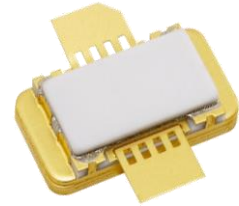


■ Features

- High Power GaN HEMT for L-band Radar
- High Power : 400W (typ.) @ Pin=10W (40dBm)
- High Efficiency: 70%(typ.) @ Pin=10W (40dBm)
- Small Flangeless Package



■ Description

Sumitomo Electric's GaN-HEMT SGN350H-R offers high power, high efficiency for L-band Radar applications with 50V operation and pulse condition of up to 150μsec pulse width and duty of up to 10%.

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

Item	Symbol	Rating	Unit
Operating Voltage	V_{DS}	55	V
Drain-Source Voltage	V_{DS}	250 @ $V_{GS}=10V$	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

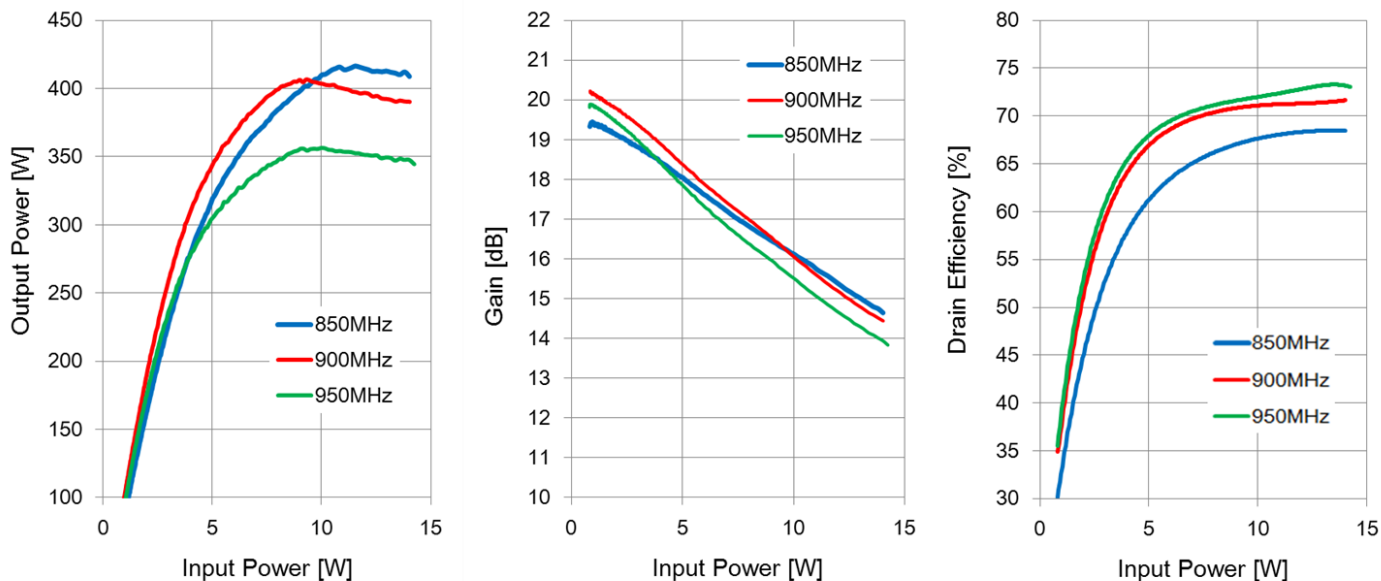
Item	Symbol	Condition	Limit	Unit
Drain-Source Voltage	V_{DS}		≤ 50	V
Forward Gate Current	I_{GF}	$R_g=10\Omega$	≤ 365	mA
Reverse Gate Current	I_{GR}	$R_g=10\Omega$	≥ -9	mA
Pulse Width	PW	Duty 10%	≤ 150	μs
Channel Temperature	T_{ch}		≤ 200	deg.C

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

Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Pinch-off Voltage	V_p	$V_{DS}=50V, I_{DS}=75mA$	-4.0	-3.0	-2.0	V
Output Power	P_{sat}	$V_{DS}=50V, I_{DS(DC)}=500mA,$ $P_{in}=10W(40dBm),$ $f=0.9GHz,$ $PW=150\mu s, Duty=10\%$	350	400	-	W
Drain Efficiency	DE		-	70	-	%
Power Gain	G_p		15.4	16.0	-	dB
Load Mismatch Ruggedness	VSWR		10:1	-	-	dBm
Thermal Resistance	R_{th}	Channel to Case at 105W P_{DC}	-	1.1	-	deg.C/W

Case Style	M1H
RoHS Compliance	YES

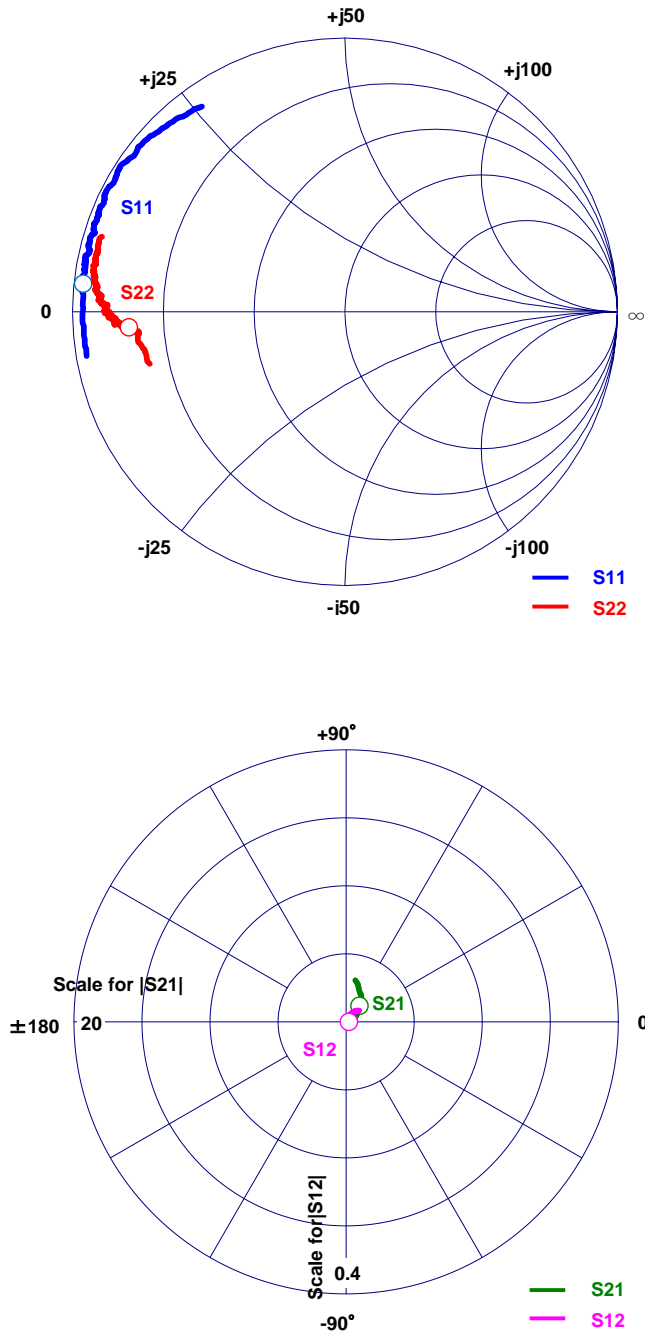
■ RF Characteristics



$V_{DS}=50V$, $I_{DS(DC)}=500mA$, $PW=150msec$, $Duty=10\%$

■ Transient Thermal Resistance

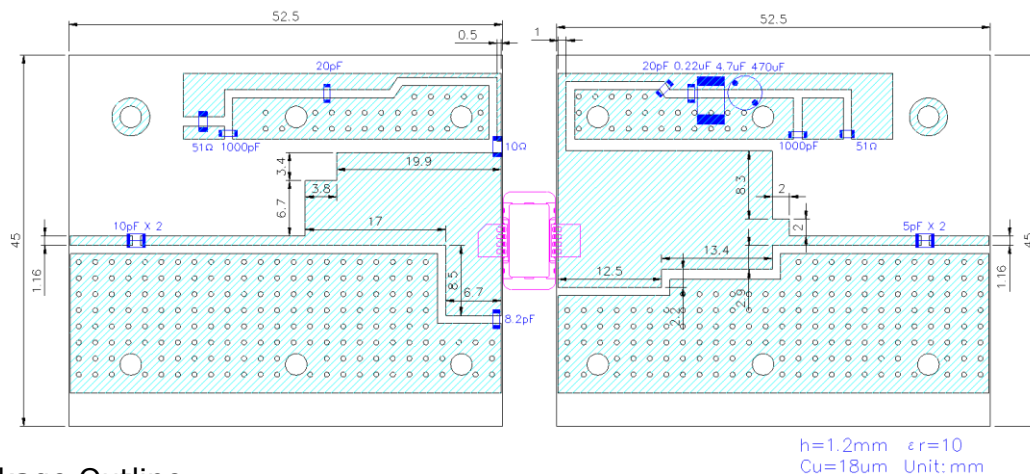


S-parameters
 $V_{DS}=50V$, $I_{DS(DC)}=0.5A$, $f=0.5$ to $4.5GHz$, $Z_l=Z_s=50\text{ ohm}$, Marker: $0.9GHz$


Freq. GHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.50	0.96	-170.31	3.14	77.42	0.005	3.24	0.74	-165.14
0.60	0.96	-177.51	2.49	67.36	0.006	-2.32	0.75	-169.84
0.70	0.96	175.93	2.05	57.29	0.005	1.00	0.76	-174.74
0.80	0.96	174.85	1.75	53.01	0.004	-3.81	0.79	-175.78
0.90	0.97	173.92	1.54	50.36	0.004	-1.29	0.80	-175.92
1.00	0.97	172.78	1.35	46.02	0.003	-0.84	0.80	-175.24
1.10	0.97	172.19	1.19	42.89	0.004	4.96	0.81	-175.64
1.20	0.97	171.11	1.06	39.42	0.003	5.94	0.82	-176.46
1.30	0.97	169.88	0.97	35.69	0.005	21.51	0.83	-177.30
1.40	0.97	169.39	0.88	32.51	0.004	21.94	0.84	-176.90
1.50	0.97	168.40	0.80	30.30	0.004	28.95	0.85	-177.42
1.60	0.97	167.49	0.72	27.79	0.004	32.45	0.85	-178.17
1.70	0.96	166.47	0.67	24.39	0.005	44.63	0.85	-178.90
1.80	0.97	165.51	0.63	21.35	0.004	39.14	0.87	179.89
1.90	0.97	165.21	0.58	19.52	0.005	49.19	0.88	-179.76
2.00	0.97	164.20	0.54	17.92	0.005	47.73	0.88	179.56
2.10	0.97	163.14	0.51	14.62	0.005	53.74	0.88	179.14
2.20	0.97	162.38	0.48	12.03	0.006	57.06	0.89	178.18
2.30	0.97	161.24	0.45	10.51	0.006	54.01	0.90	177.24
2.40	0.97	160.66	0.43	8.64	0.006	51.96	0.90	176.99
2.50	0.97	159.44	0.40	6.31	0.007	54.04	0.90	176.43
2.60	0.97	158.38	0.38	3.86	0.007	61.96	0.90	176.05
2.70	0.98	157.70	0.37	2.21	0.007	60.20	0.91	175.31
2.80	0.97	156.48	0.36	0.04	0.008	55.71	0.92	174.69
2.90	0.97	155.24	0.34	-1.71	0.008	57.89	0.91	174.37
3.00	0.98	154.50	0.33	-3.61	0.009	58.54	0.92	173.83
3.10	0.98	153.34	0.32	-4.78	0.010	61.34	0.93	173.26
3.20	0.98	151.79	0.31	-6.96	0.010	59.79	0.93	172.14
3.30	0.97	150.33	0.31	-8.87	0.011	61.79	0.93	171.93
3.40	0.98	148.94	0.30	-10.92	0.011	58.95	0.93	171.44
3.50	0.98	147.46	0.30	-13.04	0.012	58.83	0.94	170.95
3.60	0.97	145.74	0.30	-14.64	0.013	59.33	0.94	169.75
3.70	0.96	144.12	0.29	-16.59	0.014	57.17	0.93	169.32
3.80	0.97	141.76	0.29	-18.81	0.015	55.56	0.93	168.76
3.90	0.96	139.97	0.29	-21.45	0.016	54.71	0.93	167.95
4.00	0.96	137.66	0.29	-23.49	0.018	52.81	0.94	167.18
4.10	0.95	135.86	0.29	-24.75	0.019	51.72	0.93	166.58
4.20	0.94	133.54	0.29	-27.63	0.020	49.58	0.94	166.30
4.30	0.93	130.50	0.30	-30.59	0.022	46.35	0.94	165.27
4.40	0.92	127.36	0.30	-34.05	0.024	42.32	0.94	164.24
4.50	0.92	124.99	0.30	-36.60	0.025	40.29	0.93	162.90

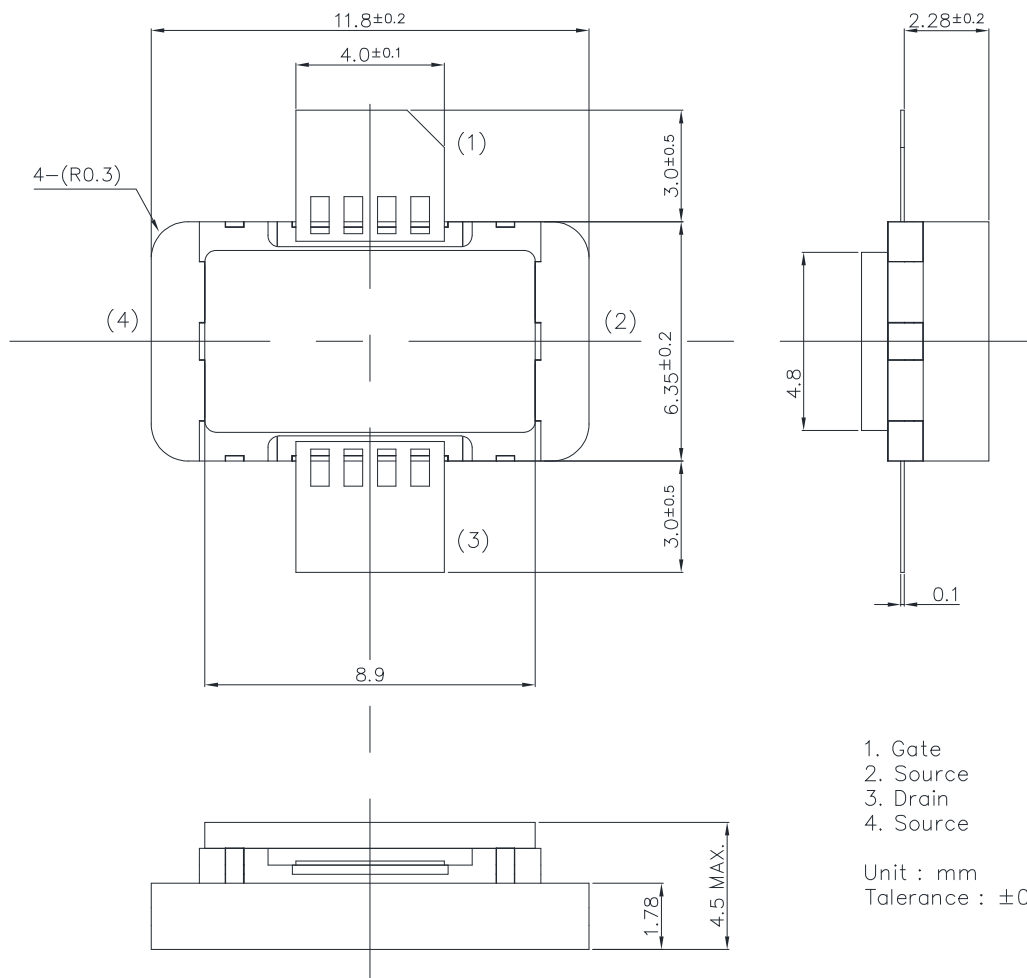


■ Test Fixture



■ Package Outline

Case Style: M1H



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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