## **TOSHIBA**

# *MICROWAVE SEMICONDUCTOR*TECHNICAL DATA

## MICROWAVE POWER GaAs FET TIM7785-60UL

#### **FEATURES**

■ LOW INTERMODULATION DISTORTION

IM3= -30 dBc at Pout= 41.0dBm Single Carrier Level

**■ HIGH POWER** 

P1dB=48.0dBm at 7.7GHz to 8.5GHz

**■ HIGH GAIN** 

G1dB=7.5dB at 7.7GHz to 8.5GHz

- **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	47.0	48.0	_
Compression Point						
Power Gain at 1dB Gain	G1dB	VDS= 10V	dB	6.5	7.5	
Compression Point		f = 7.7 to 8.5GHz				
Drain Current	IDS1	IDSset=9.5A	Α		14.5	16.0
Gain Flatness	ΔG		dB			±0.8
Power Added Efficiency	ηadd		%		36	
3rd Order Intermodulation	IM3	Two-Tone Test	dBc	-25	-30	
Distortion		Po=41.0dBm				
Drain Current	IDS2	(Single Carrier Level)	Α		_	13.1
Channel Temperature Rise	ΔTch	(VDS X IDS + Pin – P1dB) X Rth(c-c)	°C			100

Recommended Gate Resistance(Rg):  $28 \Omega$  (Max.)

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

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V	S		15.0	
		IDS= 11.0 A				
Pinch-off Voltage	VGSoff	VDS= 3V	V	-1.0	-1.8	-2.5
		IDS= 120 mA				
Saturated Drain Current	IDSS	VDS= 3V	Α		27	
		VGS= 0V				
Gate-Source Breakdown	VGSO	IGS= -0.4mA	V	-5.0		
Voltage						
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	_	8.0	1.0

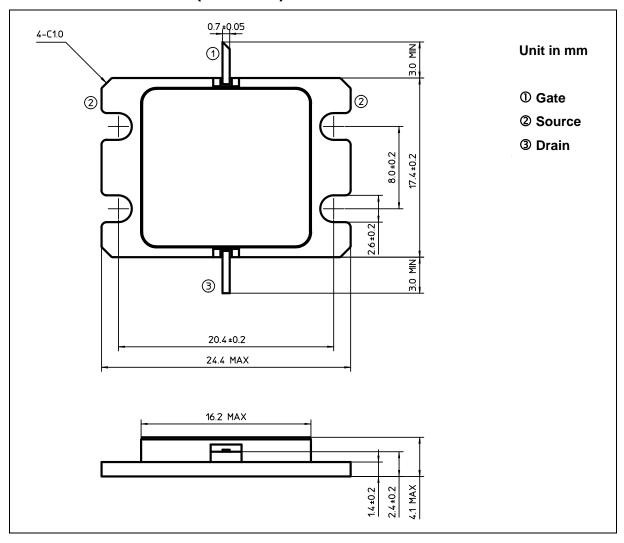
<sup>◆</sup> The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA for any infringements of patents or other rights of the third parties which may result from its use. No license is granted by implication or otherwise 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	А	20
Total Power Dissipation (Tc= 25 °C)	PT	W	150
Channel Temperature	Tch	°C	175
Storage Temperature	Tstg	°C	-65 to +175

### PACKAGE OUTLINE (7-AA05A)



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

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