



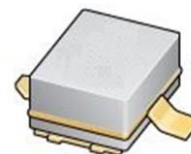
Gallium Nitride 28V 15W, RF Power Transistor

Description

The GTAH35015M2 is a 15W GaN HEMT, designed for multiple applications, especially sub-6GHz MC-GSM/WCDMA/LTE/LTE-A from 700-3800MHz.

There is no guarantee of performance when this part is used in applications designed Outside of these frequencies.

GTAH35015M2



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 VGS to the pinch-off (VP) voltage, typically -5 V
2. Turn on VDS to nominal supply voltage (28V)
3. Increase VGS until IDS current is attained
4. Apply RF input power to desired level

Turning the device OFF

1. Turn RF power off
2. Reduce VGS down to VP, typically -5 V
3. Reduce VDS down to 0 V
4. Turn off VGS

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DS}	150	Vdc
Gate--Source Voltage	V_{GS}	-10,+2	Vdc
Operating Voltage	V_{DD}	32	Vdc
Maximum Forward Gate Current @ $T_C = 25^{\circ}\text{C}$	I_{gmax}	4	mA
Storage Temperature Range	T_{stg}	-65 to +150	$^{\circ}\text{C}$
Case Operating Temperature	T_C	+150	$^{\circ}\text{C}$
Operating Junction Temperature(See note 1)	T_J	+200	$^{\circ}\text{C}$
Total Device Power Dissipation (Derated above 25°C , see note 2)	P_{diss}	32	W

Note: 1. Continuous operation at maximum junction temperature will affect MTTF

2. Bias Conditions should also satisfy the following expression: $P_{diss} < (T_J - T_C) / R_{JC}$ and $T_C = T_{case}$

Table 2. Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case $T_C = 85^{\circ}\text{C}$, $T_J = 200^{\circ}\text{C}$, RF CW operation	$R_{\theta JC}$	5.67	C/W

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

Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = -8\text{V}; I_{DS} = 4\text{mA}$	V_{DSS}	150			V
Gate Threshold Voltage	$V_{DS} = 28\text{V}, I_D = 4\text{mA}$	$V_{GS(th)}$		-2.7		V
Gate Quiescent Voltage	$V_{DS} = 28\text{V}, I_{DS} = 200\text{mA}$, Measured in Functional Test	$V_{GS(Q)}$		-2.27		V

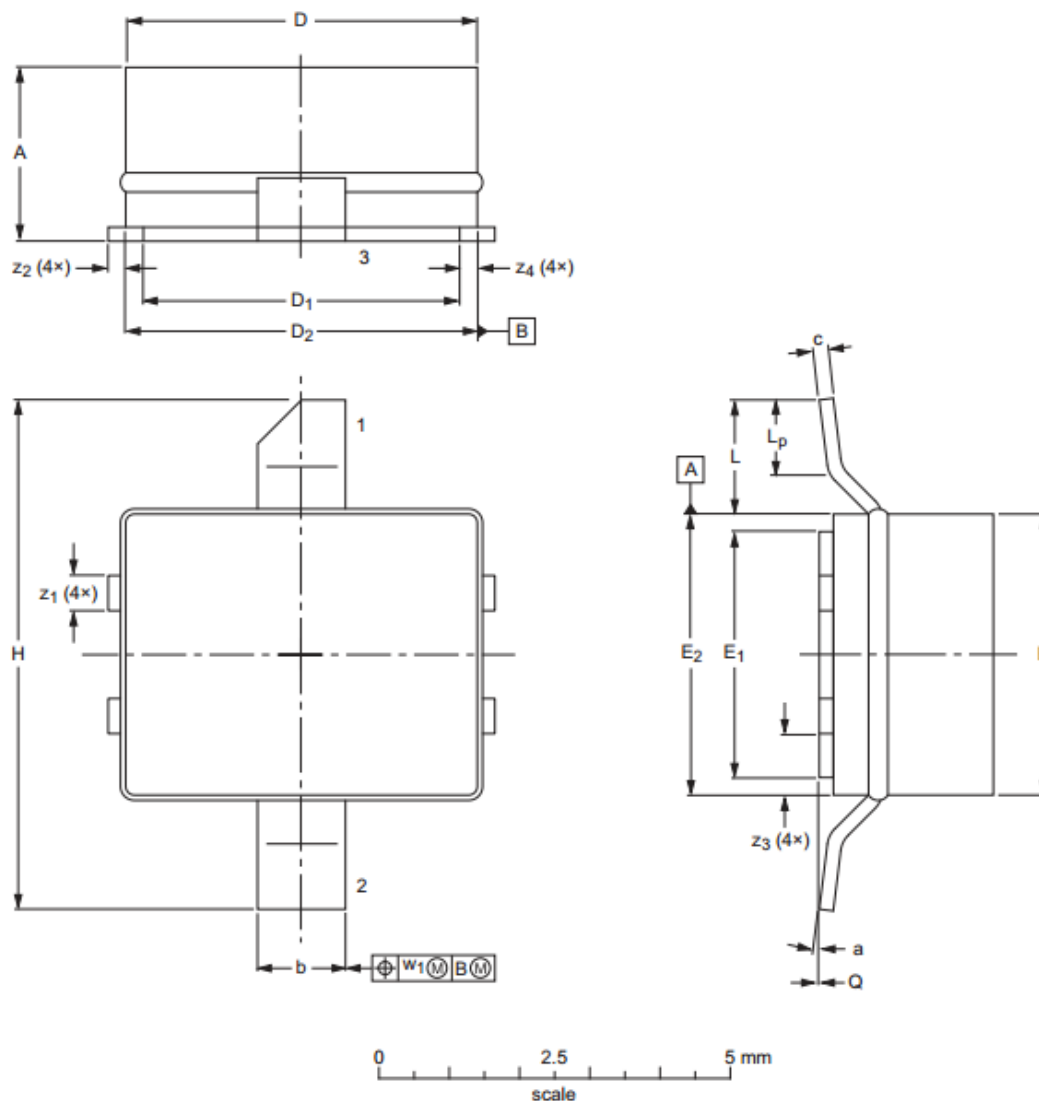
Functional Tests (In 0.7-1GHz Production fixture, 50 ohm system) : $V_{DD} = 28\text{Vdc}$, $I_{DQ} = 200\text{mA}$, $f = 1\text{GHz}$, WCDMA signal, $P_{out} = 3\text{W}$

Characteristic	Symbol	Min	Typ	Max	Unit
Power Gain @	Gp		24		dB
Drain Efficiency @ P_{out}	Eff		40		%
Saturated Power by CCDF test	P_{SAT}	15			W
Input Return Loss	IRL		-7		dB
Mismatch stress at all phases (Device no damage)	VSWR		10:1		Ψ



Package Outline

Earless Flanged ceramic package; 2 leads(1-Drain,2-Gate,3-Source)



UNIT	A	b	c	D	D ₁	E	E ₁	E ₂	H	L	L _p	Q	w ₁	z ₁	z ₂	z ₃	z ₄	α
mm	2.34	1.35	0.23	5.16	4.65	4.14	3.63	4.14	7.49	2.03	1.02	0.1	0.25	0.58	0.25	0.97	0.51	7°
	2.13	1.19	0.18	5.00	4.50	3.99	3.48	3.99	7.24	1.27	0.51	0.0		0.43	0.18	0.81	0.00	0°

OUTLINE VERSION	REFERENCE			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
PKG-MM					18/6/2014



Revision history

Table 4. Document revision history

Date	Revision	Datasheet Status
2017/6/26	V1.0	Objective Datasheet Creation
2017/7/27	V1.0	Preliminary datasheet creation

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