## **TOSHIBA**

# MICROWAVE SEMICONDUCTOR TECHNICAL DATA

# MICROWAVE POWER GaAs FET TIM1414-30L

#### **FEATURES**

n HIGH POWER

**n** Broad Band Internally Matched Fet

P1dB=45.0dBm at 14.0GHz to 14.5GHz

**n** HERMETICALLY SEALED PACKAGE

n HIGH GAIN

G1dB=5.5dB at 14.0GHz to 14.5GHz

n LOW INTERMODULATION DISTORTION

IM3(Min.)=-25dBc at Po=38.0dBm Single Carrier Level

### RF PERFORMANCE SPECIFICATIONS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Gain	P1dB		dBm	44.0	45.0	
Compression Point		\/D0 40\/				
Power Gain at 1dB Gain Compression Point	G1dB	VDS= 10V IDSset≌7.0A f = 14.0 to 14.5GHz	dB	4.5	5.5	
Drain Current	IDS1		Α		10.0	11.0
Power Added Efficiency	η <sub>add</sub>		%		23	
3rd Order Intermodulation	IM3	Two-Tone Test	dBc	-25		
Distortion		Po= 38.0dBm				
Drain Current	IDS2	(Single Carrier Level)	Α	_	9.0	10.1
Channel Temperature Rise	ΔTch	(VDS X IDS +Pin-P1dB) X Rth(c-c)	°C	_		100

Recommended gate resistance(Rg): Rg= 28 W(MAX.)

## **ELECTRICAL CHARACTERISTICS (Ta= 25°C)**

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V	S		5.5	
		IDS= 9.6A				
Pinch-off Voltage	VGSoff	VDS= 3V	V	-0.7	-2.0	-4.5
		IDS= 290mA				
Saturated Drain Current	IDSS	VDS= 3V	Α		20.0	
		VGS= 0V				
Gate-Source Breakdown	VGSO	IGS= -290μA	V	-5		
Voltage		·				
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W			1.1

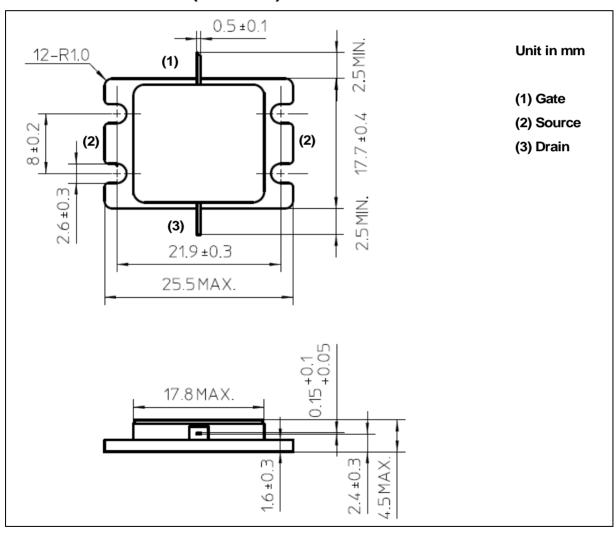
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## ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	VDS	V	15
Gate-Source Voltage	VGS	V	-5
Drain Current	IDS	А	20
Total Power Dissipation (Tc= 25 °C)	PT	W	136
Channel Temperature	Tch	°C	175
Storage	T <sub>stg</sub>	°C	-65 to +175

## **PACKAGE OUTLINE (7-AA03A)**



### **HANDLING PRECAUTIONS FOR PACKAGE MODEL**

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