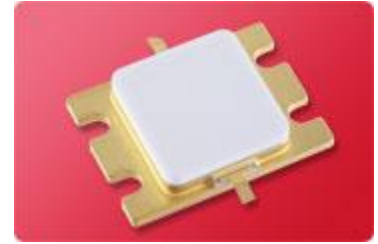


FEATURES

- High Voltage Operation : $V_{DS}=50V$
- High Power : 160W (typ.)
- High Efficiency : 67.5% (typ.)

DESCRIPTION

Sumitomo GaN-HEMT SGN21-120H-R offers high power, high efficiency and greater consistency for 1.7 to 2.5 GHz applications with 50V operation. The low thermal resistance allows to use long pulse up to 5 msec pulse width with duty of 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

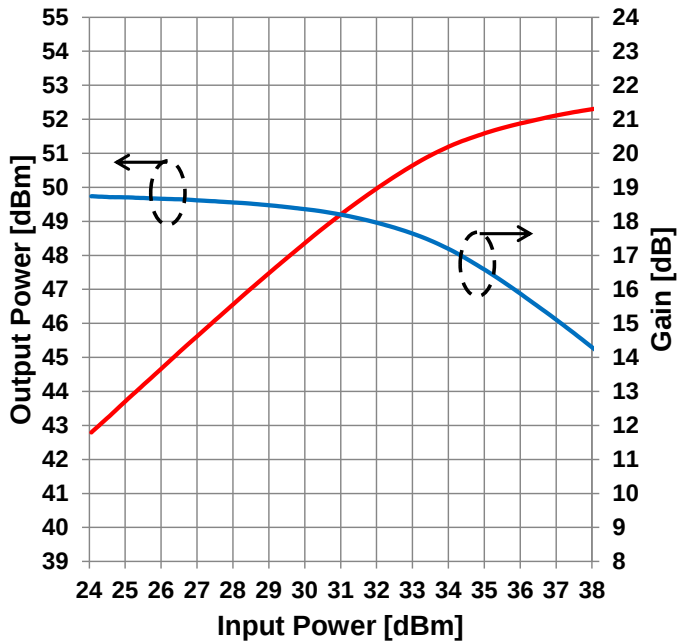
RECOMMENDED OPERATING CONDITION

Item	Symbol	Condition	Limit	Unit
DC Input Voltage	V_{DS}		≤ 50	V
Forward Gate Current	I_{GF}	$R_G=12\text{ ohm}$	≤ 177	mA
Reverse Gate Current	I_{GR}	$R_G=12\text{ ohm}$	≥ -4.3	mA
Pulse Width	PW	Duty 10%	≤ 5000	μsec
		Duty 25%	≤ 1500	μsec
Peak Channel Temperature	$T_{ch-peak}$	Duty 10%	≤ 215	deg.C
		Duty 25%	≤ 205	deg.C

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

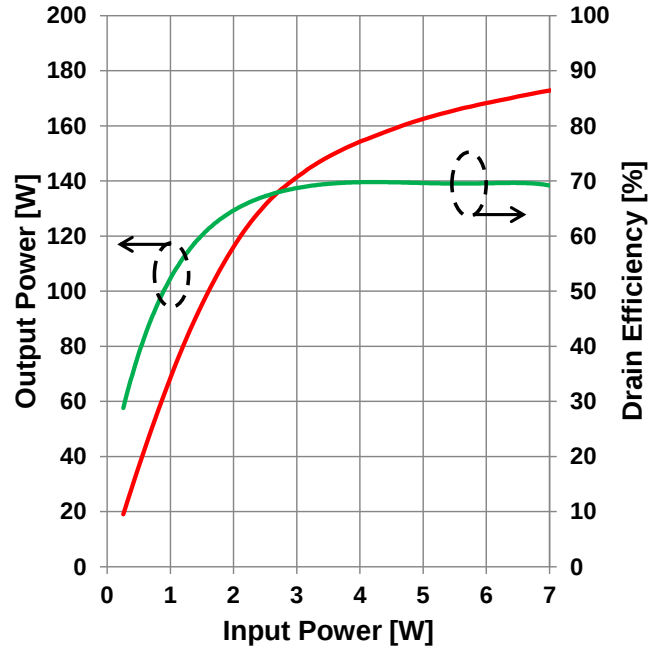
Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Pinch-Off Voltage	V_p	$V_{DS}=50V$ $I_{DS}=36\text{ mA}$	-4.0	-3.0	-2.0	V
Output Power	P_{out}	$V_{DS}=50V$	51.0	51.9	-	dBm
Drain Efficiency	DE	$I_{DS(DC)}=500\text{ mA}$	-	67.5	-	%
Power Gain	G_p	$P_{in}=4.5\text{ W}$ (36.5 dBm) $f=2.1\text{ GHz}$	14.5	15.4	-	dB
Load Mismatch Ruggedness	VSWR	PW=200 μsec , Duty=10%	10:1	-	-	-
Thermal Resistance	R_{th}	Channel to Case at 45W P_{DC}	-	1.1	1.3	deg.C/W

TYPICAL PERFORMANCE



$V_{DS}=50V$, $I_{DS}(DC)=0.5A$, $f=2.1GHz$,
 $PW=200\mu sec$, Duty 10%

Figure 1. Output Power and Gain
vs Input Power

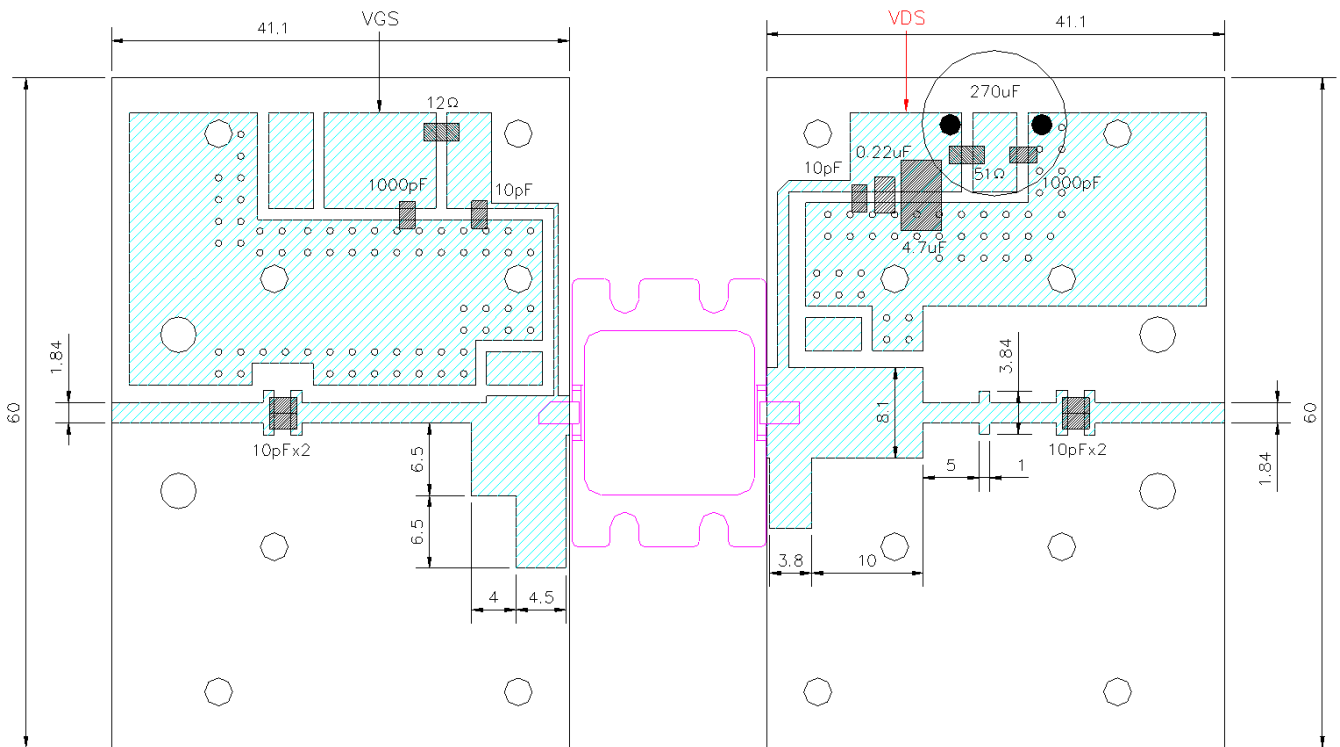


$V_{DS}=50V$, $I_{DS}(DC)=0.5A$, $f=2.1GHz$,
 $PW=200\mu sec$, Duty 10%

Figure 2. Output Power and Drain Efficiency
vs Input Power

TEST FIXTURE

TF/SGN21-120H-R



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

IV Package Outline Metal-Ceramic Hermetic Package

