

***GTMi, Inc.***

*Solution, Service, Performance, and Commitment*

*- Your Trusted Partner*

***Product Data Sheet***

***Model: GT1011-130***

***GT1011-130E***

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

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

*GT1011-130 is an internally pre-matched GaN on SiC HEMT, common source, class AB that capable of providing over 130 Watts pulsed RF output power with greater than 19 dB power gain, under 32 us, 2% pulse and mode S-ELM condition, across the 1030 to 1090 MHz band. This thermally enhanced transistor is designed for Avionics applications. It utilizes gold metallization and eutectic die attach to provide highest reliability and superior ruggedness.*

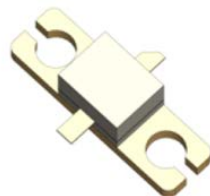
- *High Power >130W*
- *Ultra High Efficiency >75%*

## ***Market Application***

- *Avionics IFF, TCAS, TACAN, Secondary Radar*
- *Industrial*
- *Communication*
- *General Purpose Driver Stage*

## ***Case Outline***

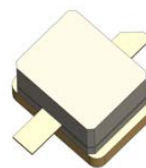
*The following illustrations show the case outline of model GT1011-130*



*GT1011-130*

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

*Case Outline - T1*



*GT1011-130E*

*.250" x .160" x .150" (Earless )*

*Case outline – T1E*

## Absolute Maximum Ratings

Description	Test Condition	Max	Units
Maximum Power Dissipation	Transistor Dissipation at 25°C	190	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=1.6W Freq=1030, 1090MHz	130	141		Watts
Gp	Power Gain	Pin=1.6W Freq=1030, 1090MHz	19	19.5		dB
$n_d$	Drain Efficiency	Pin=1.6W Freq=1030, 1090MHz	65	75		%
VSWR-T	Mismatch Tolerance	Pin=1.6W Freq=1030MHz, 32μS, 2%			5:1	
$D_r$	Pulse Droop	Pin=1.6W Freq=1030, 1090MHz		0.1	0.3	dB
$\theta_{jc}$	Thermal Resistance	Pulse=32μS, DF=2%			.68	°C/W
IRL	Input Return Loss	Pin=1.6W Freq=1030, 1090MHz		-10	-7	dB

- Bias Condition: Vdd = 50V, Idq = 25mA (Vgs = -2V to -4V typical)

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

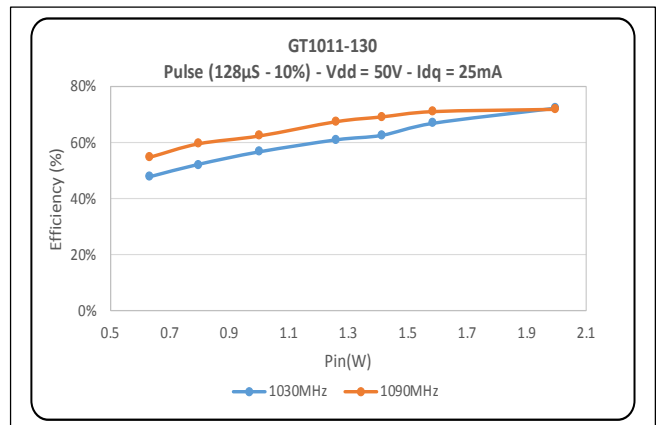
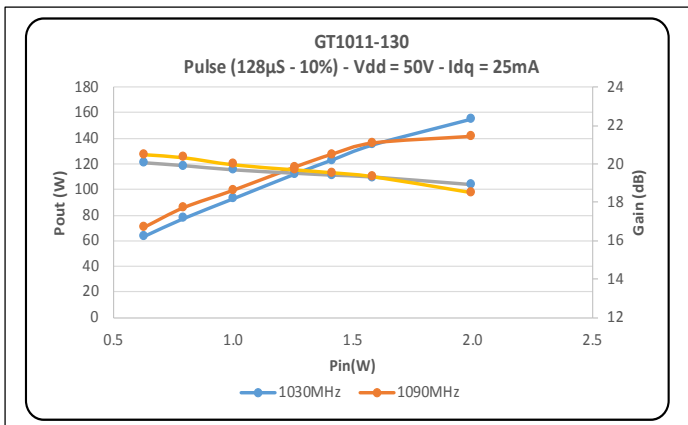
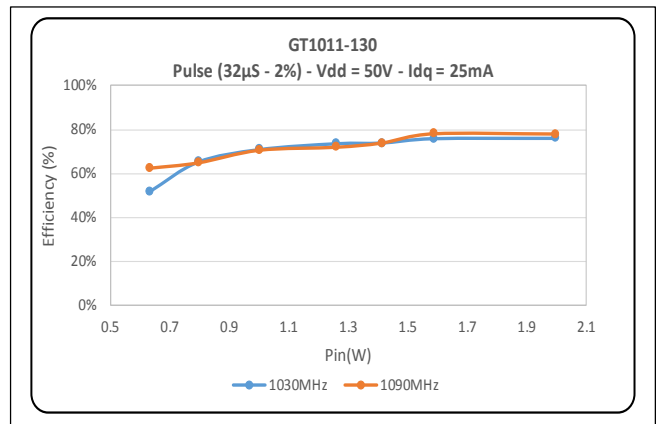
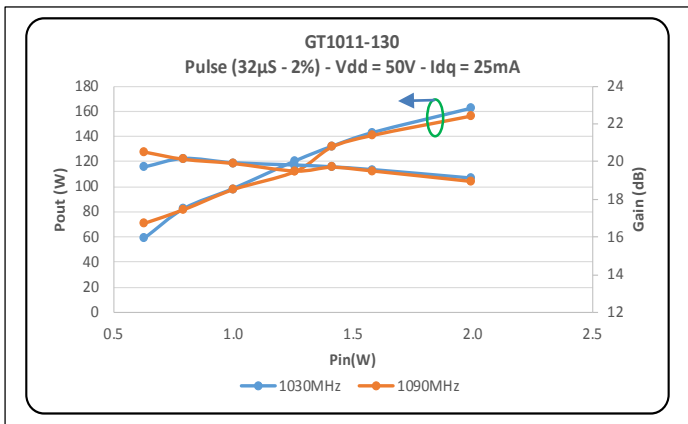
Symbol	Description	Test Condition	Min	Typical	Max	Units
$I_{D(off)}$	Drain Leakage Current	$V_{GS} = -8V, V_{DD} = 150V$			4	mA
$I_{G(off)}$	Gate Leakage Current	$V_{GS} = -8V, V_{DD} = 0V$			1	mA

## Product Classification

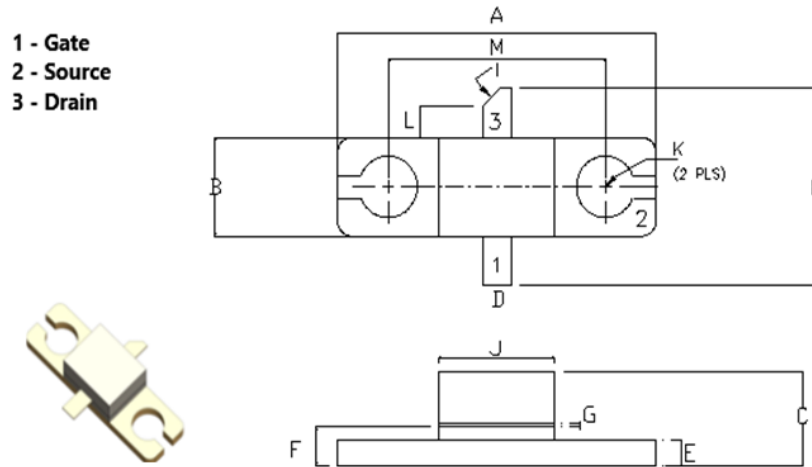
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Product Typical Performance

Pulsing	Frequency (MHz)	Pin (W)	Pout (W)	Id (A)	RTL(dB)	Nd (%)	Gp (dB)
32μS – 2%	1030	1.6	143	.095	-11.0	76	19.55
32μS – 2%	1090	1.6	142	.092	-12.5	78	19.50
128μS – 10%	1030	1.6	135	.425	-11.0	68	19.3
128μS – 10%	1090	1.6	136	.405	-12.5	71	19.4

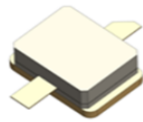
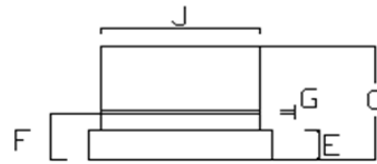
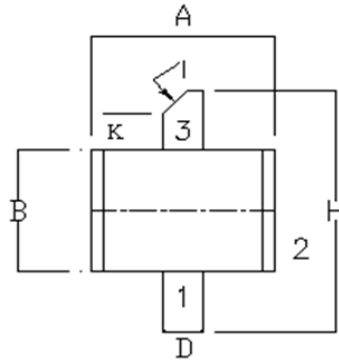


**GT1011-130 Package Dimensions**



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

***GT1011-130E Package Dimension***



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)

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**Revision History**

<b>Revision Level / Date</b>	<b>Para. Affected</b>	<b>Description</b>
Rev 2 / 07-18-2020	-	Initial Preliminary Release