## **TOSHIBA**

# MICROWAVE SEMICONDUCTOR TECHNICAL DATA

## MICROWAVE POWER GaAs FET TIM7179-6UL

#### **FEATURES**

- HIGH POWER
  P1dB=38.5dBm at 7.1GHz to 7.9GHz
- HIGH GAIN
  G1dB=9.0dB at 7.1GHz to 7.9GHz
- BROAD BAND INTERNALLY MATCHED FET
- HERMETICALLY SEALED PACKAGE

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

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Gain	P1dB		dBm	37.5	38.5	_
Compression Point						
Power Gain at 1dB Gain	G1dB	VDS= 10V	dB	8.0	9.0	_
Compression Point		IDSset=1.3A				
Drain Current	IDS1	f = 7.1 to 7.9GHz	Α		1.6	1.9
Gain Flatness	ΔG		dB		_	±0.6
Power Added Efficiency	ηadd		%		39	
3rd Order Intermodulation	IM3	Two-Tone Test	dBc	-44	-47	_
Distortion		Po= 27.5dBm				
Drain Current	IDS2	(Single Carrier Level)	Α		1.3	1.5
Channel Temperature Rise	∆Tch	(VDS X IDS+Pin-P1dB) X Rth(c-c)	°C	_	_	80

Recommended gate resistance(Rg) : Rg= 150  $\Omega$ (MAX.)

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

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V	S		1.24	
		IDS= 2.0A				
Pinch-off Voltage	VGSoff	VDS= 3V	V	-1.0	-2.5	-4.0
		IDS= 20mA				
Saturated Drain Current	IDSS	VDS= 3V	Α	_	3.6	
		VGS= 0V				
Gate-Source Breakdown	VGSO	IGS= -70μA	V	-5		
Voltage		·				
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W		3.8	4.6

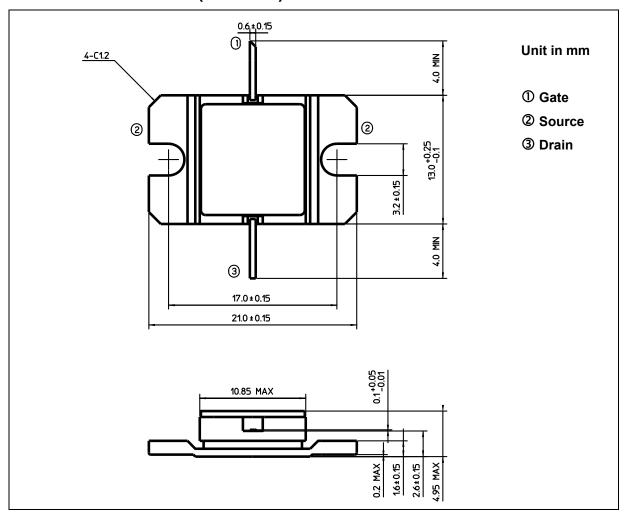
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The information contained herein is subject to change without prior notice. It is therefor advisable to contact TOSHIBA before proceeding with design of equipment incorporating this product.

## 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	Α	5.0
Total Power Dissipation (Tc= 25 °C)	PT	W	32.6
Channel Temperature	Tch	°C	175
Storage	Tstg	°C	-65 to +175

## PACKAGE OUTLINE (2-11D1B)

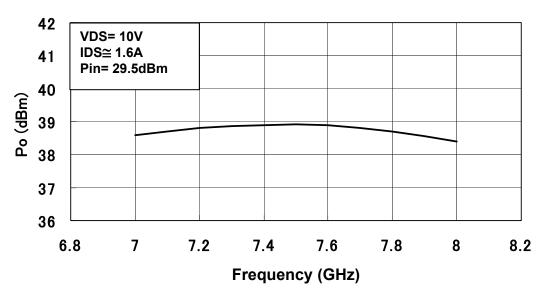


#### HANDLING PRECAUTIONS FOR PACKAGE MODEL

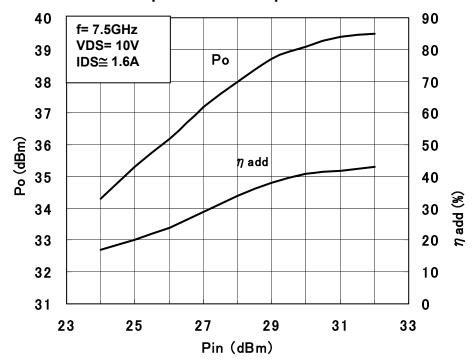
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

#### **RF PERFORMANCE**

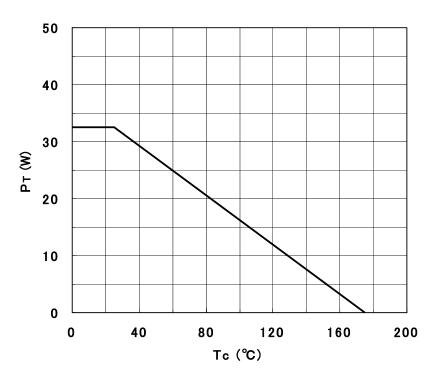
#### **Output Power vs. Frequency**



## **Output Power vs. Input Power**



## **Power Dissipation vs. Case Temperature**



**IM3 vs. Output Power Characteristics** 

