

TOSHIBA

MICROWAVE SEMICONDUCTOR TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM1213-15

FEATURES :

■ HIGH POWER

$P_{1dB} = 42.0 \text{ dBm}$ at 12.7 to 13.2 GHz

■ BROAD BAND INTERNALLY MATCHED

■ HIGH GAIN

$G_{1dB} = 6.0 \text{ dB}$ at 12.7 to 13.2 GHz

■ HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Compression Point	P_{1dB}	$V_{DS} = 9 \text{ V}$ $f = 12.7 - 13.2 \text{ GHz}$	dBm	41.0	42.0	-
Power Gain at 1dB Compression Point	G_{1dB}					
Drain Current	I_{DS}		A	-	4.5	5.5
Power Added Efficiency	η_{add}		%	-	29	-
Channel-Temperature Rise	ΔT_{ch}	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	$^\circ\text{C}$	-	-	100

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Transconductance	g_m	$V_{DS} = 3 \text{ V}$ $I_{DS} = 4.8 \text{ A}$	mS	-	3000	-
Pinch-off Voltage	V_{GSoff}	$V_{DS} = 3 \text{ V}$ $I_{DS} = 145 \text{ mA}$	V	-1.5	-3.0	-4.5
Saturated Drain Current	I_{DSS}	$V_{DS} = 3 \text{ V}$ $V_{GS} = 0 \text{ V}$	A	-	10.0	11.5
Gate-Source Breakdown Voltage	V_{GSO}	$I_{GS} = -145 \mu\text{A}$	V	-5	-	-
Thermal Resistance	$R_{th(c-c)}$	Channel to Case	$^\circ\text{C/W}$	-	2.0	2.5

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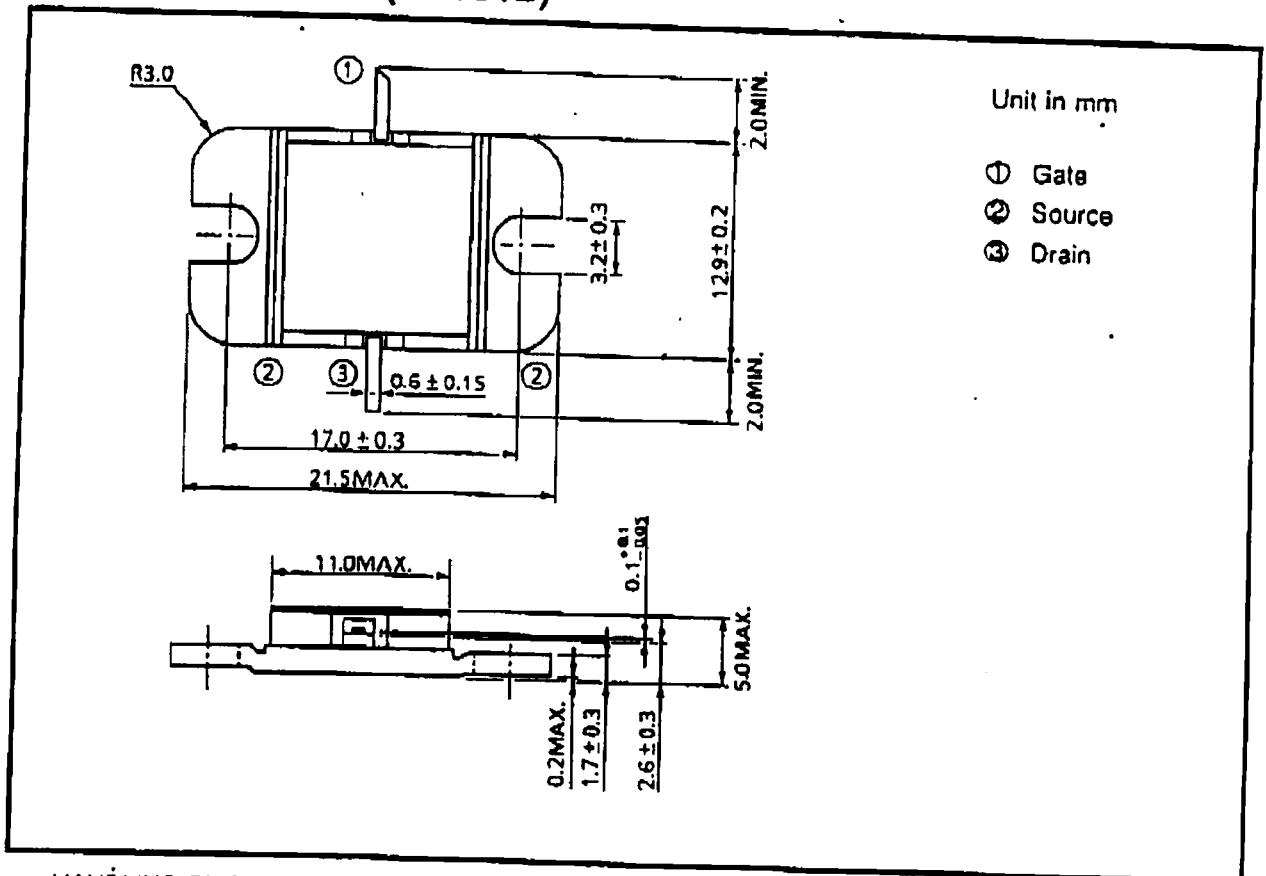
★ The information contained herein may be changed without prior notice. It is therefore advisable to contact TOSHIBA before proceeding with the design of equipment incorporating this product.



ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	UNIT	RATING
Drain-Source Voltage	V _{DS}	V	15
Gate-Source Voltage	V _{GS}	V	-5
Drain Current	I _{DS}	A	11.5
Total Power Dissipation (T _C = 25°C)	P _T	W	60
Channel Temperature	T _{ch}	°C	175
Storage Temperature	T _{sto}	°C	-65~175

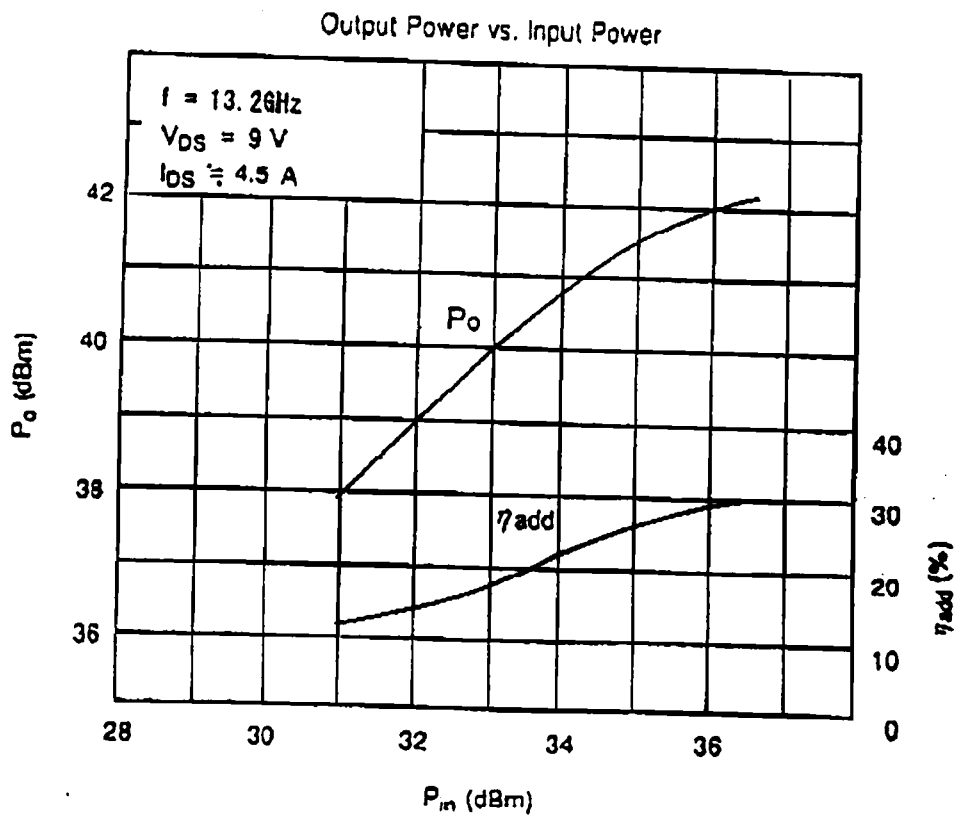
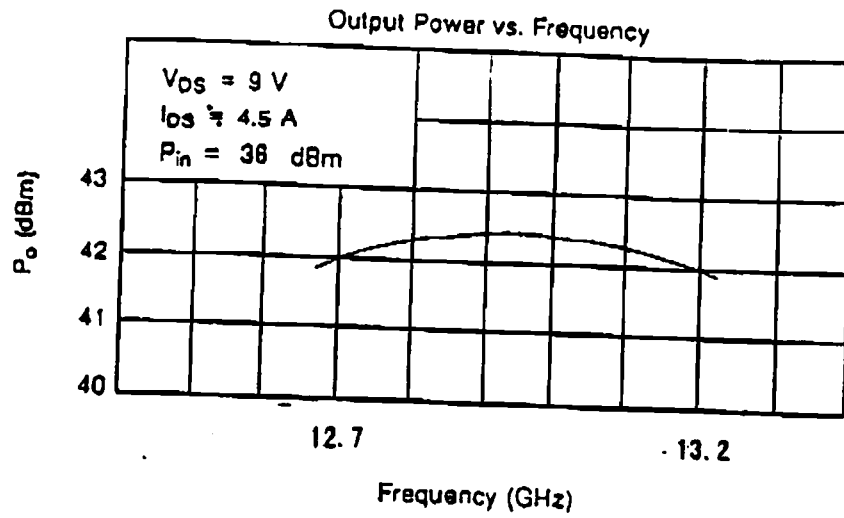
PACKAGE OUTLINE (2-1TC1B)



HANDLING PRECAUTIONS FOR PACKAGED TYPE

Soldering iron should be grounded and the operating time should not exceed 10 seconds at 250°C.

RF PERFORMANCES



POWER DISSIPATION VS. CASE TEMPERATURE

