

SX3030VP GaN TRANSISTOR

Document Number: SX3030VP
Preliminary Datasheet V1.0

Gallium Nitride 50V, 300W, RF Power Transistor

Description

The SX3030VP is a 300-watt, unmatched GaN HEMT in form of push-pull configuration, designed for general purposes and wide band amplifier applications with frequencies from HF to 3000 MHz. There is no guarantee of performance when this part is used in applications designed outside of these frequencies.



• Typical Performance (On Innogrations 1.7-1.9GHz board):

$V_{DD} = 50$ Volts, CW, $P_{in} = 38$ dBm

Freq (MHz)	Pout (W)	Gp (dB)	Eff (%)
1700	260	16.2	62
1800	240	16	63
1900	210	15.1	61

Applications and Features

- Suitable for wireless communication infrastructure, wideband amplifier, EMC testing, ISM etc.
- High Efficiency and Linear Gain Operations
- Thermally Enhanced Industry Standard Package
- High Reliability Metallization Process
- Excellent thermal Stability and Excellent Ruggedness
- Compliant to Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC

Important Note: Proper Biasing Sequence for GaN HEMT Transistors

Turning the device ON

1. Set V_{GS} to the pinch-off (V_P) voltage, typically -5 V
2. Turn on V_{DS} to nominal supply voltage (50V)
3. Increase V_{GS} until I_{DS} current is attained
4. Apply RF input power to desired level

Turning the device OFF

1. Turn RF power off
2. Reduce V_{GS} down to V_P , typically -5 V
3. Reduce V_{DS} down to 0 V
4. Turn off V_{GS}

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DSS}	+200	Vdc
Gate--Source Voltage	V_{GS}	-8 to 0	Vdc
Operating Voltage	V_{DD}	0 to 55	Vdc
Maximum forward gate current	I_{gf}	43.2	mA
Storage Temperature Range	T_{stg}	-65 to +150	C
Case Operating Temperature	T_C	-55 to +150	C
Operating Junction Temperature	T_J	+225	C

Table 2. Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case $T_C = 85^\circ\text{C}$, $T_J = 200^\circ\text{C}$, DC Power Dissipation, FEA	$R_{\theta JC}$	1	C/W

Table 3. Electrical Characteristics ($T_C = 25^\circ\text{C}$ unless otherwise noted)

SX3030VP GaN TRANSISTOR

Document Number: SX3030VP
Preliminary Datasheet V1.0

DC Characteristics

Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = -8V$; $I_{DS} = 43.2mA$	V_{DSS}		200		V
Gate Threshold Voltage	$V_{DS} = 10V$, $I_D = 43.2mA$	$V_{GS(th)}$		-3.4		V
Gate Quiescent Voltage	$V_{DS} = 50V$, $I_{DS} = 500mA$, Measured in Functional Test	$V_{GS(Q)}$		-3		V

Functional Tests (In Innogration broadband Test Fixture, 50 ohm system) : $V_{DD} = 50 V_{dc}$, $I_{DQ} = 500 mA$, $f = 2000 MHz$, CW

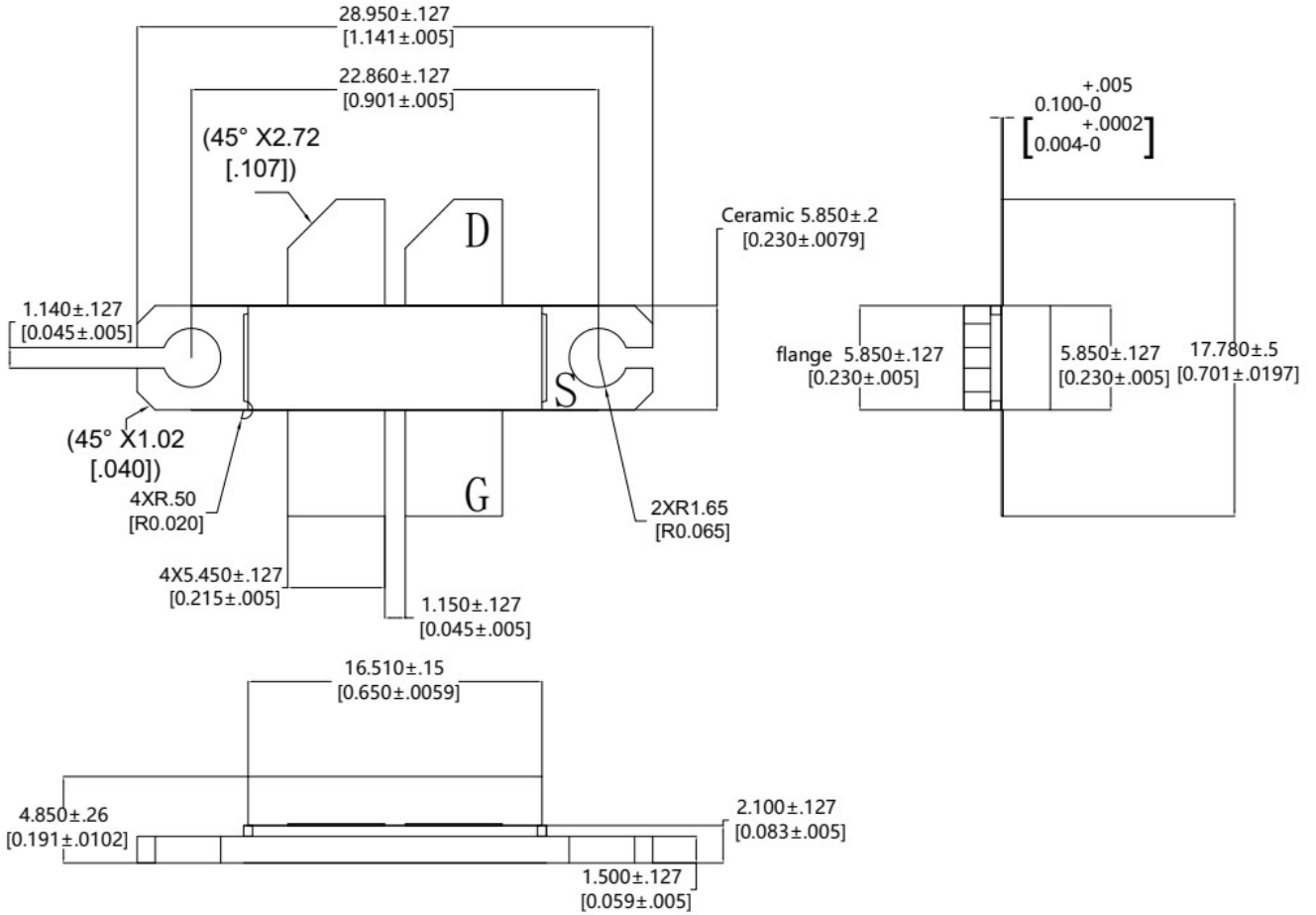
Characteristic	Symbol	Min	Typ	Max	Unit
Power Gain @ P3dB	Gp		16		dB
Drain Efficiency@P3dB _t	Eff		65		%
3dB Compressed point	P3dB		300		W
Input Return Loss	IRL		-7		dB
Mismatch stress at all phases(No device damage)	VSWR		10:1		Ψ

SX3030VP GaN TRANSISTOR

Document Number: SX3030VP
Preliminary Datasheet V1.0

Package Outline

Flanged ceramic package; 2 mounting holes; 4 leads



OUTLINE VERSION	REFERENCE			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
PKG-LB/LBB					05/21/2021

SX3030VP GaN TRANSISTOR

Document Number: SX3030VP
Preliminary Datasheet V1.0

Revision history

Table 4. Document revision history

Date	Revision	Datasheet Status
2022/3/25	Rev 1.0	Preliminary Datasheet

Disclaimers

Specifications are subject to change without notice. Innogration believes the information contained within this data sheet to be accurate and reliable. However, no responsibility is assumed by Innogration for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Innogration. Innogration makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose. "Typical" parameters are the average values expected by Innogration in large quantities and are provided for information purposes only. These values can and do vary in different applications and actual performance can vary over time. All operating parameters should be validated by customer's technical experts for each application. Innogration products are not designed, intended or authorized for use as components in applications intended for surgical implant into the body or to support or sustain life, in applications in which the failure of the Innogration product could result in personal injury or death or in applications for planning, construction, maintenance or direct operation of a nuclear facility. For any concerns or questions related to terms or conditions, pls check with Innogration and authorized distributors

Copyright © by Innogration (Suzhou) Co.,Ltd.