## **TOSHIBA**

MICROWAVE SEMICONDUCTOR
TECHNICAL DATA

# MICROWAVE POWER GaAs FET TPM1919-60

#### **FEATURES**

- HIGH POWER P1dB=48.0dBm at 1.96GHz
- HIGH GAIN G1dB=13.0dB at 1.96GHz

- **PARTIALLY MATCHED TYPE**
- HERMETICALLY SEALED PACKAGE

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

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Gain	P1dB		dBm	47.0	48.0	
Compression Point						
Power Gain at 1dB Gain	G1dB	VDS= 12V	dB	12.0	13.0	
Compression Point		f = 1.96GHz				
Drain Current	IDS1	IDSset≅8.0A	Α		12.0	15.0
Power Added Efficiency	ηadd		%		40	
Channel Temperature Rise	∆Tch	(VDS X IDS + Pin – P1dB)	°C		_	100
		X Rth(c-c)				

Recommended gate resistance (Rg) : Rg = 30  $\Omega$  (Max.)

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

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V	S	_	20.0	
		IDS= 12.0A				
Pinch-off Voltage	VGSoff	VDS= 3V	V	-1.0	-1.8	-3.0
		IDS= 300mA				
Saturated Drain Current	IDSS	VDS= 3V	Α		38	
		VGS= 0V				
Gate-Source Breakdown	VGSO	IGS= -10.0mA	V	-5		
Voltage						
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	_	0.6	0.8

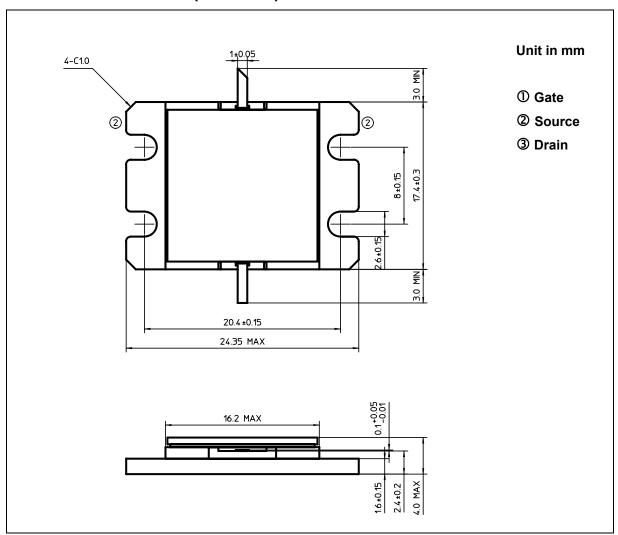
<sup>◆</sup>The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA for any infringements of patents or other rights of the third parties which may results from its use, No license is granted by implication or otherwise under any patent or patent rights of TOSHIBA or others.

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	26.0
Total Power Dissipation (Tc= 25 °C)	РТ	W	187.5
Channel Temperature	Tch	°C	175
Storage	Tstg	°C	-65 ~ <b>+</b> 175

## PACKAGE OUTLINE (2-16G6A)

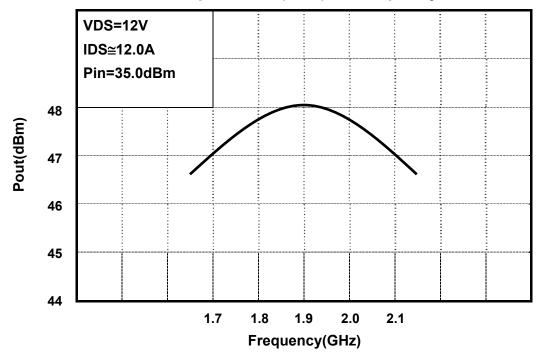


### HANDLING PRECAUTIONS FOR PACKAGE MODEL

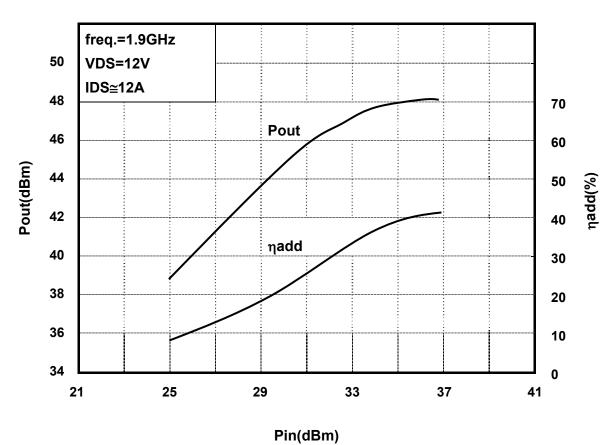
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

### **RF PERFORMANCE**

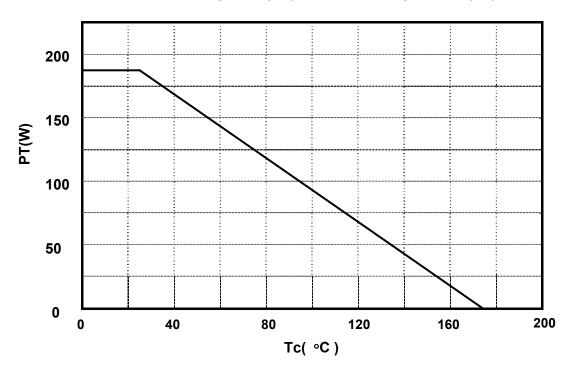
Output Power (Pout) vs. Frequency



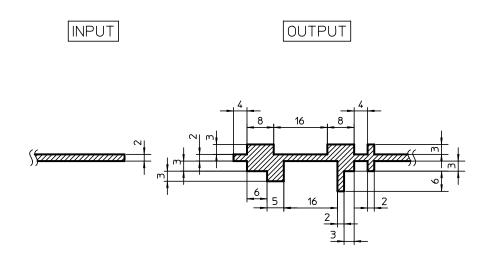
Output Power(Pout) vs. Input Power(Pin)



## **Power Dissipation(PT) vs. Case Temperature(Tc)**



## DRAWING OF RECOMMENDABLE MATCHING NETWORK



Unit: mm

Substrate Material: Teflon (£r=2.8)

Thickness: 0.76mm