

TOSHIBA

MICROWAVE SEMICONDUCTOR TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM1112-2

FEATURES:

- HIGH POWER
 $P_{1dB} = 33.5 \text{ dBm}$ at 11.7 GHz to 12.7 GHz
- BROAD BAND INTERNALLY MATCHED
- HIGH GAIN
 $G_{1dB} = 7.5 \text{ dB}$ at 11.7 GHz to 12.7 GHz
- HERMETICALLY SEALED PACKAGE

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

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1 dB Compression Point	P_{1dB}	$V_{DS} = 9 \text{ V}$ $f = 11.7$ -12.7 GHz	dBm	32.5	33.5	-
Power Gain at 1 dB Compression Point	G_{1dB}		dB	6.5	7.5	-
Drain Current	I_{DS}		A	-	0.85	1.1
Power Added Efficiency	η_{add}		%	-	24	-
Channel-Temperature Rise	ΔT_{ch}	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	$^\circ\text{C}$	-	-	60

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

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Trans-conductance	g_m	$V_{DS} = 3 \text{ V}$ $I_{DS} = 1.0 \text{ A}$	mS	-	600	-
Pinch-off Voltage	V_{GSoff}	$V_{DS} = 3 \text{ V}$ $I_{DS} = 30 \text{ mA}$	V	-2	-3.5	-5
Saturated Drain Current	I_{DSS}	$V_{DS} = 3 \text{ V}$ $V_{GS} = 0 \text{ V}$	A	-	2.0	2.6
Gate-Source Breakdown Voltage	V_{GSO}	$I_{GS} = -30 \text{ }\mu\text{A}$	V	-5	-	-
Thermal Resistance	$R_{th(c-c)}$	Channel to Case	$^\circ\text{C/W}$	-	5	6

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



TOSHIBA CORPORATION

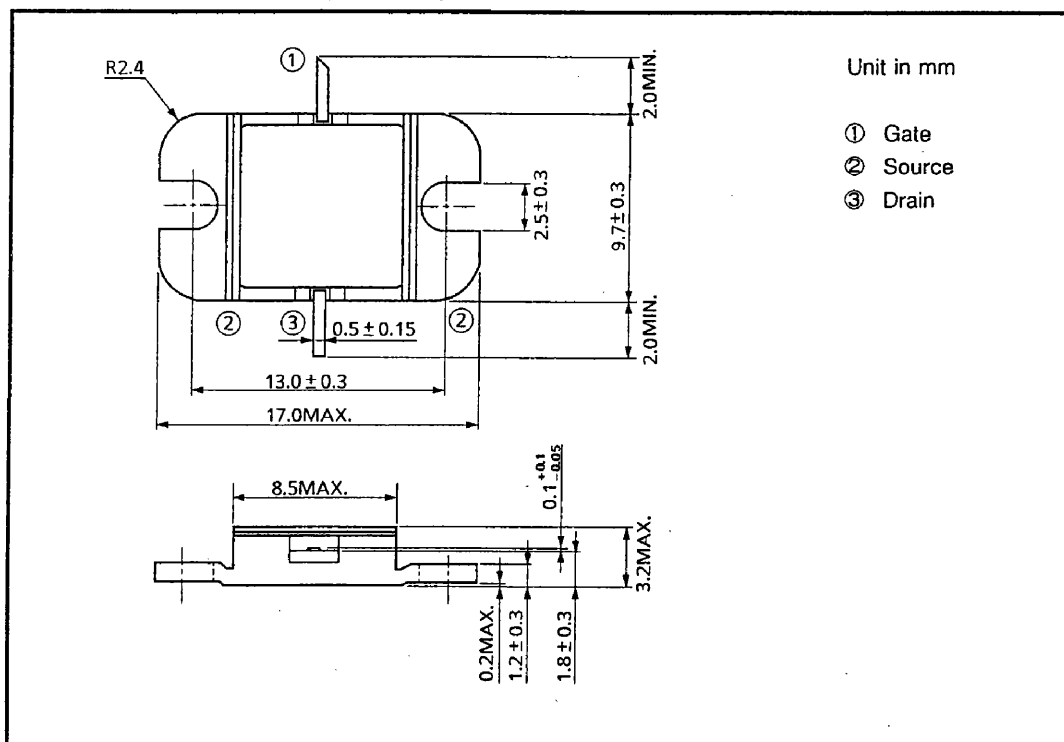
Revised Apr., 1990

TIM1112-2

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	UNIT	RATING
Drain-Source Voltage	V_{DS}	V	15
Gate-Source Voltage	V_{GS}	V	-5
Drain Current	I_{DS}	A	2.6
Total Power Dissipation ($T_c=25^\circ\text{C}$)	P_T	W	15
Channel Temperature	T_{ch}	$^\circ\text{C}$	175
Storage Temperature	T_{stg}	$^\circ\text{C}$	-65~175

PACKAGE OUTLINE (2-9D1B)

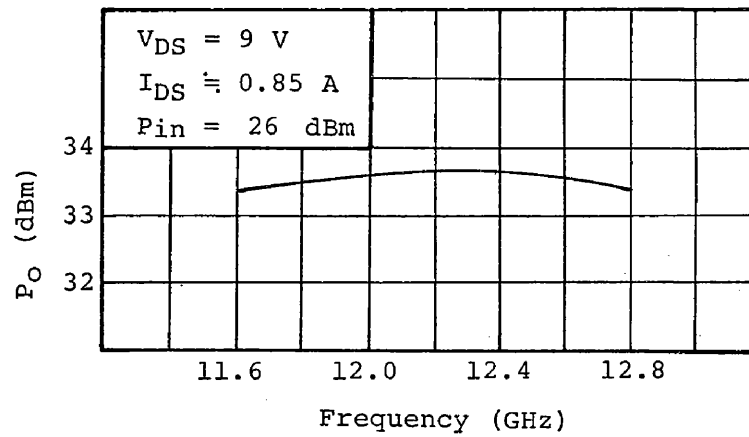


HANDLING PRECAUTIONS FOR PACKAGED TYPE

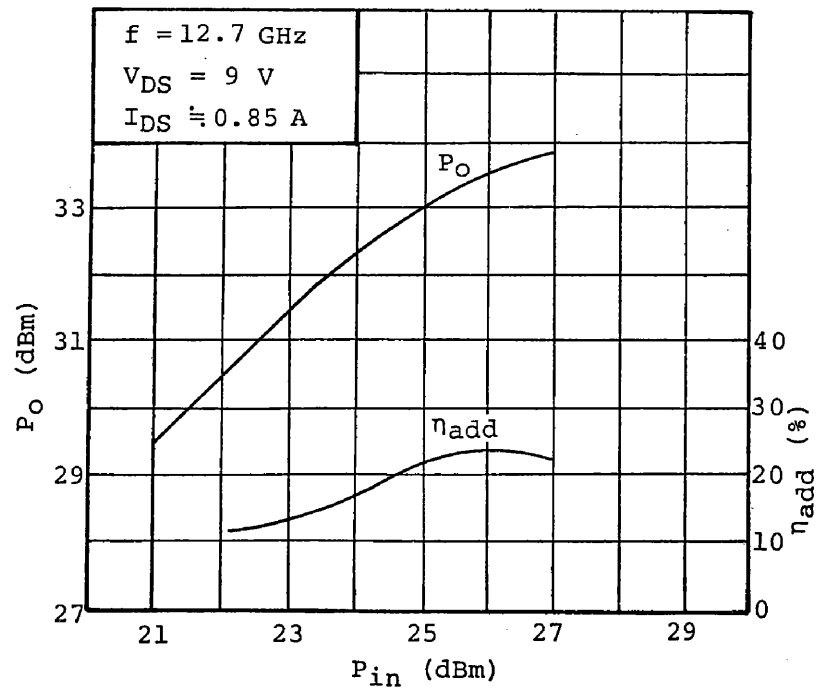
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCES

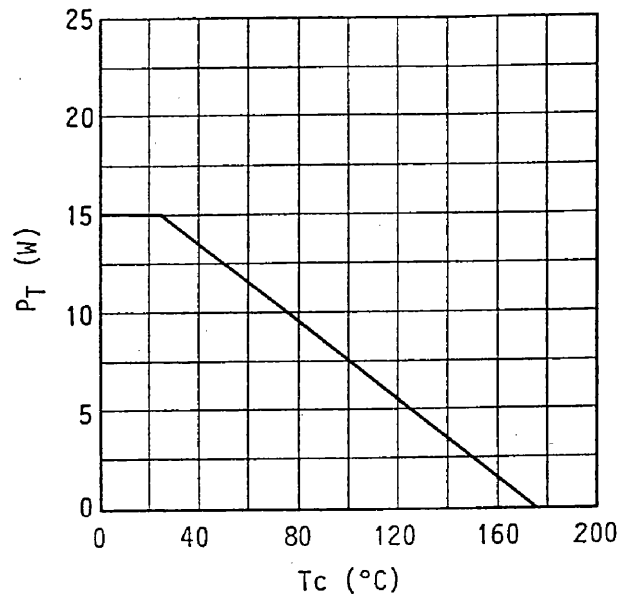
Output Power vs. Frequency



Output Power vs. Input Power



POWER DISSIPATION VS. CASE TEMPERATURE



TIM1112-2

TIM1112-2 S-PARAMETERS (MAGN. and ANGLES)

$V_{DS}=9V$, $I_{DS}=1A$

