2729GN-300V/VP

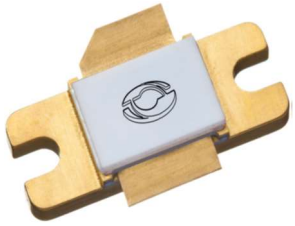
300 Watts ● 50 Volts ● 100 μs, 11%
2700 - 2900 MHz ● S-Band Radar

GENERAL DESCRIPTION

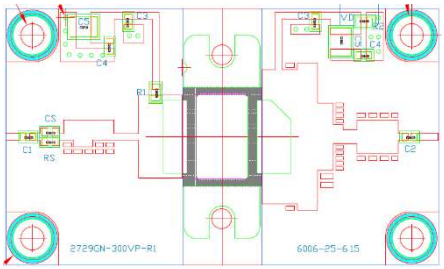
The 2729GN-300V is an internally matched, COMMON SOURCE, class AB, GaN on SiC HEMT transistor. The 2729GN-300VP is a 50 Ohms Input and Output matched pallet product on which is used the 2729GN-300V transistor. Both the transistor and pallet products provide over 14.5 dB gain, 300 Watts of pulsed RF output power at 100uS pulse width, 11% duty cycle across the 2700 MHz to 2900 MHz band. The hermetically sealed 2729GN-300V transistor is designed for S-band pulsed surveillance radar applications and uses all gold transistor metallization to provide highest reliability and superior ruggedness. The pallet construction employs best manufacturing practices construction resulting in highest quality and reliability while delivering and lowest overall manufactured systems costs.

Market Applications: S-Band Primary Pulsed Surveillance Radar Systems

CASE OUTLINE
55-QP
Common Source



1.030" x 0.385"



2.2" x 1.3" x 0.238" Pallet

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @ 25°C 740 W

Maximum Voltage and Current

Drain-Source Voltage (V_{DSS}) 125 V
Gate-Source Voltage (V_{GS}) -8 to +0 V

Maximum Temperatures

Storage Temperature (T_{STG}) -55 to +125° C
Operating Junction Temperature +250 °C

ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
P_{OUT}	Output Power	P_{IN} = 10W, Freq=2700, 2900 MHz	300	335		W
G_P	Power Gain	P_{IN} = 10W, Freq=2700, 2900 MHz	14.5	15.3		dB
η_D	Drain Efficiency	P_{IN} = 10W, Freq=2700, 2900 MHz	50	58		%
Dr	Droop	P_{IN} = 10W, Freq=2700, 2900 MHz		0.2	0.50	dB
Θ_{JC}	Thermal Resistance	Pulse Width=100uS, Duty=11%			0.37	°C/W

- **Bias Condition: Vdd=+50V, Idq=75mA constant current (Vgs= -2.0 ~ -4.5V typical)**

FUNCTIONAL CHARACTERISTICS @ 25°C

$I_{D(Off)}$	Drain leakage current	V_{gS} = -8V, V_D = 125V			48	mA
$I_{G(Off)}$	Gate leakage current	V_{gS} = -8V, V_D = 0V			8	mA

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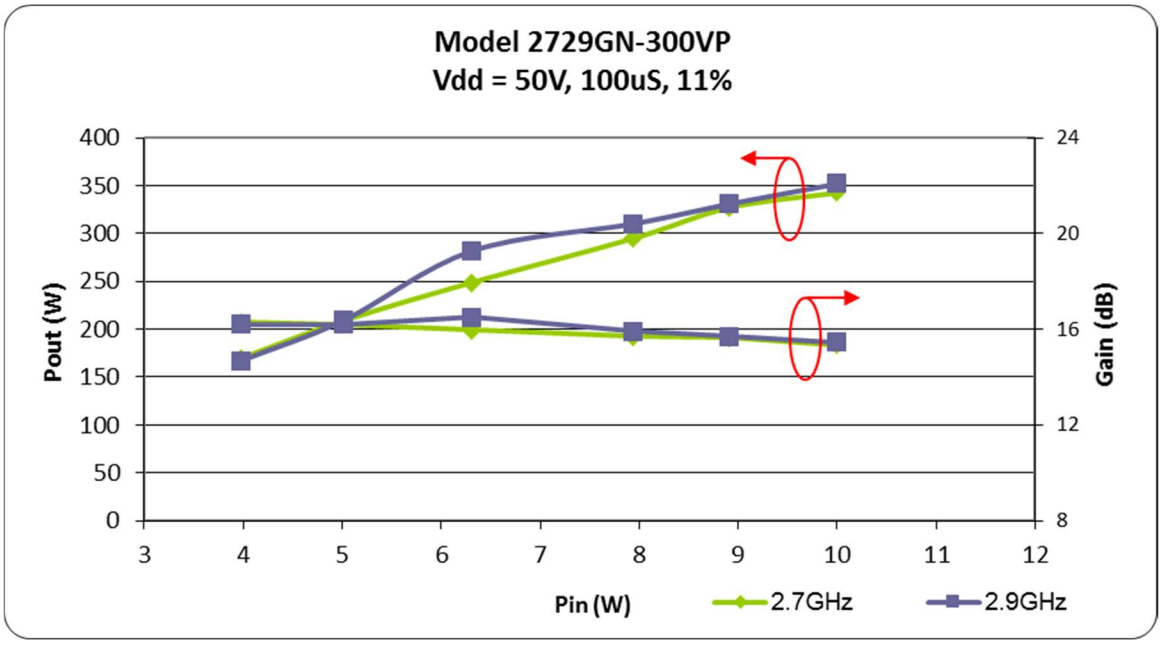
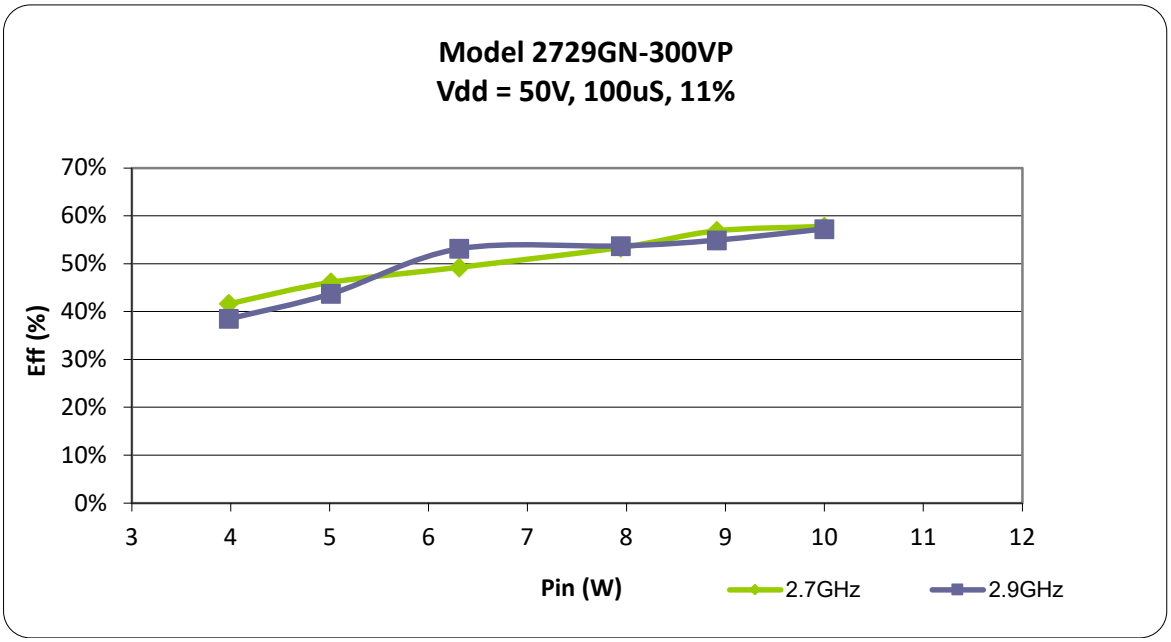
TYPICAL BROAD BAND PERFORMACE DATA

Frequency	Pin (W)	Pout (W)	Id (A)	RL (dB)	Nd (%)	G (dB)	Droop (dB)
2700 MHz	10	333	1.82	-13.0	57	15.2	.10
2900 MHz	10	378	1.90	-16.0	62	15.8	.15





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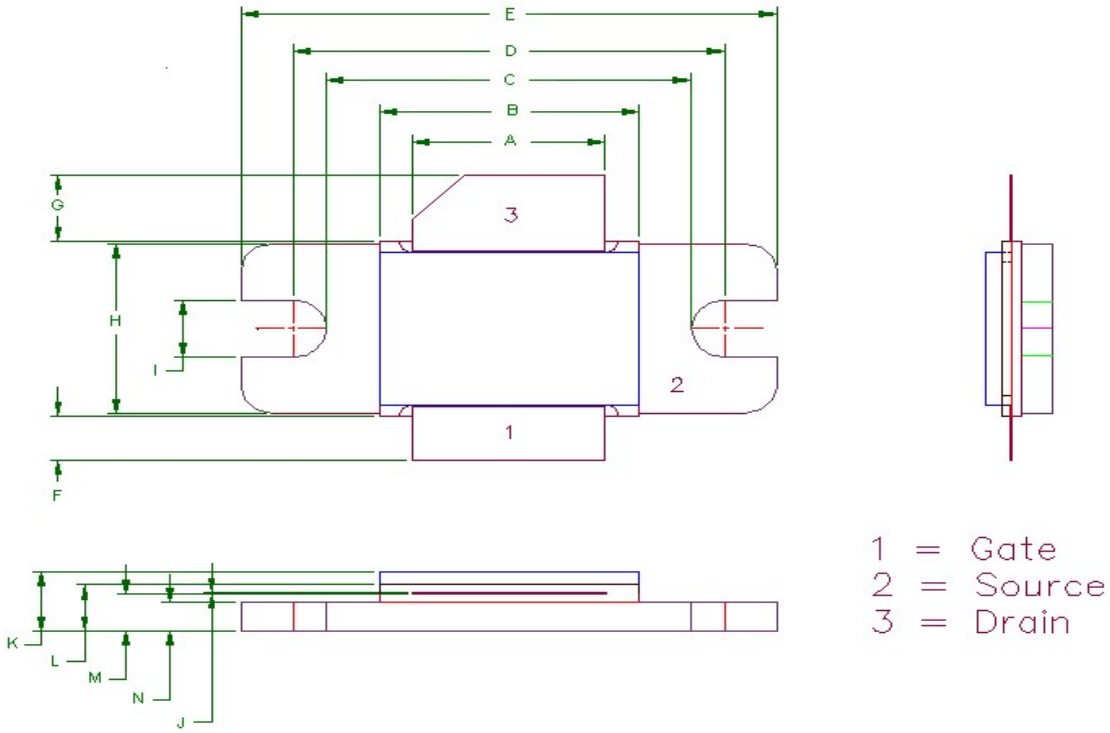
55-QP PACKAGE DIMENSION



Dimension	Min (mil)	Min (mm)	Max (mil)	Max (mm)
A	370	9.40	372	9.44
B	498	12.65	500	12.7
C	700	17.78	702	17.83
D	830	21.08	832	21.13
E	1030	26.16	1032	26.21
F	101	2.56	102	2.59
G	151	3.84	152	3.86
H	385	9.78	387	9.83
I	130	3.30	132	3.35
J	003	.076	004	0.10
K	135	3.43	137	3.48
L	105	2.67	107	2.72
M	085	2.16	86	2.18
N	065	1.65	66	1.68

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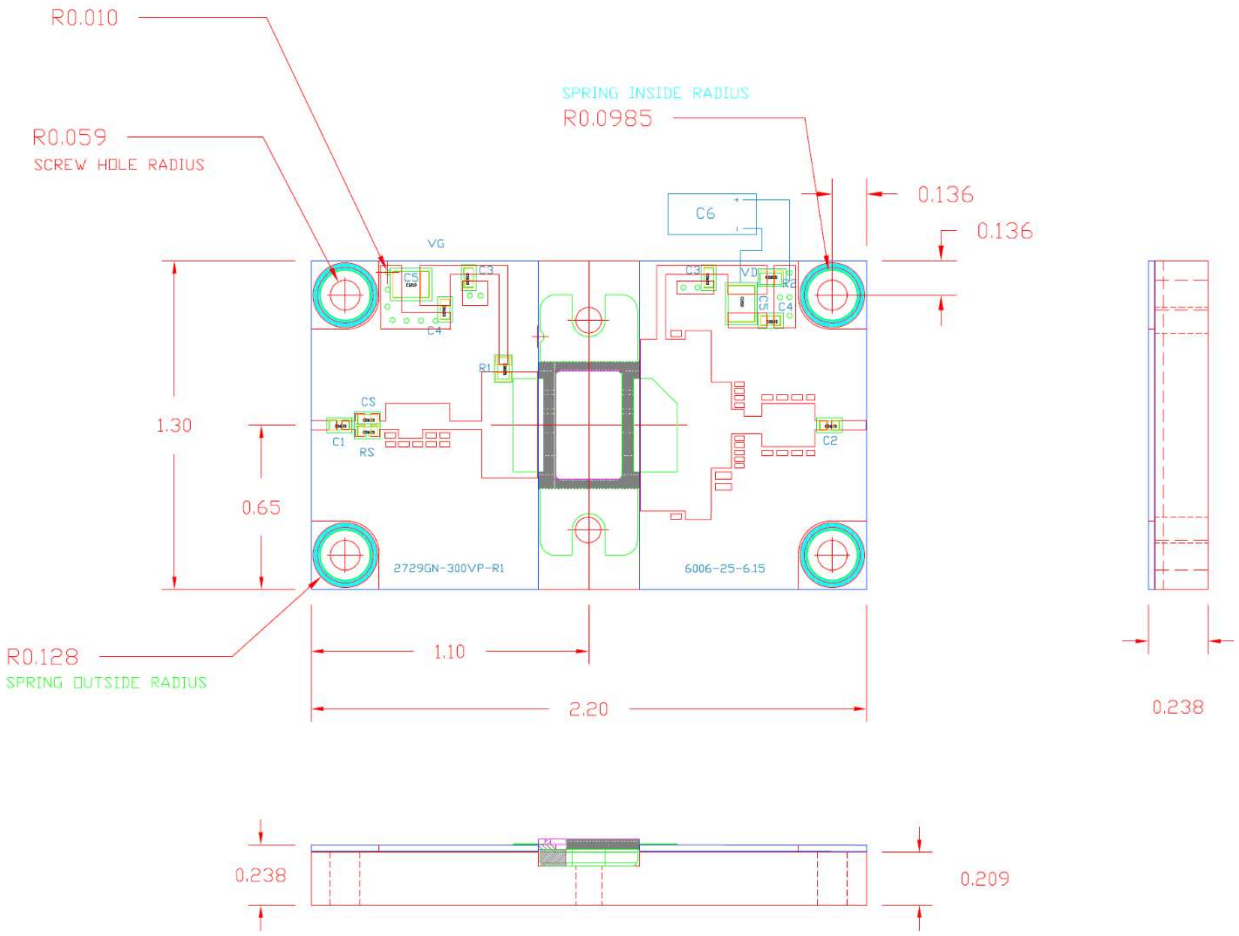
2729GN-300VP PALLET DIMENSIONS



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Revision History

Revision Level / Date	Para. Affected	Description
0.1 / 31 July 2019	-	Initial Preliminary Release