

# Advance GTVA355001EC/FC

## Thermally-Enhanced High Power RF GaN on SiC HEMTs 500 W, 50 V, 2900 – 3500 MHz

### Description

The GTVA355001EC and GTVA35501FC are 500-watt GaN on SiC high electron mobility transistors (HEMTs) for use in the 2900 to 3500 MHz frequency band. They feature input and output matching, high efficiency, and thermally-enhanced packages.

**Advance Specification Data Sheets** describe products that are being considered by Wolfspeed 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 Wolfspeed about the future availability of these products.

### Features

- GaN on SiC HEMT technology
- Broadband internal input and output matching
- Typical pulsed CW performance, single side, 3500 MHz, 50 V, 300  $\mu$ s pulse width, 10% duty cycle
  - Output power at  $P_{3dB} = 500$  W
  - Drain efficiency = 65%
  - Gain = 13 dB
- Pb-free and RoHS compliant

GTVA355001EC  
Package H-36248-2



GTVA355001FC  
Package H-37248-2



### Target RF Characteristics

**Pulsed CW Specifications** (tested in Wolfspeed class AB test fixture)

$V_{DD} = 50$  V,  $I_{DQ} = 200$  mA,  $P_{OUT} = 500$  W,  $f = 3500$  MHz, pulse width = 300  $\mu$ s, duty cycle = 10%

Characteristic	Symbol	Min	Typ	Max	Unit
Gain	$G_{ps}$	—	13	—	dB
Drain Efficiency	$\eta_D$	—	65	—	%

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	$V_{GS} = -8\text{ V}$ , $I_D = 65\text{ mA}$	$V_{(BR)DSS}$	150	—	—	V
Gate Threshold Voltage	$V_{DS} = 10\text{ V}$ , $I_D = 65\text{ mA}$	$V_{GS(th)}$	—	-3.0	—	V

## Recommended Operating Conditions

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Drain Operating Voltage		$V_{DD}$	0	—	55	V
Gate Quiescent Voltage	$V_{DS} = 50\text{ V}$ , $I_D = 200\text{ mA}$	$V_{GS(Q)}$	—	-3	—	V

## Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-source Voltage	$V_{DSS}$	125	V
Gate-source Voltage	$V_{GS}$	-10 to +2	V
Gate Current	$I_G$	60	mA
Drain Current	$I_D$	20	A
Junction Temperature	$T_J$	225	°C
Storage Temperature Range	$T_{STG}$	-65 to +150	°C

Operation above the maximum values listed here may cause permanent damage. Maximum ratings are absolute ratings; exceeding only one of these values may cause irreversible damage to the component. Exposure to absolute maximum rating conditions for extended periods may affect device reliability. For reliable continuous operation, the device should be operated within the operating voltage range ( $V_{DD}$ ) specified above.

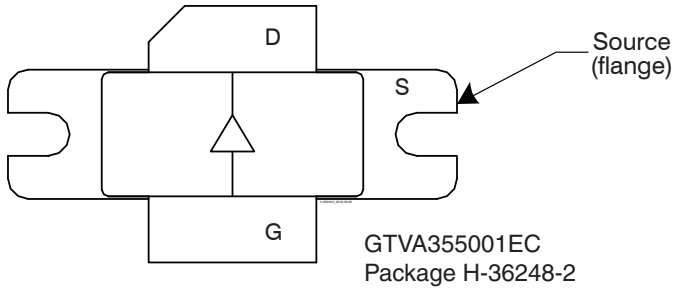
## Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	TBD	°C/W

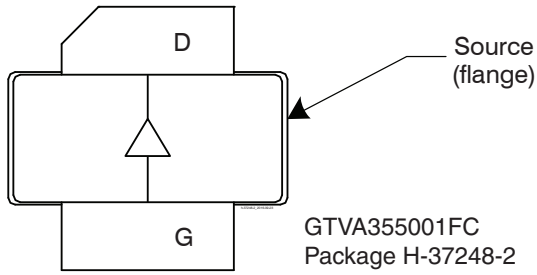
## Ordering Information

Type and Version	Order Code	Package Description	Shipping
GTVA355001EC V1 R0	TBD	H-36248-2	Tape & Reel, 50 pcs
GTVA355001EC V1 R2	TBD	H-36248-2	Tape & Reel, 250 pcs
GTVA355001FC V1 R0	TBD	H-37248-2	Tape & Reel, 50 pcs
GTVA355001FC V1 R2	TBD	H-37248-2	Tape & Reel, 250 pcs

**Pinout Diagram** (top view)

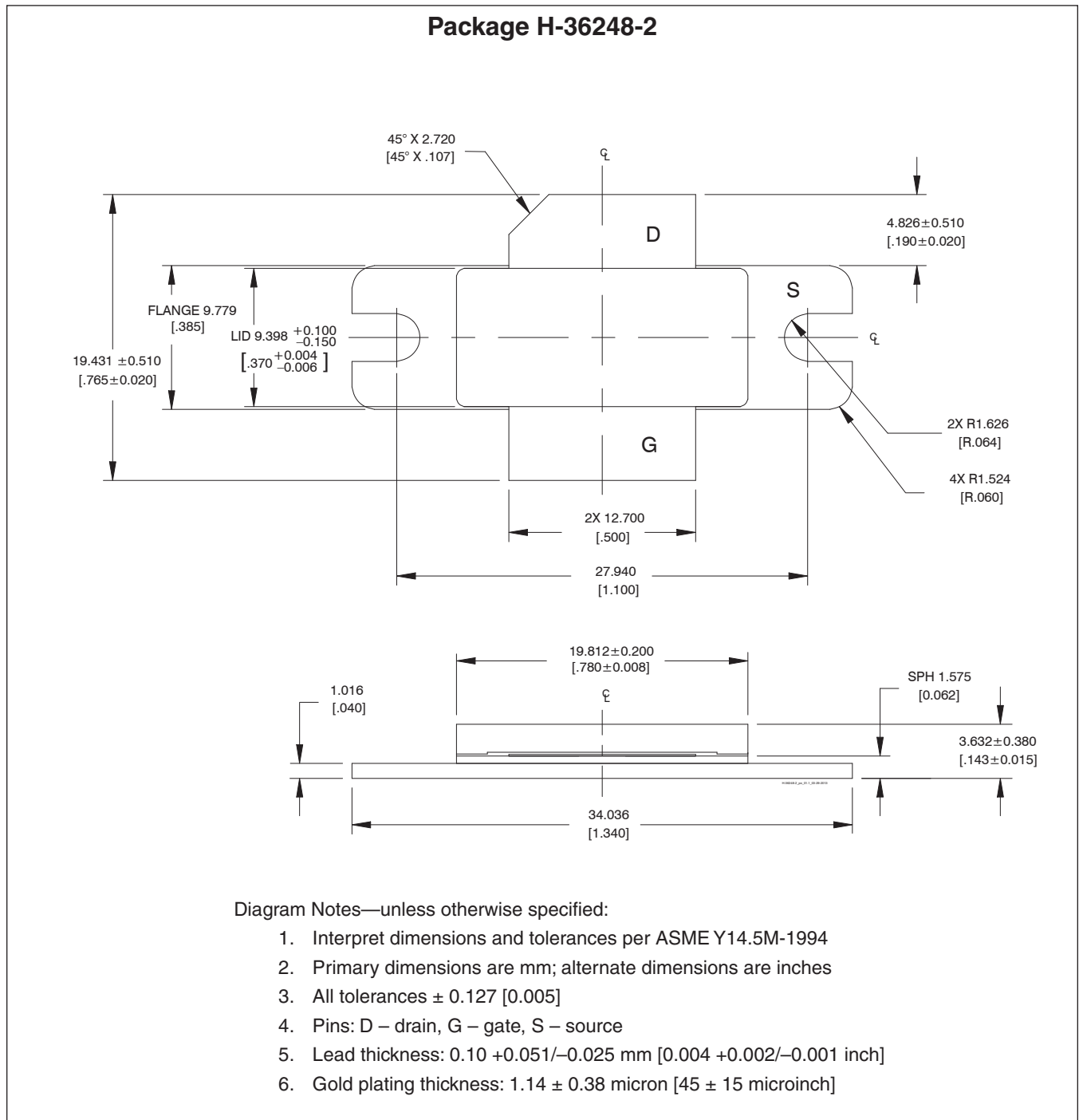


Pin	Description
D	Drain
G	Gate
S	Source (flange)

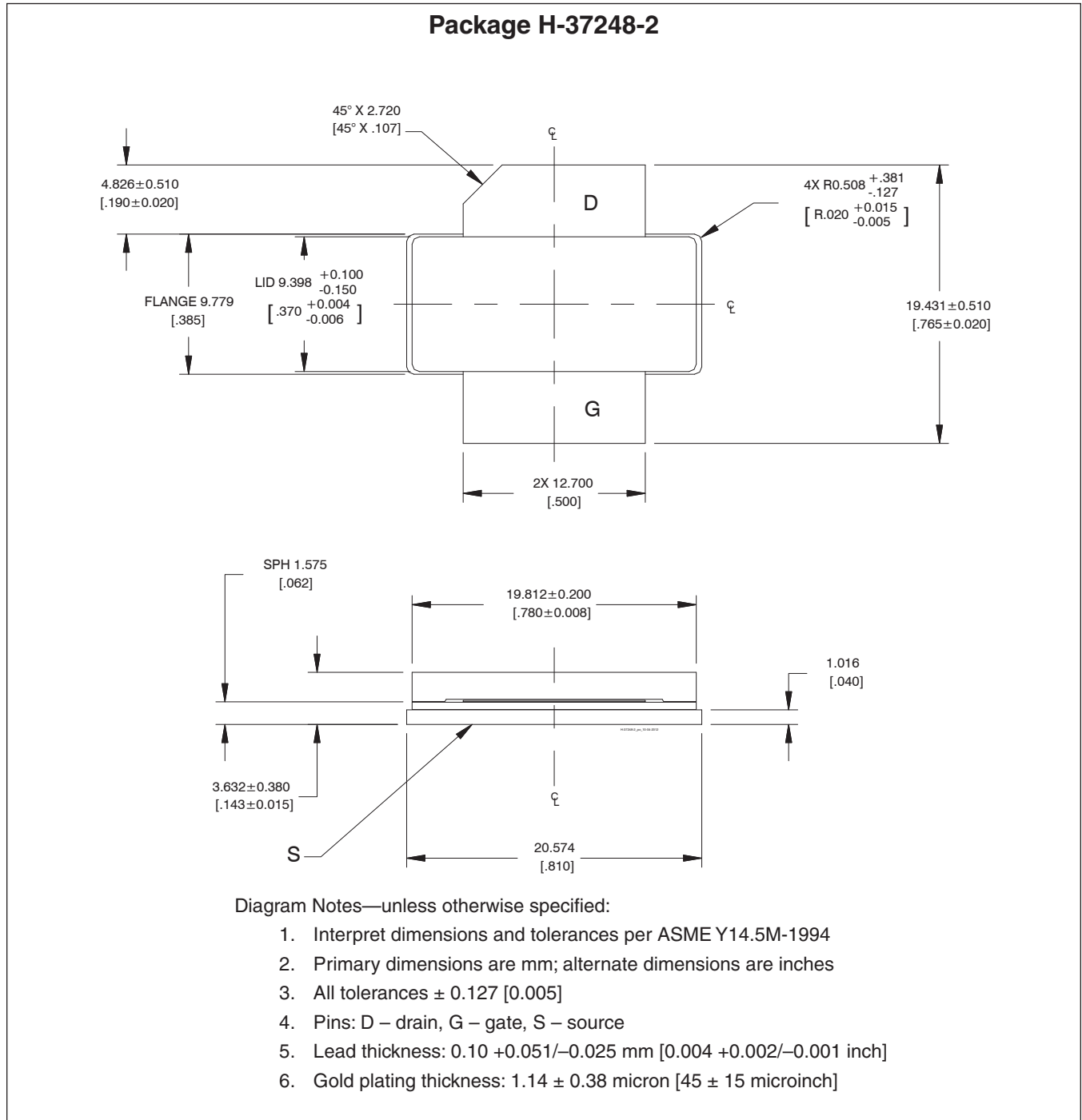


Pin	Description
D	Drain
G	Gate
S	Source (flange)

Package Outline Specifications



Package Outline Specifications (cont.)





## Revision History

Revision	Date	Data Sheet Type	Page	Subjects (major changes since last revision)
01	2018-05-17	Advance	All	Data Sheet reflects advance specification for product development

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## Notes

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