Advance GTRA364002FC

Thermally-Enhanced High Power RF GaN on SiC HEMT
400 W, 48 V, 3400 – 3600 MHz

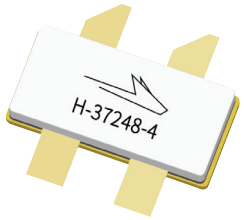
Description

The GTRA364002FC is a 400-watt (P_{SAT}) GaN on SiC high electron mobility transistor (HEMT) designed for use in multi-standard cellular power amplifier applications. 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 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
- Input Matched
- Typical Pulsed CW performance, 3600 MHz, 48 V, combined outputs
  - P_{SAT} = 400 W
  - Efficiency = 50%
  - Gain = 11 dB
- Pb-free and RoHS-compliant



GTRA364002FC
Package H-37248-4

Target RF Characteristics

Single-carrier WCDMA Specifications (tested in Wolfspeed Doherty test fixture)
V_{DD} = 48 V, I_{DQ} = 110 mA, P_{OUT} = 47.7 W dBm avg, $V_{GS(PEAK)}$ = –5.5 V, f = 3600 MHz, 3GPP signal, channel bandwidth = 3.84 MHz, peak/average = 10 dB @ 0.01% CCDF

CCharacteristic	Symbol	Min	Typ	Max	Unit
Linear Gain	G_{ps}	—	13	—	dB
Drain Efficiency	η_D	—	43	—	%
Adjacent Channel Power Ratio	ACPR	—	–30	—	dBc
Output PAR @ 0.01% CCDF	OPAR	—	7	—	dB

All published data at T_{CASE} = 25°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 V, I_D = 10 mA	$V_{(BR)DSS}$	150	—	—	V
Drain-source Leakage Current	V_{GS} = –8 V, V_{DS} = 10 V	I_{DSS}	—	—	7	mA
Gate Threshold Voltage	V_{DS} = 10 V, I_D = 10 mA	$V_{GS(th)}$	–2.5	–3.0	–3.5	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 V, I_D = 140 mA	$V_{GS(Q)}$	—	–3.0	—	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	14	mA
Drain Current	I_D	12	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.

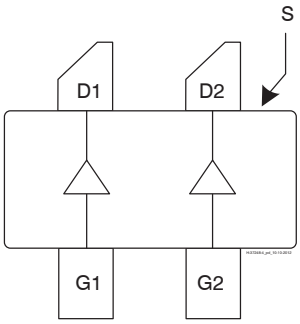
Thermal Chracteristics

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

Ordering Information

Type and Version	Order Code	Package	Shipping
GTRA364002FC V1 R0	TBD	H-37248-4, earless flange	Tape & Reel, 50 pcs
GTRA364002FC V1 R2	TBD	H-37248-4, earless flange	Tape & Reel, 250 pcs

Pinout Diagram (top view)



Pin	Description
D1	Drain device 1
D2	Drain device 2
G1	Gate device 1
G2	Gate device 2
S	Source (flange)

Package Outline Specifications

Package H-37248-4

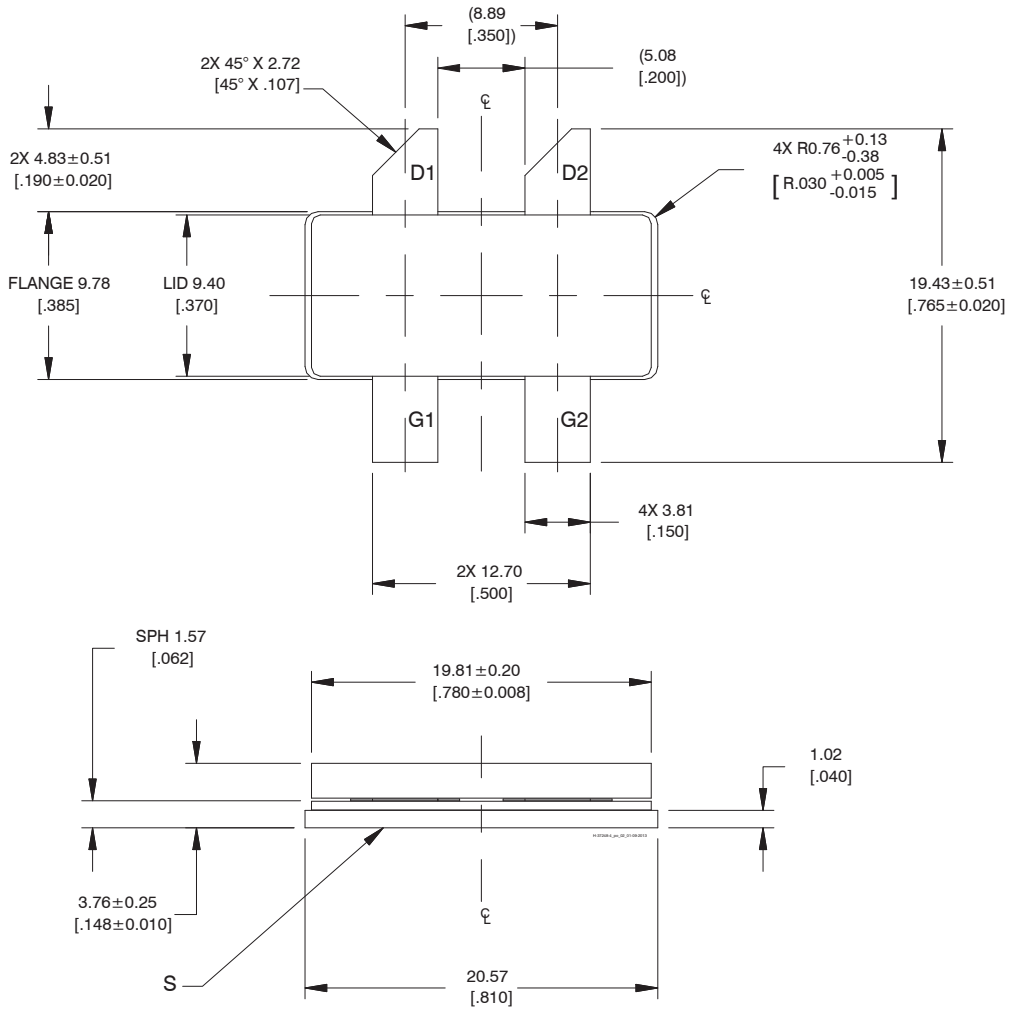


Diagram Notes—unless otherwise specified:

1. Interpret dimensions and tolerances per ASME Y14.5M-1994.
2. Primary dimensions are mm. Alternate dimensions are inches.
3. All tolerances ± 0.127 [.005] unless specified otherwise.
4. Pins: D1, D2 – drains; G1, G2 – gates; S – source.
5. Lead thickness: 0.10 + 0.076/–0.025 mm [0.004+0.003/–0.001 inch].
6. Gold plating thickness: 1.14 ± 0.38 micron [45 ± 15 microinch].

Revision History

Revision	Date	Data Sheet Type	Page	Subjects (major changes since last revision)
01	2016-09-02	Preliminary	All	Data Sheet reflects preliminary specification
02	2017-07-24	Advance	All	Data Sheet reflects advance specification for product development
03	2018-05-01	Advance	All 2	Converted to Wolfspeed Data Sheet Updated DC Characteristics and max ratings table format

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Notes

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