

Preliminary GTRA362002FC

Thermally-Enhanced High Power RF GaN on SiC HEMT 200 W, 48 V, 3400 – 3600 MHz

Description

The GTRA362002FC is a 200-watt (P_{3dB}) 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.



GTRA362002FC
Package H-37248C-4

Features

- GaN on SiC HEMT technology
- Input matched
- Typical Pulsed CW performance, 3500 MHz, 48 V, combined outputs
 - Output power at P_{3dB} = 200 W
 - Efficiency = 60%
 - Gain = 12.5 dB
- Capable of handling 10:1 VSWR @50 V, 30 W (WCDMA) output power
- RoHS-compliant

RF Characteristics

Single-carrier WCDMA Specifications (tested in Doherty test fixture)

V_{DD} = 48 V, I_{DQ} = 110 mA, P_{OUT} = 29 W avg, $V_{GS(PEAK)}$ = -5.5 V, f_1 = 3600 MHz, 3GPP, channel bandwidth = 3.84 MHz, peak/average = 10 dB @ 0.01% CCDF

Characteristic	Symbol	Min	Typ	Max	Unit
Linear Gain	G_{ps}	—	13.5	—	dB
Drain Efficiency	η^D	—	46	—	%
Adjacent Channel Power Ratio	ACPR	—	-28	—	dBc
Output PAR @ 0.01% CCDF	OPAR	—	-7.9	—	dB

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	$V_{GS} = -8\text{ V}$, $I_D = 10\text{ mA}$	$V_{(BR)DSS}$	150	—	—	V
Drain-source Leakage Current	$V_{GS} = -8\text{ V}$, $V_{DS} = 10\text{ V}$	I_{DSS}	—	—	2	mA
Gate Threshold Voltage	$V_{DS} = 10\text{ V}$, $I_D = 10\text{ mA}$	$V_{GS(th)}$	-3.8	-3.0	-2.3	V

Recommended Operating Conditions

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Drain Operating Voltage		V_{DD}	0	—	50	V
Gate Quiescent Voltage	$V_{DS} = 48\text{ V}$, $I_D = 0.11\text{ A}$	$V_{GS(Q)}$	—	-2.8	—	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	11	mA
Drain Current	I_D	4.6	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

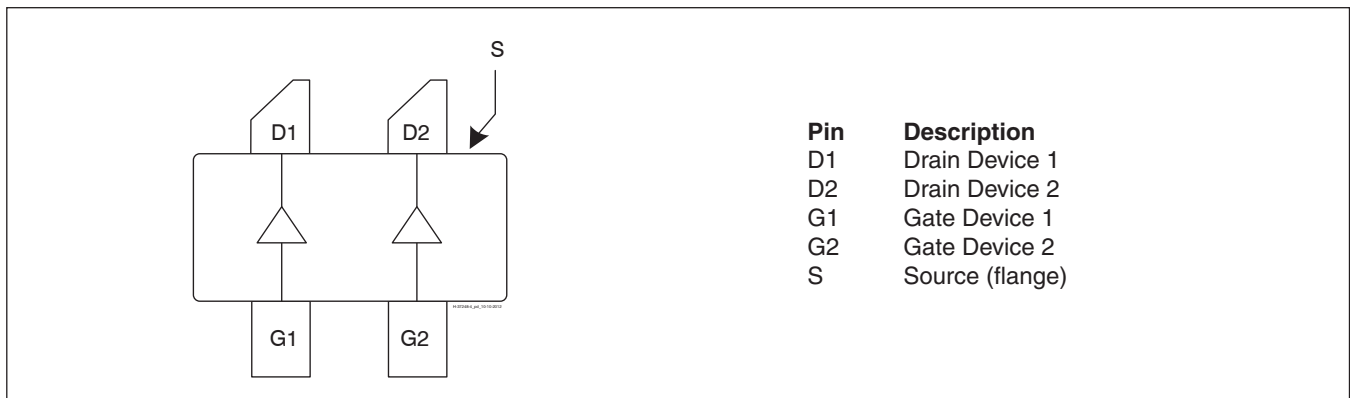
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	TBD	°C/W

Ordering Information

Type and Version	Order Code	Package	Shipping
GTRA362002FC V1 R0	TBD	H-37248C-4, earless flange	Tape & Reel, 50 pcs
GTRA362002FC V1 R2	TBD	H-37248C-4, earless flange	Tape & Reel, 250 pcs

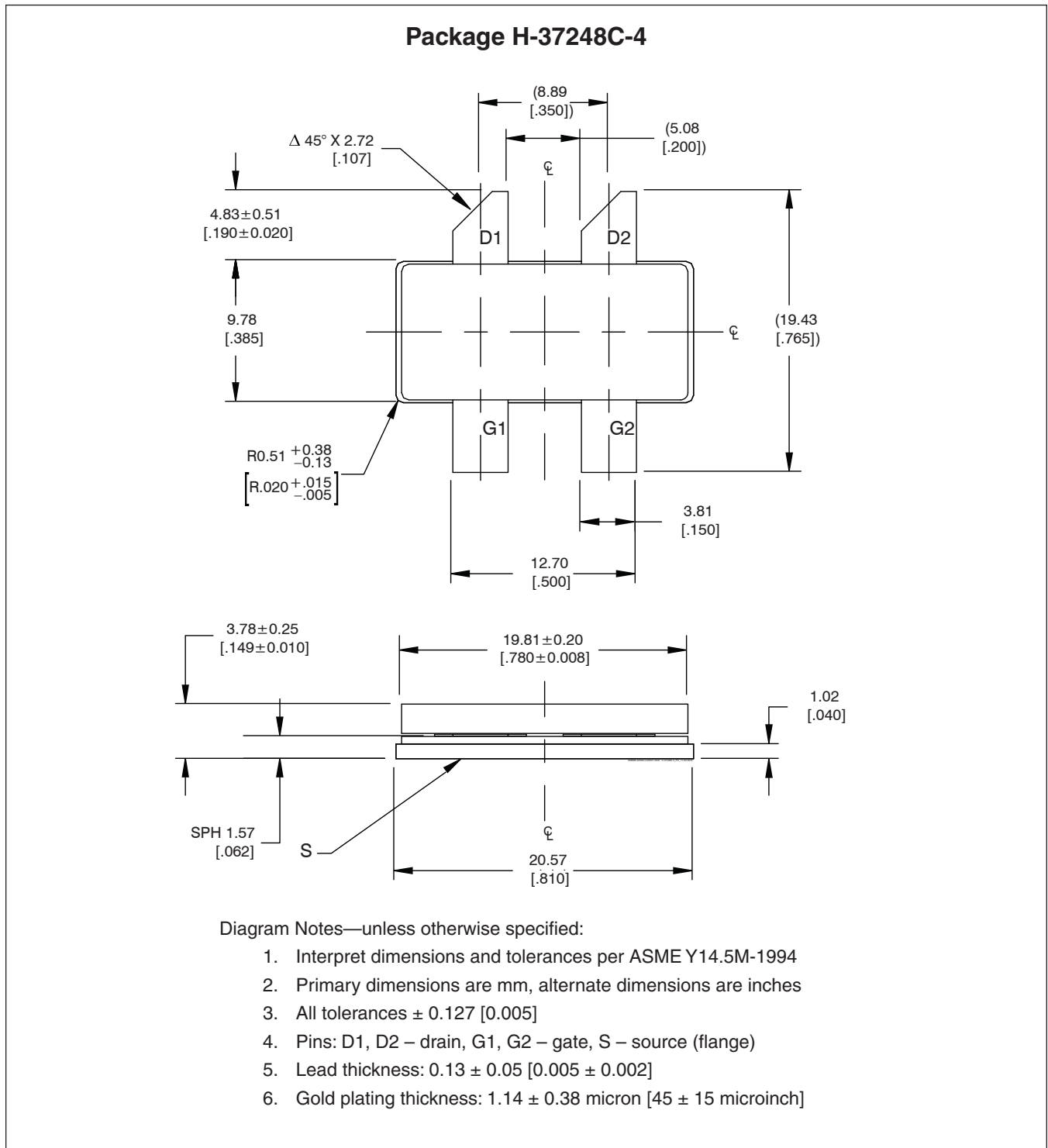


Pinout Diagram (top view)



See next page for Package Outline Specifications

Package Outline Specifications



Revision History

Revision	Date	Data Sheet Type	Page	Subjects (major changes since last revision)
01	2016-07-14	Advance	All	Data Sheet reflects advance specification for product development
02	2017-07-21	Advance	All	Revised Features and Target RF Characteristics Includes Package
03	2018-04-03	Preliminary	All	Data Sheet reflects preliminary specification

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Notes

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