3.9GHz
- High Efficiency: 48% @ 3.9GHz
- CW Operable
- Input Pre-matched for 3.9GHz
- Small Flangeless Package


■ Description

Sumitomo Electric's GaN-HEMT SGCA100M1H offers high power, high efficiency, ease of matching and greater consistency for DC to 4GHz high power applications with 50V operation.

ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Condition	Rating	Unit
Operating-Voltage	V_{DS}		55	V
Drain-Source Voltage	V_{DS}	$V_{GS} = -10V$	200	V
Gate-Source Voltage	V_{GS}		-15	V
Total Power Dissipation	P_t	$T_c = 25 \text{deg.C}$	156	W
Storage Temperature	T_{sta}		-55 to +125	deg.C
Channel Temperature	T_{ch}		+250	deg.C

RECOMMENDED OPERATING CONDITION (Case Temperature $T_c = 25 \text{deg.C}$)

Item	Symbol	Condition	Limit	Unit
DC Input Voltage	V_{DS}		≤ 50	V
Forward Gate Current	I_{GF}	$R_G = 51 \text{ ohm}$	≤ 44.9	mA
Reverse Gate Current	I_{GR}	$R_G = 51 \text{ ohm}$	≥ -4	mA
Channel Temperature	T_{ch}		$< +200$	deg.C

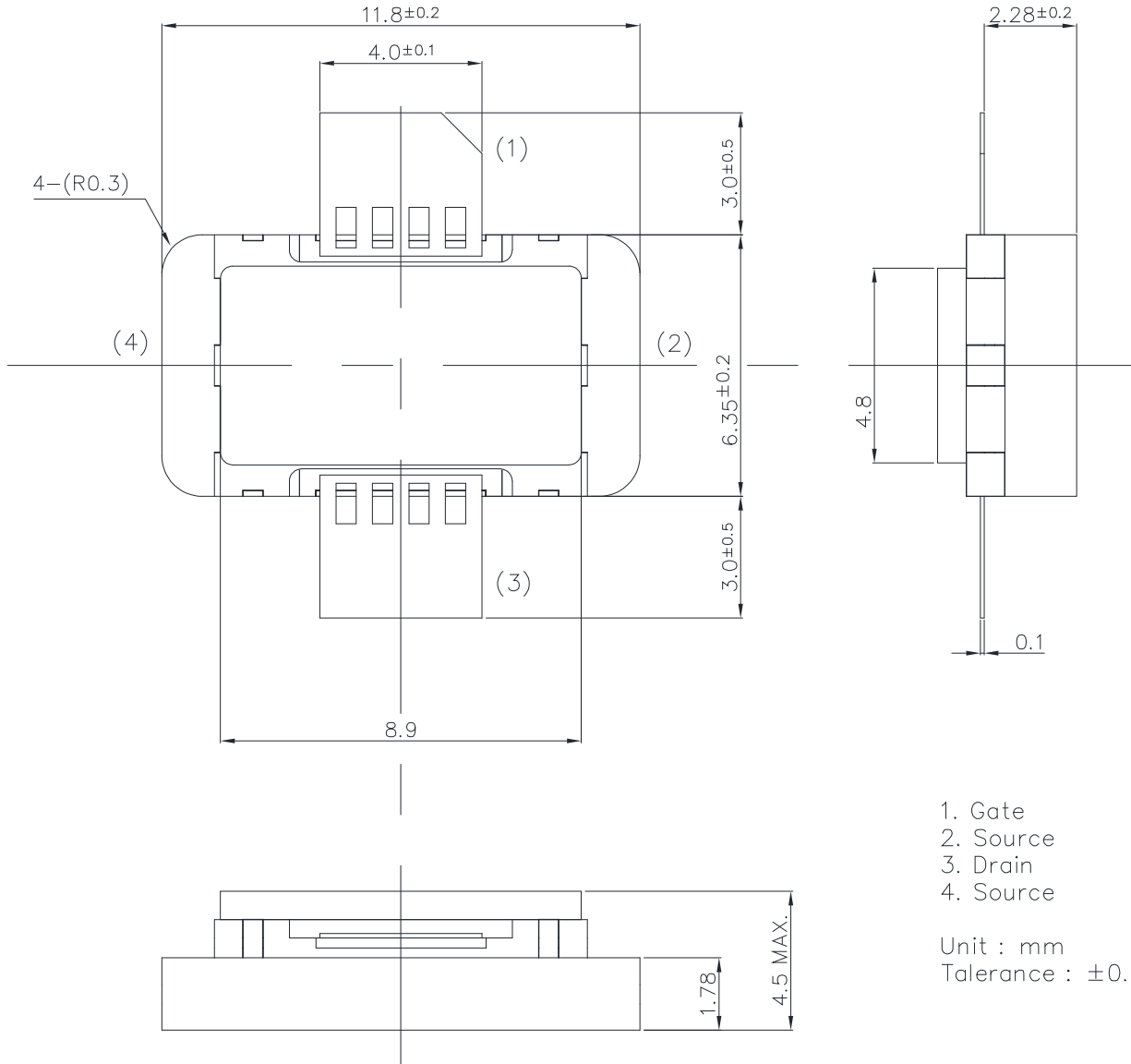
ELECTRICAL CHARACTERISTICS (Case Temperature $T_c = 25 \text{deg.C}$)

Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Pinch-off Voltage	V_p	$V_{DS} = 50V, I_{DS} = 5.9mA$	-	-4.5	-	V
Saturated Power	P_{sat}	$V_{DS} = 50V, I_{DS(DC)} = 650mA$	49.5	50.5	-	dBm
Drain Efficiency	DE	$f = 3.9GHz, P_{in} = 36dBm$	42	48	-	%
Power Gain	Gp	$PW = 200\mu\text{sec.}, \text{Duty} = 10\%$	-	14.5	-	dB
Saturated Power	P_{sat}	$V_{DS} = 50V, I_{DS(DC)} = 650mA$	-	50	-	dBm
Drain Efficiency	DE	$f = 900MHz, P_{in} = 29dBm$	-	70	-	%
Power Gain	Gp	CW	-	21	-	dB
Thermal Resistance	R_{th}	Channel to Case $P_{DC} = 32.7W$	-	1.2	1.44	deg.C/W

Case Style	M1H
RoHS Compliance	YES

● **Package Outline**

Case Style : M1H
Metal-Ceramic Hermetic Package



- 1. Gate
- 2. Source
- 3. Drain
- 4. Source

Unit : mm
Tolerance : ± 0.15

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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