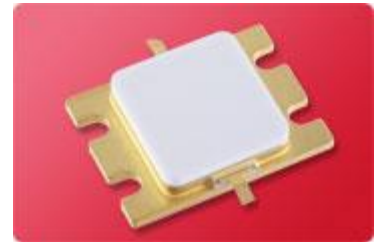


FEATURES

- High Voltage Operation : $V_{DS}=50V$
- High Power : 250W (min.) @ $P_{in}=12.6W$ (41dBm)
- High Efficiency: 65%(typ.) @ $P_{in}=12.6W$ (41dBm)
- Impedance Matched $Z_{in}/Z_{out} = 50 \text{ ohm}$

DESCRIPTION

Sumitomo Electric GaN-HEMT SGN2729-250H-R offers high power, high efficiency and greater consistency covering 2.7 to 2.9GHz for S-band radar applications with 50V operation and pulse condition of up to 120μsec pulse width and duty of up to 10%.



RoHS COMPLIANCE	Yes
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ABSOLUTE MAXIMUM RATINGS (Case Temperature $T_c=25 \text{ deg.C}$)

Item	Symbol	Condition	Rating	Unit
Operating Voltage	V_{DS}		55	V
Drain-Source Voltage	V_{DS}	$V_{GS}=-10V$	250	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
DC Input Voltage	V_{DS}		≤ 50	V
Forward Gate Current	I_{GF}	$R_G=10 \text{ ohm}$	≤ 365	mA
Reverse Gate Current	I_{GR}	$R_G=10 \text{ ohm}$	≥ -9	mA
Pulse Width	PW	Duty 10%	≤ 120	μ sec
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	$V_{DS}=50V$ $I_{DS}=75 \text{ mA}$	-4.0	-3.0	-2.0	V
Output Power	P_{out}	$V_{DS}=50V$	250	320	-	W
Drain Efficiency	DE	$I_{DS(DC)}=750 \text{ mA}$	-	65	-	%
Power Gain	G_p	$P_{in}=12.6 \text{ W}$ (41 dBm)	13.0	14.0	-	dB
Gain Flatness	GF	$f=2.7, 2.8, 2.9 \text{ GHz}$	-	0.6	1.2	dB
Load Mismatch Ruggedness	VSWR	PW=120μsec, Duty=10%	10:1	-	-	-
Thermal Resistance	R_{Th}	Channel to Case at 105W P_{DC}	-	1.1	1.35	deg.C/W

TYPICAL PERFORMANCE

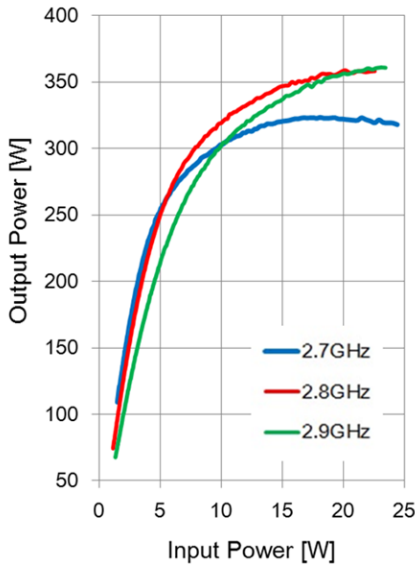


Figure 1. Output Power vs Input Power

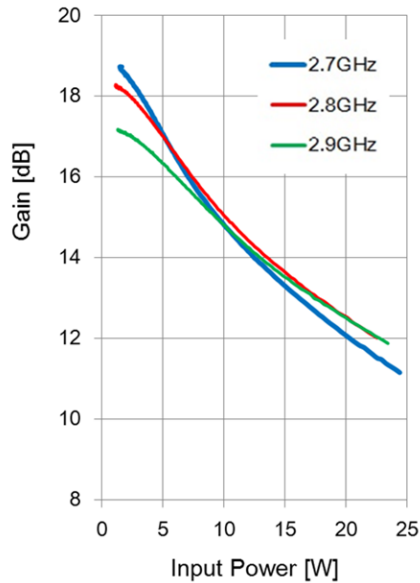


Figure2. Gain vs Input Power

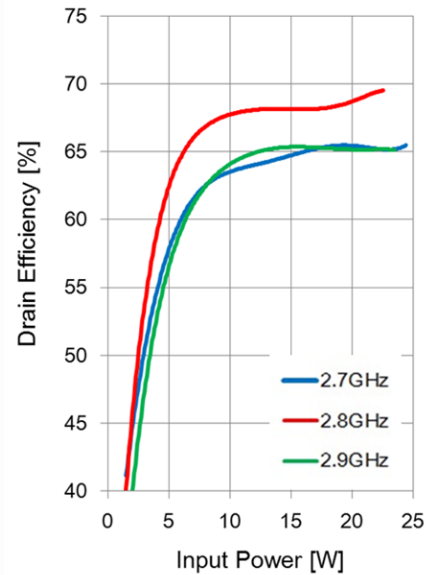


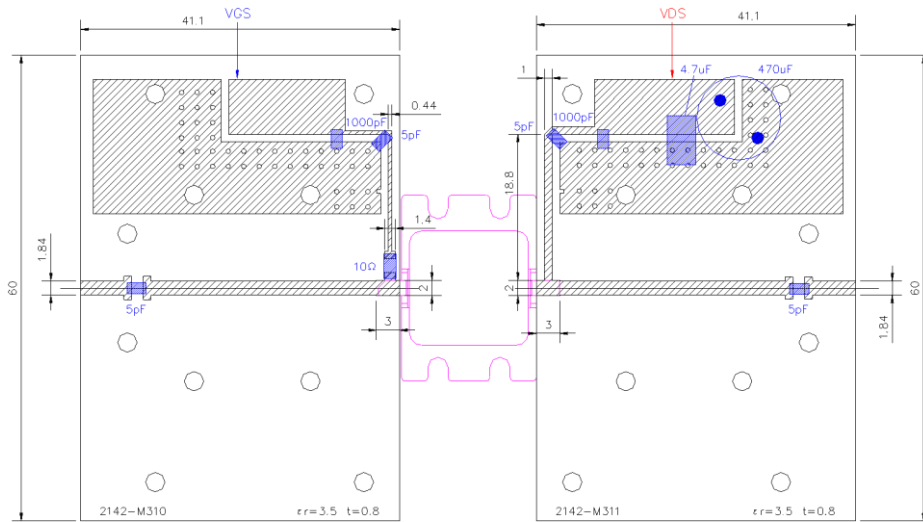
Figure3. Drain Efficiency vs Input Power

$V_{DS}=50V$, $I_{DS(DC)}=0.75A$, $PW=120\mu sec$, Duty 10%

TRANSIENT THERMAL RESISTANCE



TEST FIXTURE



PCB : h=0.8mm , $\epsilon_r=3.5$, Cu=18um
Unit : mm

IV Package Outline Metal-Ceramic Hermetic Package

