

***GTMi, Inc.***

*Solution, Service, Performance, and Commitment*

*- Your Trusted Partner*

***Product Data Sheet***

***Model: GT1214-30***

***GaN/SiC High Efficiency Transistor***

## ***GaN Transistor Product Features***

*GT1214-30 is an internally pre-matched GaN on SiC HEMT, common source, class AB that capable of providing over 30 Watts pulsed RF output power and CW conditions with greater than 17 dB power gain, across the 1200 to 1400 MHz band. This compact size, thermally enhanced hermetically sealed transistor is designed for Avionic, Radar, Communication, and Industrial applications. It utilizes gold metallization and eutectic die attach to provide highest reliability and superior ruggedness.*

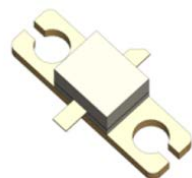
- *High Power >35W Typical (Long Pulse 5mS/30%)*
- *Ultra High Efficiency >62% Typical*
- *0.2dB Typical Flatness*

## ***Market Application***

- *Avionic*
- *Radar*
- *Industrial*
- *Communication*
- *General Purpose Driver Stage*

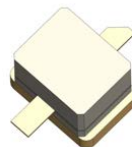
## ***Case Outline***

*The following illustrations show the case outline of model GT1214-30*



*.550"x.160"x.150" (include lid)*

*Case Outline T1*



*.250"x.160"x.150"*

*T1E*

## Absolute Maximum Ratings

Description	Test Condition	Max	Units
Maximum Power Dissipation	Transistor Dissipation at 25°C	70	W
MVI Maximum Voltage and Current	Drain Source Voltage ( $V_{DSS}$ )	150	V
	Gate Source Voltage ( $V_{GS}$ )	-8 to 0	V
MT Maximum Temperature	Storage Temperature	-55 to 125	°C
	Operating Junction Temperature	200	°C

## RF Specifications, $T=25^{\circ}C$

Symbol	Description	Test Condition	Min	Typical	Max	Units
Po	Output Power	Pin=.6W Op-Freq=1200, 1300, 1400 MHz	30	35		Watts
Gp	Power Gain	Pin=.6W Op-Freq=1200, 1300, 1400 MHz	17	17.6		dB
$\eta_d$	Drain Efficiency	Pin=.6W Op-Freq=1200, 1300, 1400 MHz	55	62		%
VSWR-T	Mismatch Tolerance	Pin=.6W Freq=1300MHz, 100μS, 10%			5:1	
$\theta_{jc}$	Thermal Resistance	5mS, 30% Condition		4.5		°C/W

• Bias Condition: Vdd = 50V, Idq = 30mA (Vgs = -2V to 4V Typical)

## DC Characteristics, $T=25^{\circ}C$

Symbol	Description	Test Condition	Min	Typical	Max	Units
$I_{D(off)}$	Drain Leakage Current	$V_{GS} = -8V, V_{DD} = 150V$			4	mA
$I_{G(off)}$	Gate Leakage Current	$V_{GS} = -8V, V_{DD} = 0V$			1	mA

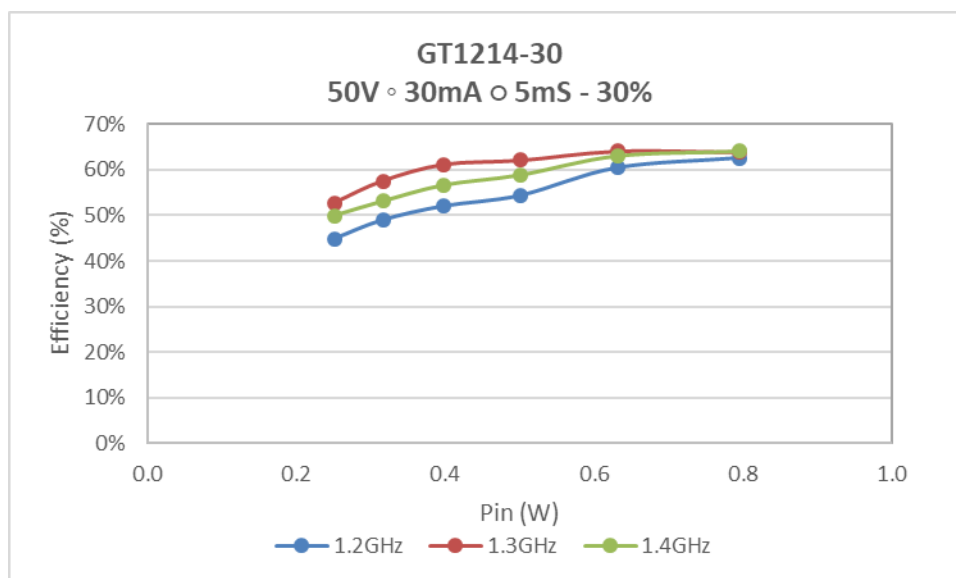
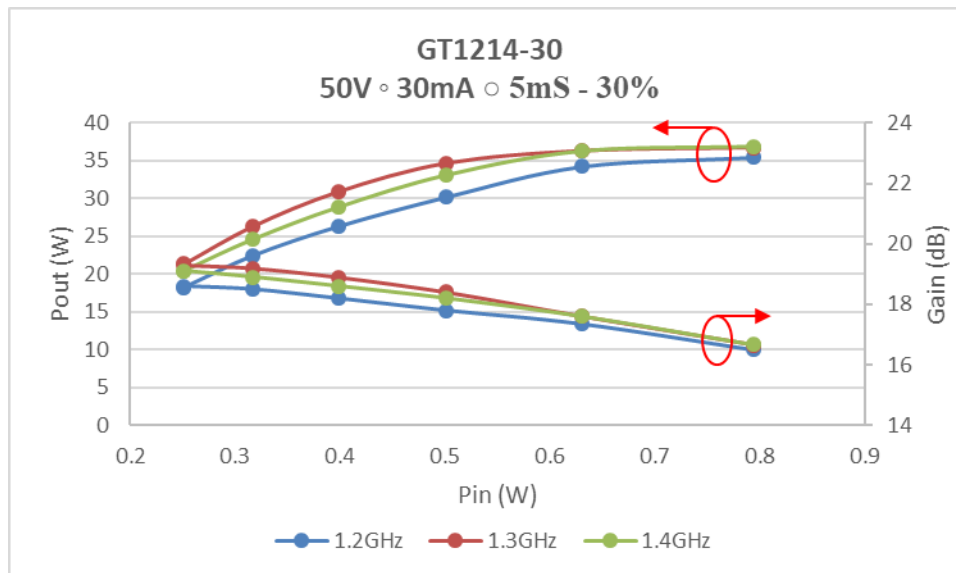
## Product Classification

**EAR-99**

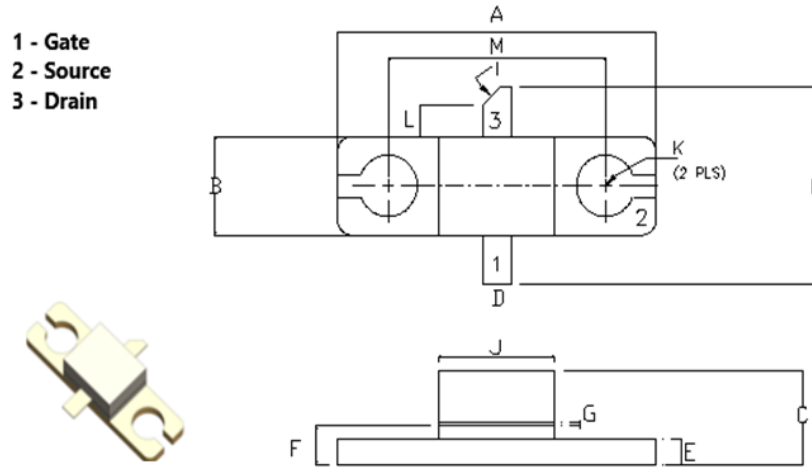
## Typical Performance Data

5mS – 30% Pulsing

Frequency (MHz)	Pin (W)	Pout (W)	Id (A)	Nd (%)	Gp (dB)
1200	.6	34.5	.365	60	17.4
1300	.6	36.3	.370	64	17.6
1400	.6	36.3	.370	63	17.6

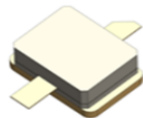
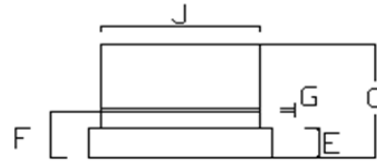
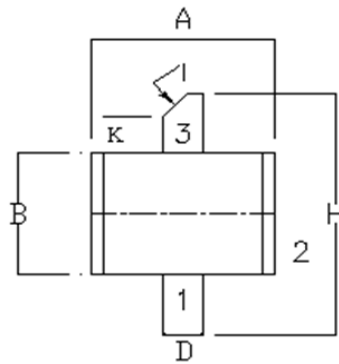


**Package Dimensions – T1**



Label	Inches	Tolerance	Millimeter	Tolerance
A	0.550	.010	14.0	.250
B	0.160	.010	4.60	.250
C	0.150	.002	3.18	.050
D	0.050	.004	1.27	.130
E	0.040	.004	1.03	.130
F	0.062	.004	1.58	.130
G	0.005	.001	.130	.020
H	0.320	.010	8.12	.250
I	45 Degree	-	-	-
J	0.200	.010	5.08	.250
K	0.100 Dia	-	2.54 Dia	-
L	0.050	.004	1.27	.120
M	0.376	.004	9.52	.120

***Earless Package T1E***



1 - Gate  
2 - Source  
3 - Drain

Label	Inches	Tolerance	Millimeter	Tolerance
A	0.230	.010	5.85	.250
B	0.160	.010	4.60	.250
C	0.150	.002	3.18	.050
D	0.050	.004	1.27	.130
E	0.040	.004	1.03	.130
F	0.062	.004	1.58	.130
G	0.005	.001	.130	.020
H	0.320	.010	8.12	.250
I	45 Degree	-	-	-
J	0.200	.010	5.08	.250
K	0.055	.004	1.40	.120

## *Test Circuit Information*

(Contact GTMi for Details)

The information contained in the document is PROPRIETARY AND CONFIDENTIAL information of GTMi and cannot be copied, published, uploaded, posted, transmitted, distributed or disclosed or used without the express duly signed written consent of GTMi. If the recipient of this document has entered into a disclosure agreement with GTMi, then the terms of such Agreement will also apply. This document and the information contained herein may not be modified, by any person other than authorized personnel of GTMi. No license under any patent, copyright, trade secret or other intellectual property right is granted to or conferred upon you by disclosure or delivery of the information, either expressly, by implication, inducement, estoppels or otherwise. Any license under such intellectual property rights must be approved by GTMi in writing signed by an officer of GTMi.

GTMi reserves the right to change the configuration, functionality and performance of its products at anytime without any notice. This product has been subject to limited testing and should not be used in conjunction with life-support or other mission-critical equipment or applications. GTMi assumes no liability whatsoever, and GTMi disclaims any express or implied warranty, relating to sale and/or use of GTMi products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright or other intellectual property right. The product is subject to other terms and conditions which can be located on the Web at <http://www.microsemi.com/legal/tnc.asp>.

### **Revision History**

<b>Revision Level / Date</b>	<b>Para. Affected</b>	<b>Description</b>
Rev 2 / 08-08-2020	-	Initial Preliminary Release