



2729GN-300V/VP

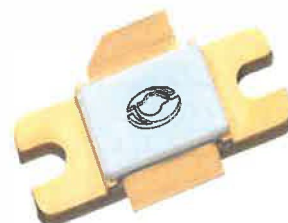
300 Watts • 50 Volts • 200 μ s, 20%
2700 - 2900 MHz • S-Band Radar

GENERAL DESCRIPTION

The 2729GN-300V is an internally matched, COMMON SOURCE, class AB, GaN on SiC HEMT transistor. The 2729GN-300VP is a fully tested, 50 Ohms Input and Output matched, pallet product, incorporating the 2729GN-300V transistor. Both the transistor and pallet products provide over 14.5 dB gain, 300 Watts of pulsed RF output power at 100 μ s pulse width, 11% duty cycle across the 2700 MHz to 2900 MHz band. The epoxy sealed 2729GN-300V transistor is ideal for S-band pulsed surveillance radar applications and uses all gold transistor metallization to provide highest reliability and superior ruggedness. The pallet construction employs robust construction and manufacturing practices, while delivering on less size and weight to hi-rel commercial and military RADAR systems.

Market Applications: S-Band Primary Pulsed Surveillance Radar Systems

CASE OUTLINE 55-QP Common Source



1.030" x 0.385"

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @ 25°C 740 W

Maximum Voltage and Current

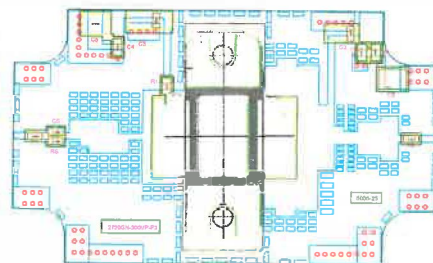
Drain-Source Voltage (V_{DSS}) 65 V

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

Maximum Temperatures

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

Operating Junction Temperature +250°C



2.2" x 1.3" x 0.238" Pallet

ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
P_{OUT}	Output Power	$P_{IN} = 13W$; Freq=2.7, 2.8, 2.9 GHz; PW=100 μ s (11%)	300	350		W
G_P	Power Gain	$P_{IN} = 13W$, Freq=2.7, 2.8, 2.9 GHz	13.6	14.4		dB
η_D	Drain Efficiency	$P_{IN} = 13W$, Freq=2.7, 2.8, 2.9 GHz	50	55		%
D_r	Droop	$P_{IN} = 13W$, Freq=2.7, 2.8, 2.9 GHz		0.2	0.50	dB
Θ_{JC}	Thermal Resistance	Pulse Width=100 μ s, Duty=11%			0.37	°C/W

- Bias Condition: $V_{DD} = +50V$, $I_{DQ} = 85mA$ constant current ($V_{GS} = -2.0 \sim -4.5V$ typical)
- Refer to next 4 sheets for typical data/plots for both 100 μ s(11%) and 200 μ s(20%) pulse modulation
- Export Classification: EAR99

FUNCTIONAL CHARACTERISTICS @ 25°C

$I_{D(OFF)}$	Drain leakage current	$V_{GS} = -8V$, $V_D = 125V$			12	mA
$I_{G(OFF)}$	Gate leakage current	$V_{GS} = -8V$, $V_D = 0V$			2	mA



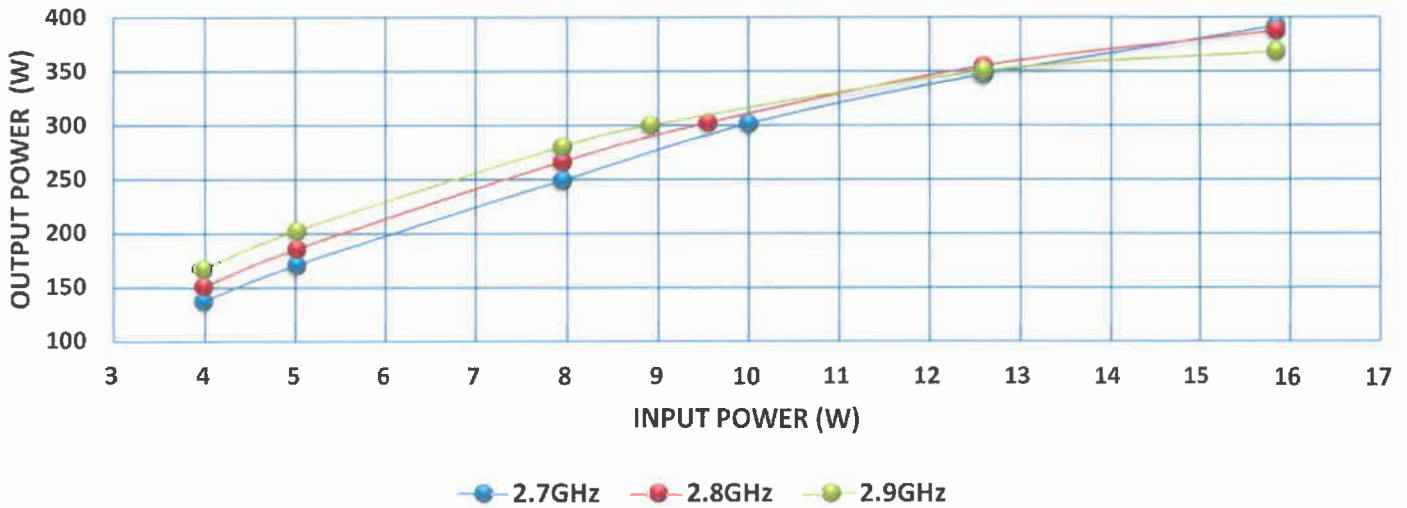
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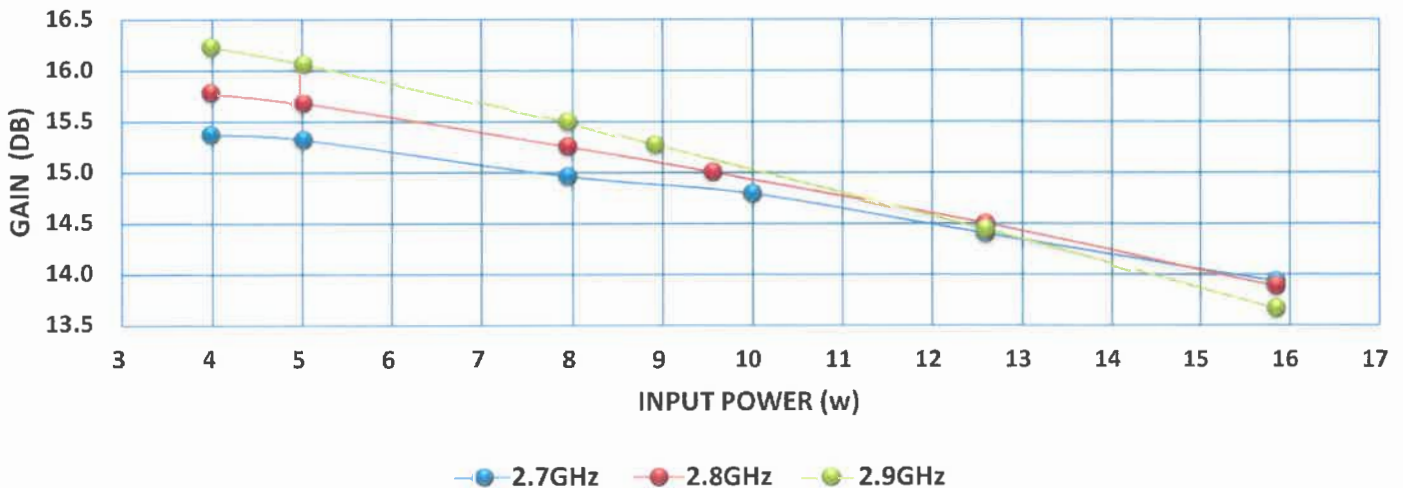
TYPICAL BROAD BAND PERFORMANCE DATA: PW=100us (11%), 50V

Frequency	Pin (W)	Pout (W)	Id (A)	RL (dB)	η_D (%)	G (dB)	Droop (dB)
2.7 GHz	12.6	346	1.48	-14	54	14.4	0.25
2.8 GHz	12.6	354	1.49	-16	55	14.5	0.25
2.9 GHz	12.6	350	1.40	-15	58	14.4	0.15

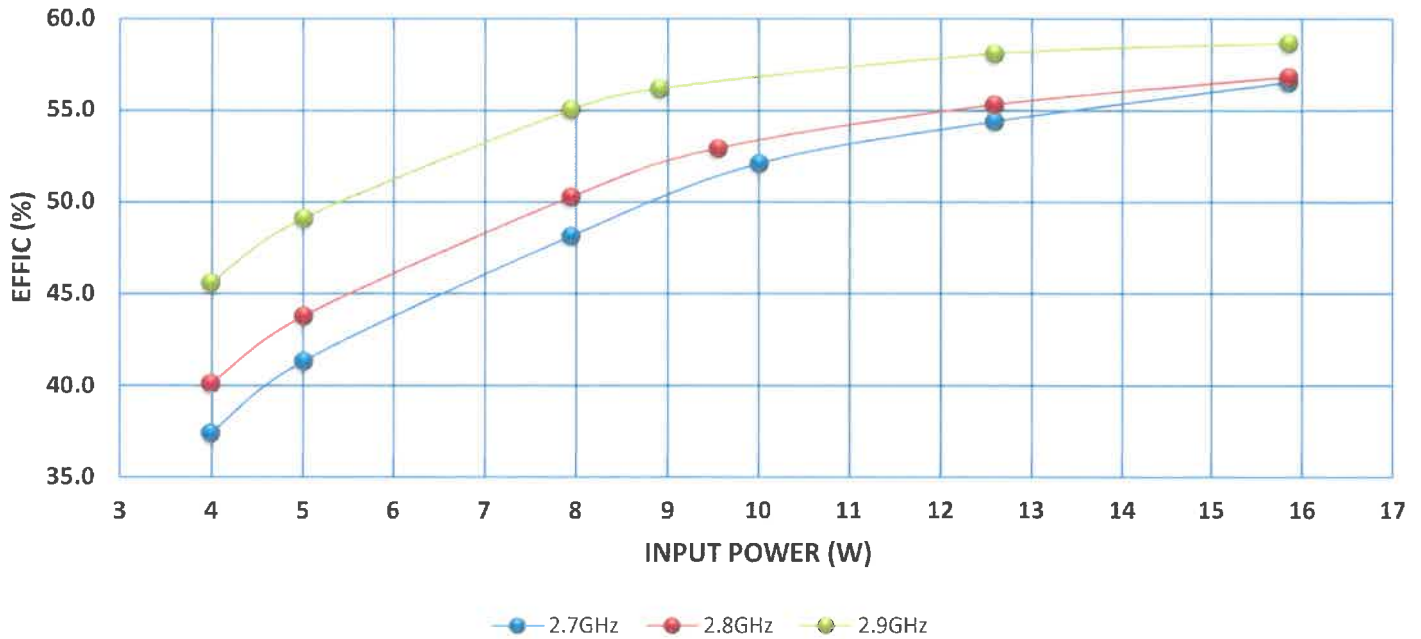
2729GN-300V Vdd=50V, PW=100us(11%)



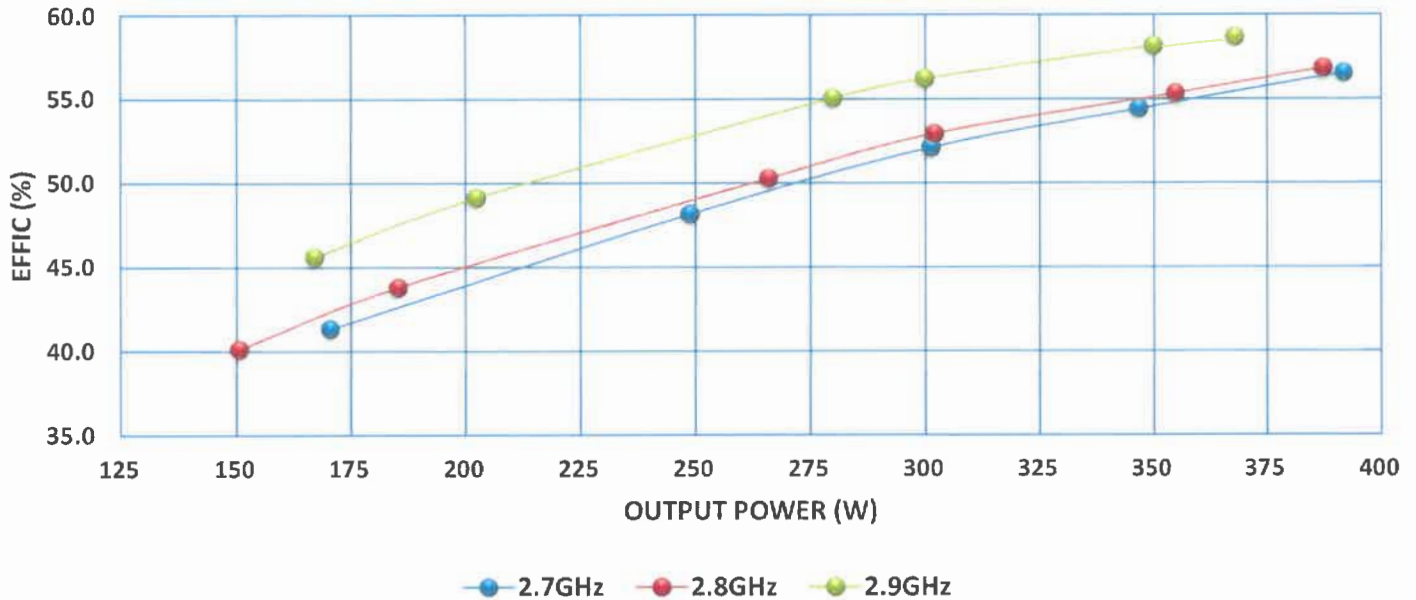
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2729GN-300V
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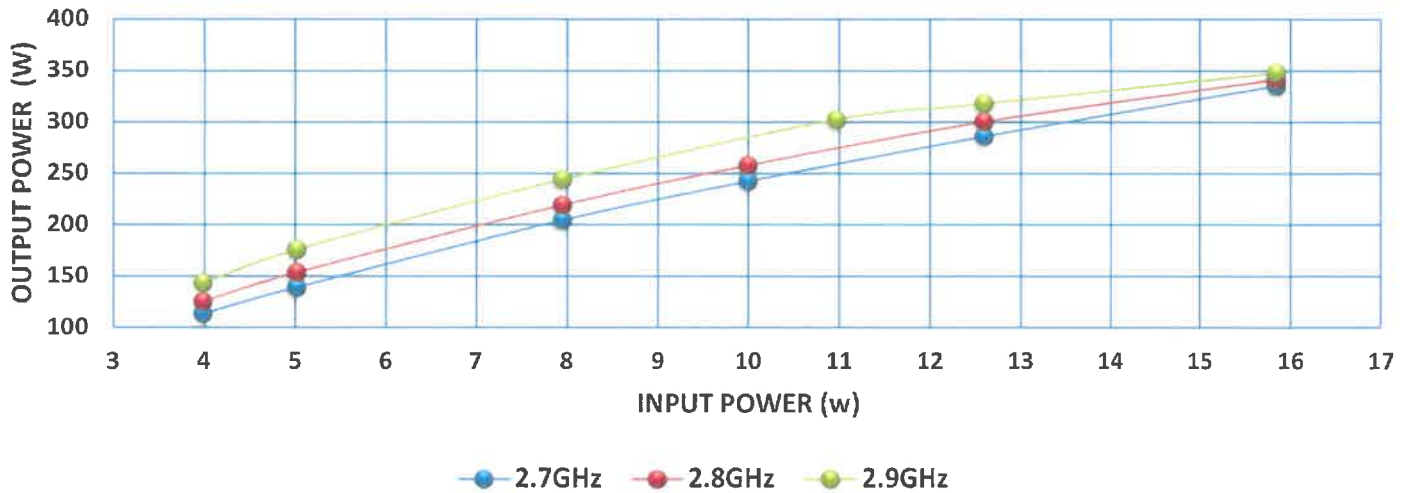


TYPICAL BROAD BAND PERFORMANCE DATA: PW=200us (20%), 50V

Frequency	Pin (W)	Pout (W)	Id (A)	RL (dB)	η_D (%)	G (dB)	Droop (dB)
2.7 GHz	15.8	335	2.80	-12	49	13.3	0.50
2.8 GHz	15.8	341	2.81	-14	50	13.3	0.50
2.9 GHz	15.8	347	2.65	-12	54	13.4	0.35

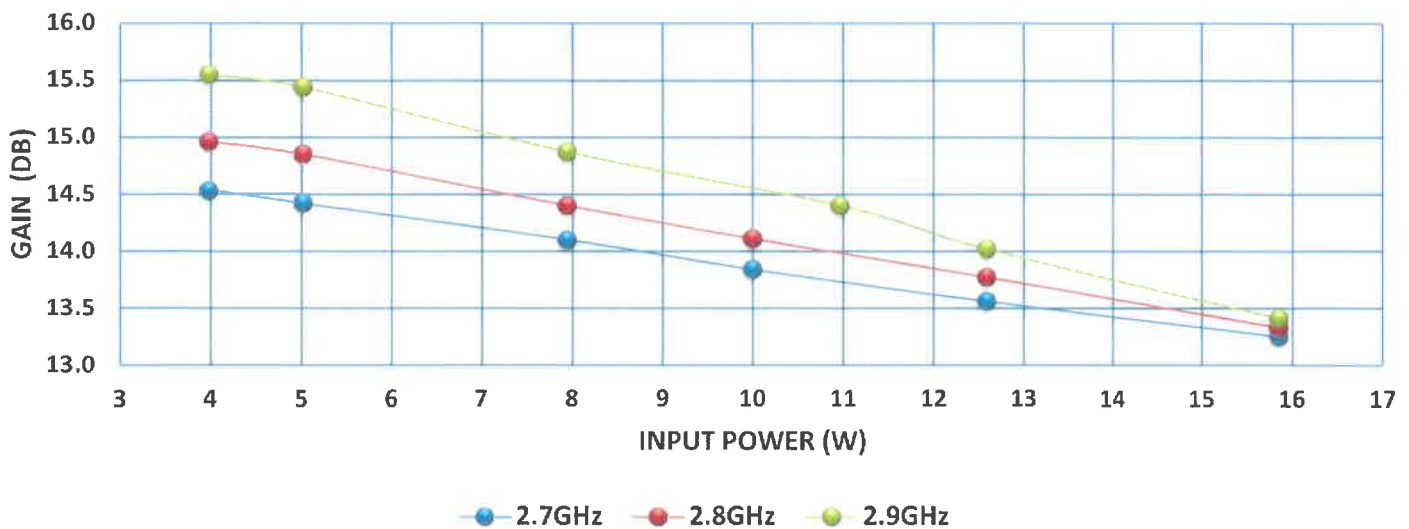
2729GN-300V

Vdd=50V, PW=200us(20%)

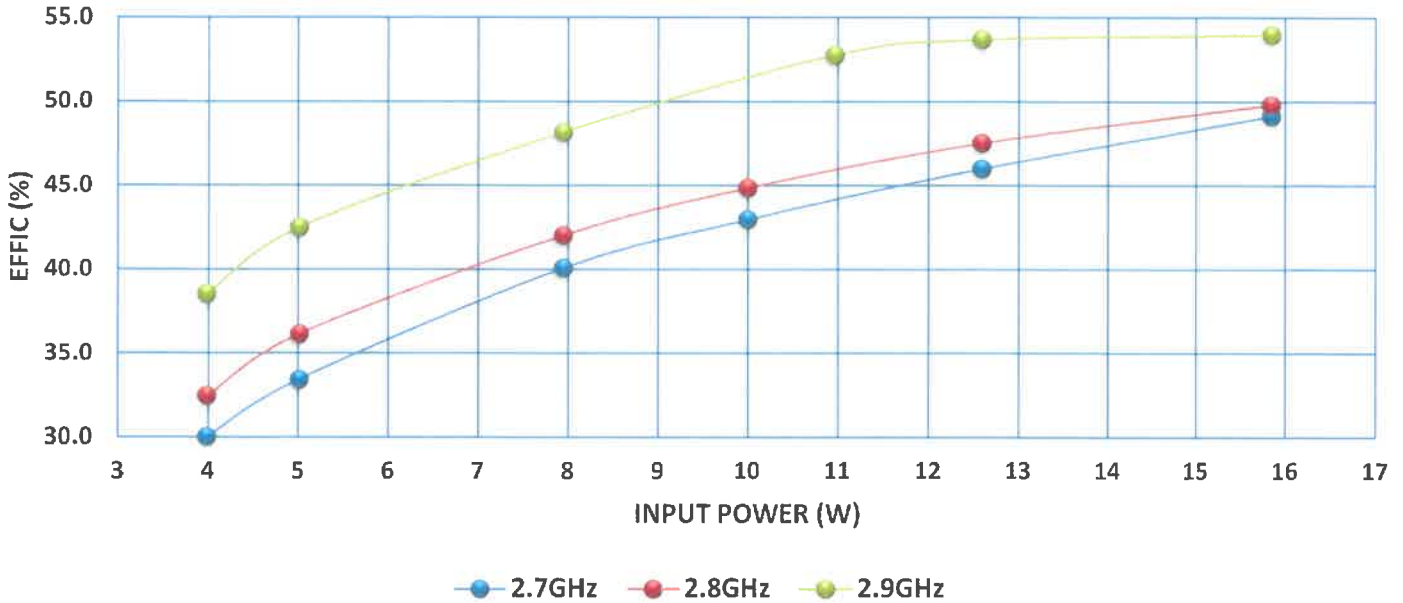


2729GN-300V

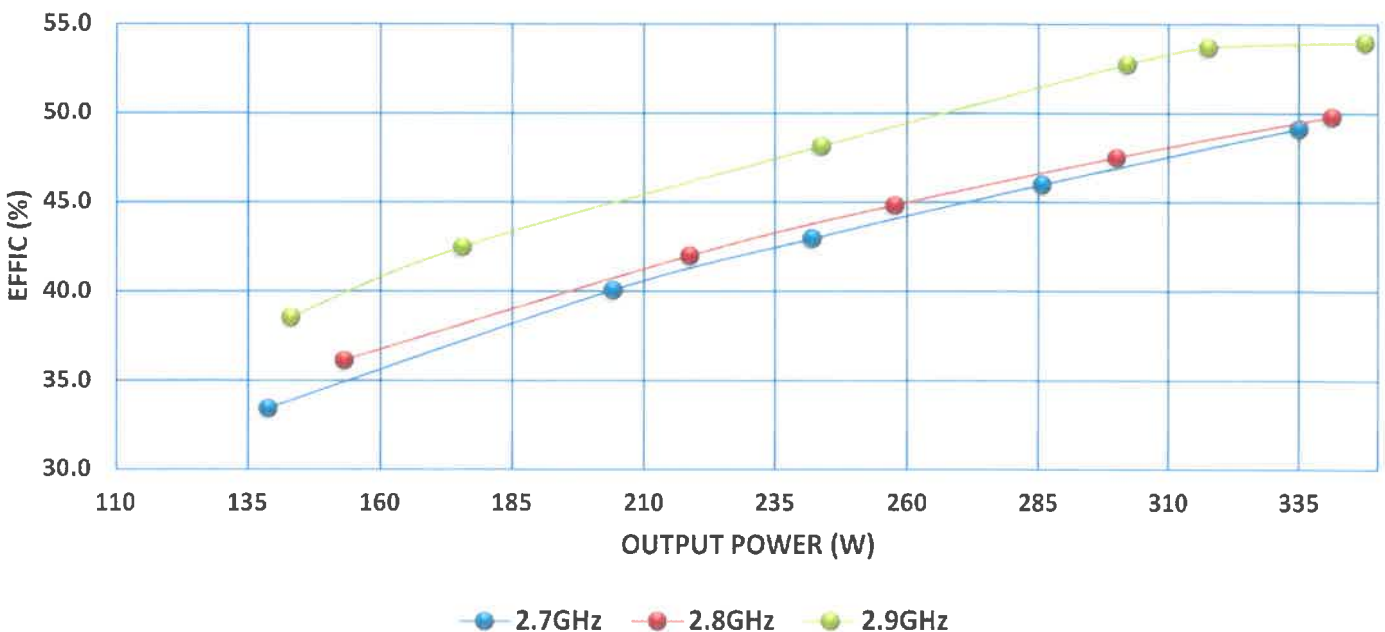
Vdd=50V, PW=200us(20%)

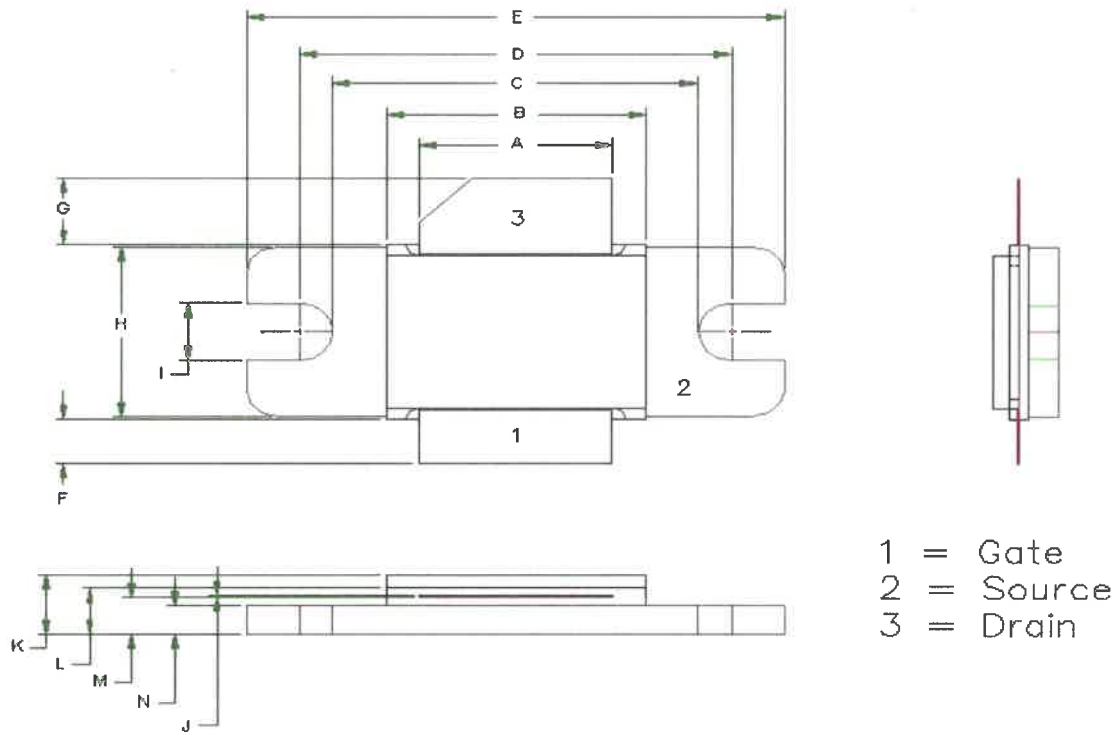


2729GN-300V
Vdd=50V, PW=200us(20%)



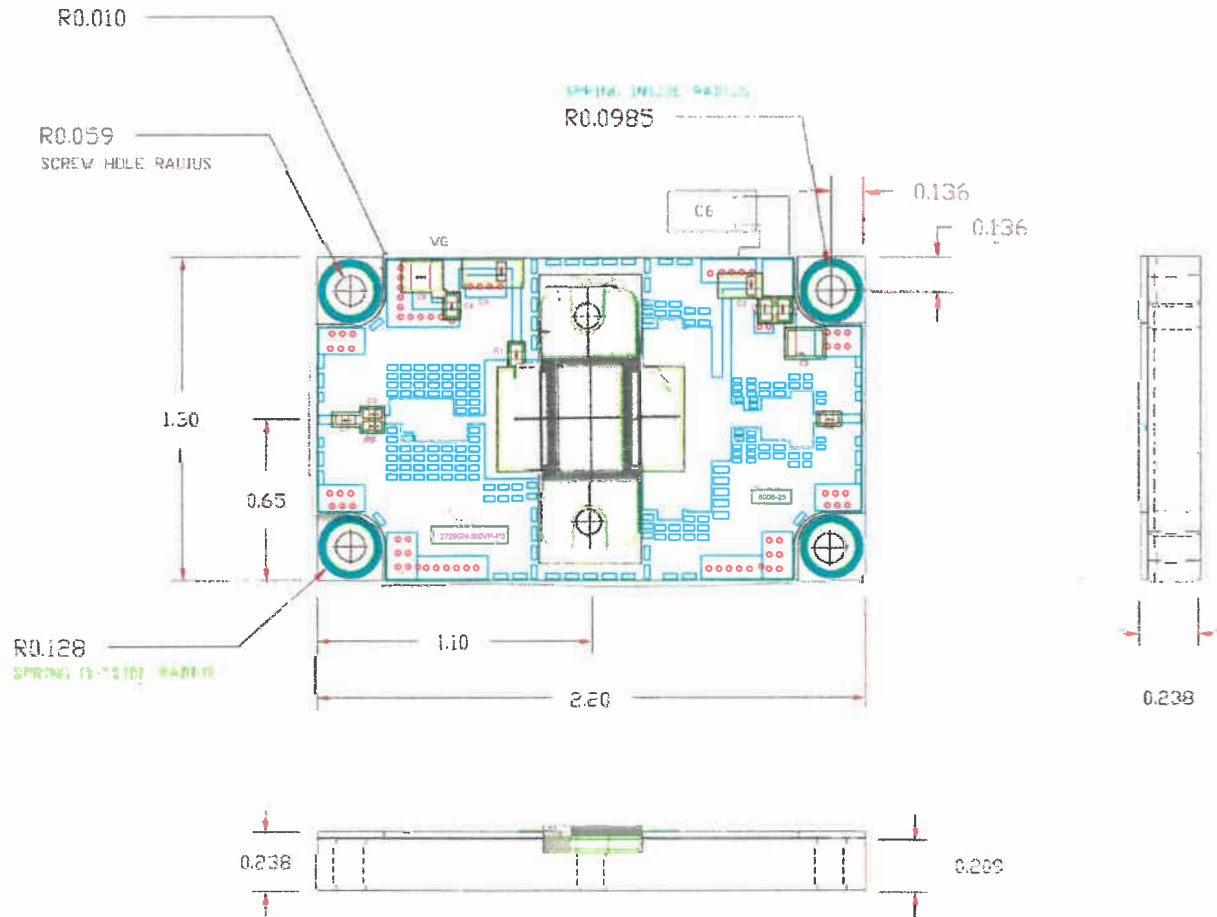
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2729GN-300V PACKAGE (55-QP) DIMENSIONS


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

2729GN-300VP PALLET DIMENSIONS





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Revision History

Revision Level / Date	Para. Affected	Description
Rev2 / May 2025	-	Datasheet