TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaN HEMT

TGI1314-50L

Draft

FEATURES

■ **HIGH POWER**

Pout=47.0dBm at Pin=42.0dBm

■ **HIGH GAIN**

GL=8.0dB at 13.75GHz to 14.5GHz

■ **BROAD BAND INTERNALLY MATCHED HEMT**

HERMETICALLY SEALED PACKAGE

■ **LOW INTERMODULATION DISTORTION**

IM3(Min.)=–25dBc at Po=40.0dBm

Single Carrier Level

RF PERFORMANCE SPECIFICATIONS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Output Power	Pout	VDS = 24V IDSset≅2.0A f = 13.75 to 14.5GHz @ Pin=42dBm	dBm	46.0	47.0	—
Gain Flatness	ΔG		dB	—	—	±0.8
Drain Current	IDS1		A	—	5.0	6.0
Power Added Efficiency	ηadd		%	—	29	—
Gate Current	Ig_{RF}		mA	-40	—	+100
Linear Gain	GL	@Pin=20dBm	dB	7.0	8.0	—
3rd Order Intermodulation Distortion	IM3	Two-Tone Test Po= 40.0dBm (Single Carrier Level)	dBc	-25	—	—
Drain Current	IDS2		A	—	3.5	4.5
Channel Temperature Rise	ΔTch	(VDS X IDS + Pin – Pout) X Rth(c-c)	°C	—	130	150

Recommended gate resistance(Rg) : Rg= 13.3 Ω (TYP.)

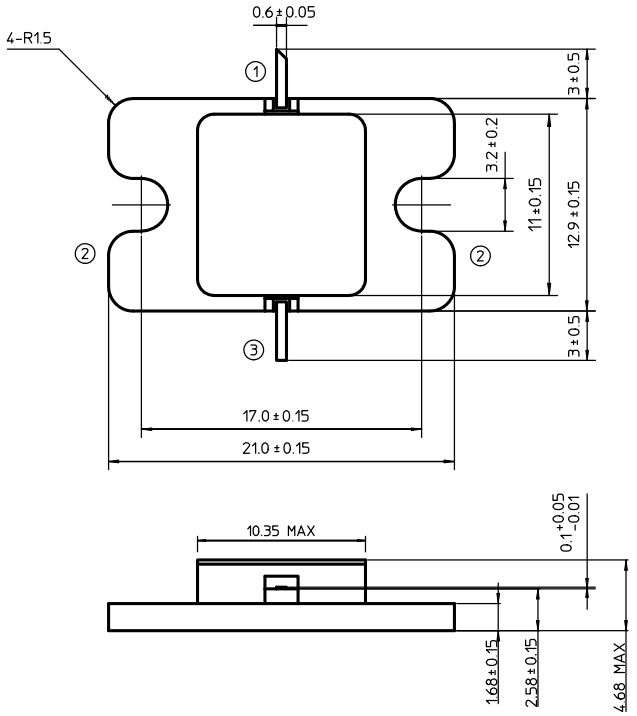
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 5V IDS= 5.0A	S	—	4.5	—
Pinch-off Voltage	VGSoff	VDS= 5V IDS= 23mA	V	-1	-4	-6
Saturated Drain Current	IDSS	VDS= 5V VGS= 0V	A	—	15	—
Gate-Source Breakdown Voltage	VGSO	IGS= -10mA	V	-10	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	—	1.6

ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	VDS	V	50
Gate-Source Voltage	VGS	V	-10
Drain Current	IDS	A	15
Total Power Dissipation (Tc= 25 °C)	PT	W	140
Channel Temperature	Tch	°C	250
Storage	Tstg	°C	-65 to +175

PACKAGE OUTLINE (7- AA04A)



Unit in mm

① Gate
② Source
③ Drain

HANDLING PRECAUTIONS FOR PACKAGE MODEL

Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.