

Thermally-Enhanced High Power RF GaN on SiC HEMT 180 W, 50 V, 2700 – 3100 MHz

Description

The GTVA311801FA is a 180-watt GaN on SiC high electron mobility transistor (HEMT) for use in the 2700 to 3100 MHz frequency band. It features input matching, high efficiency, and a thermally-enhanced package with earless flange.

Advance Specification Data Sheets describe products that are being considered by Infineon for development and market introduction. The target performance shown in Advance Specifications is not final and should not be used for any design activity. Please contact Infineon about the future availability of these products.

Features

- GaN on SiC HEMT technology
- Broadband internal input matching
- Typical pulsed CW performance (class AB), 2700 – 3100 MHz, 50 V, 300 μ s pulse width, 10% duty cycle
 - Output power at P_{3dB} = 180 W
 - Drain efficiency = 70%
 - Gain (P_{3dB}) = 15 dB
- Pb-free and RoHS compliant



GTVA311801FA
Package H-37265J-2

Target RF Characteristics

Pulsed CW Specifications (tested in Infineon class AB test fixture)

$V_{DD} = 50$ V, $I_{DQ} = 20$ mA, $P_{OUT} = 180$ W, $f = 3100$ MHz, pulse width = 300 μ s, duty cycle = 10%

Characteristic	Symbol	Min	Typ	Max	Unit
Gain	G_{ps}	—	15	—	dB
Drain Efficiency	η_D	—	70	—	%

All published data at $T_{CASE} = 25^\circ\text{C}$ unless otherwise indicated

ESD: Electrostatic discharge sensitive device—observe handling precautions!

DC Characteristics

Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Drain-source Breakdown Voltage	$V_{GS} = -8\text{ V}$, $I_D = 21\text{ mA}$	$V_{(BR)DSS}$	150	—	—	V
Drain Source Leakage Current	$V_{GS} = -8\text{ V}$, $V_{DS} = 50\text{ V}$	I_{DSS}	—	—	5	mA
Gate Threshold Voltage	$V_{DS} = 10\text{ V}$, $I_D = 21\text{ mA}$	$V_{GS(th)}$	-3.8	-3.0	-2.3	V
Gate Quiescent Voltage	$V_{DS} = 50\text{ V}$, $I_D = 20\text{ mA}$	$V_{GS(Q)}$	—	-3.17	—	V

Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-source Voltage	V_{DSS}	125	V
Gate-source Voltage	V_{GS}	-10 to +2	V
Operating Voltage	V_{DD}	0 to +50	V
Gate Current	I_G	20	mA
Drain Current	I_D	7.5	A
Junction Temperature	T_J	225	°C
Storage Temperature Range	T_{STG}	-65 to +150	°C

Thermal Characteristics

Characteristic	Conditions	Symbol	Value	Unit
Thermal Resistance	$T_{CASE} = 70^\circ\text{C}$	$R_{\theta JC}$	TBD	°C/W

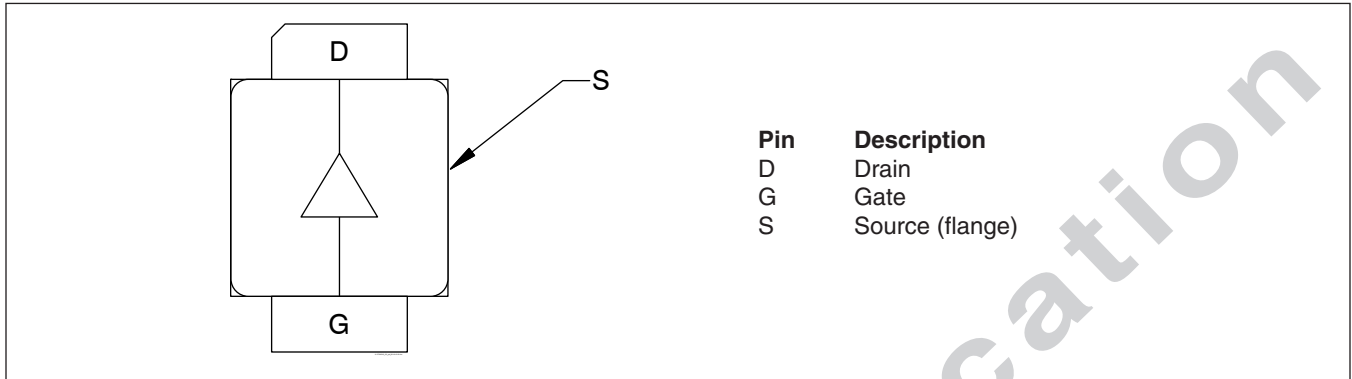
Ordering Information

Type and Version	Order Code	Package and ECCN	Shipping
GTVA311801FA V1 R0	TBD	H-37265J-2, 3A001.b.3a	Tape & Reel, 50 pcs
GTVA311801FA V1 R2	TBD	H-37265J-2, 3A001.b.3a	Tape & Reel, 250 pcs

Evaluation Board

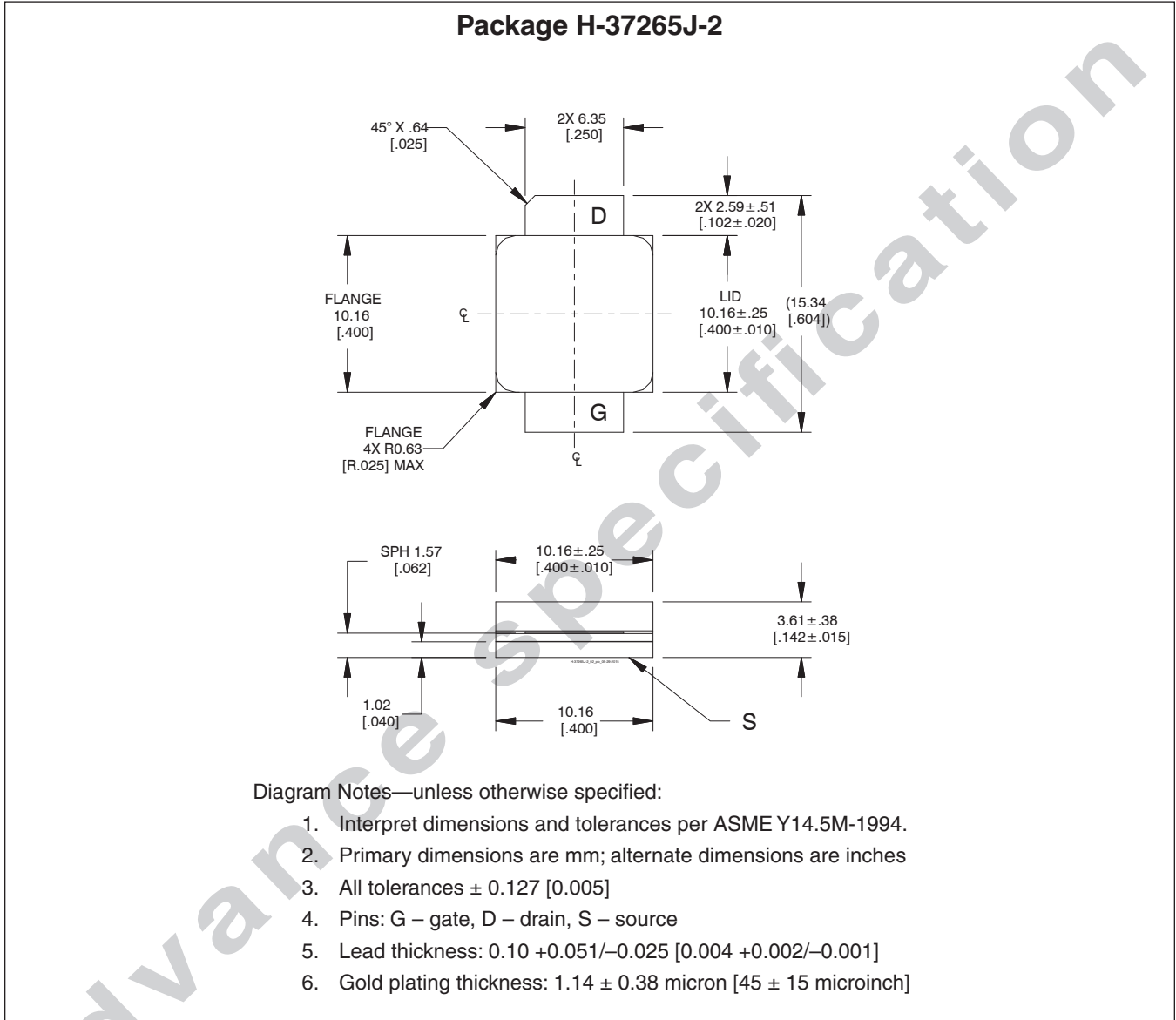
Order Code	Frequency	Description	ECCN
LTN/GTVA311801FA V1	2700 – 3100 MHz	Class AB, RO4350B, 0.508 mm thick	3A001.b.3a

Pinout Diagram (top view)



See next page for package dimensions

Package Outline Specifications



Find the latest and most complete information about products and packaging at the Infineon Internet page <http://www.infineon.com/rfpower>

Revision History

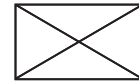
Revision	Date	Data Sheet	Page	Subjects (major changes at each revision)
01	2017-01-26	Advance	all	Advance Specification provides target requirements for product development
01.1	2018-02-01	Advance	1	Updated pulsed CW performance and pulsed CW spec table

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