

**TOSHIBA**  
**MICROWAVE SEMICONDUCTOR**  
**TECHNICAL DATA**

**MICROWAVE POWER GaAs FET**  
**TIM1011-2L**

**FEATURES**

- **HIGH POWER**  
P1dB=33.5dBm at 10.7GHz to 11.7GHz
- **HIGH GAIN**  
G1dB=7.5dB at 10.7GHz to 11.7GHz
- **BROAD BAND INTERNALLY MATCHED**
- **HERMETICALLY SEALED PACKAGE**

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

CHARACTERISTICS	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Output Power at 1dB Compression Point	P1dB	VDS= 9V f =10.7-11.7GHz	32.5	33.5	—	dBm
Power Gain at 1dB Compression Point	G1dB		6.5	7.5	—	dB
Drain Current	IDS1		—	0.85	1.1	A
Power Added Efficiency	$\eta_{add}$		—	24	—	%
3rd Order Intermodulation Distortion	IM3	Two Tone Test P=22dBm	-42	-45	—	dBc
Drain Current	IDS2	(Single Carrier Level)	—	0.85	1.1	A
Channel Temperature Rise	$\Delta T_{ch}$	VDS X IDS X Rth(c-c)	—	—	80	°C

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

CHARACTERISTICS	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Transconductance	gm	VDS= 3V IDS=1.0A	—	600	—	mS
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 30mA	-2.0	-3.5	-5.0	V
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	—	2.0	2.6	A
Gate-Source Breakdown Voltage	VGSO	IGS= -30 $\mu$ A	-5	—	—	V
Thermal Resistance	Rth(c-c)	Channel to Case	—	5.0	6.0	°C/W

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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.

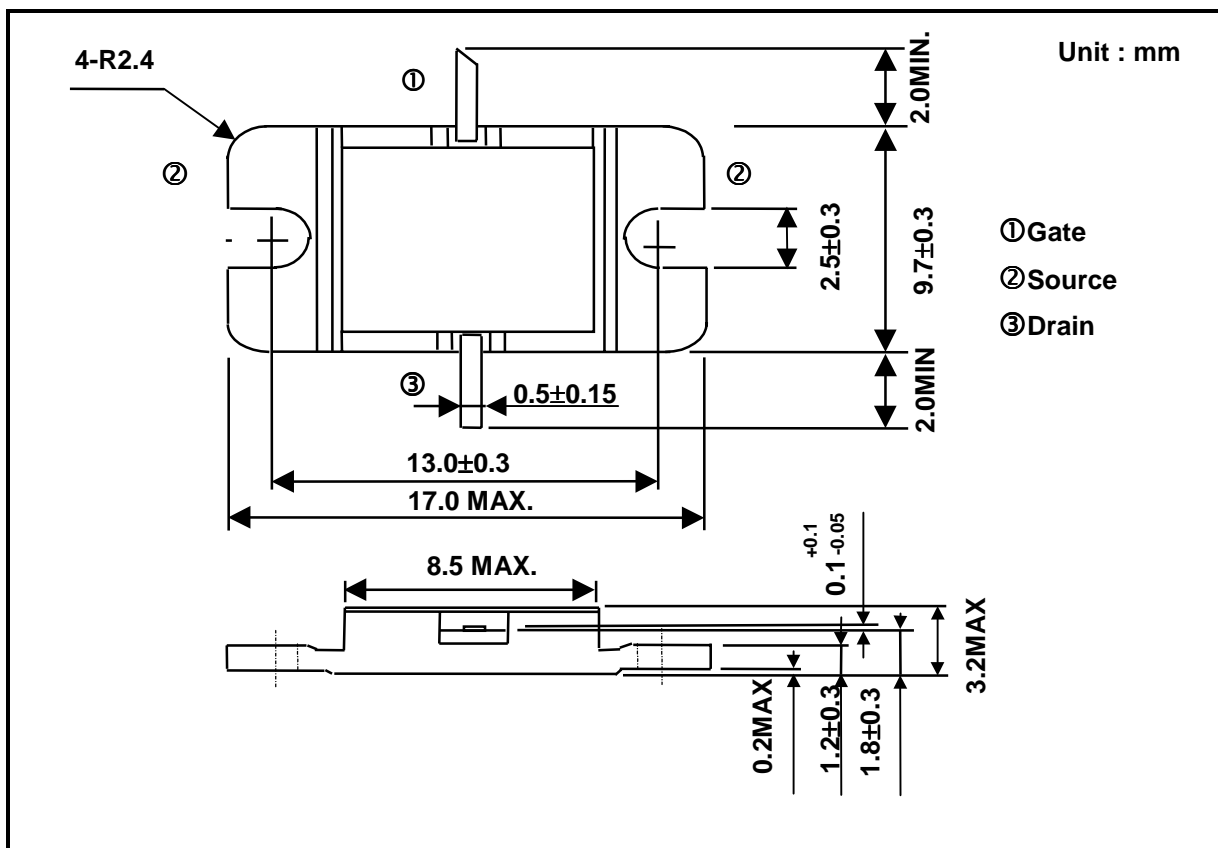
**TOSHIBA CORPORATION**

Apr. 2000

## ABSOLUTE MAXIMUM RATINGS ( Ta= 25°C )

CHARACTERISTICS	SYMBOL	RATING	UNIT
Drain-Source Voltage	VDS	15	V
Gate-Source Voltage	VGS	-5	V
Drain Current	IDS	2.6	A
Total Power Dissipation (Tc= 25 °C)	PT	15	W
Channel Temperature	Tch	175	°C
Storage	Tstg	-65 ~ +175	°C

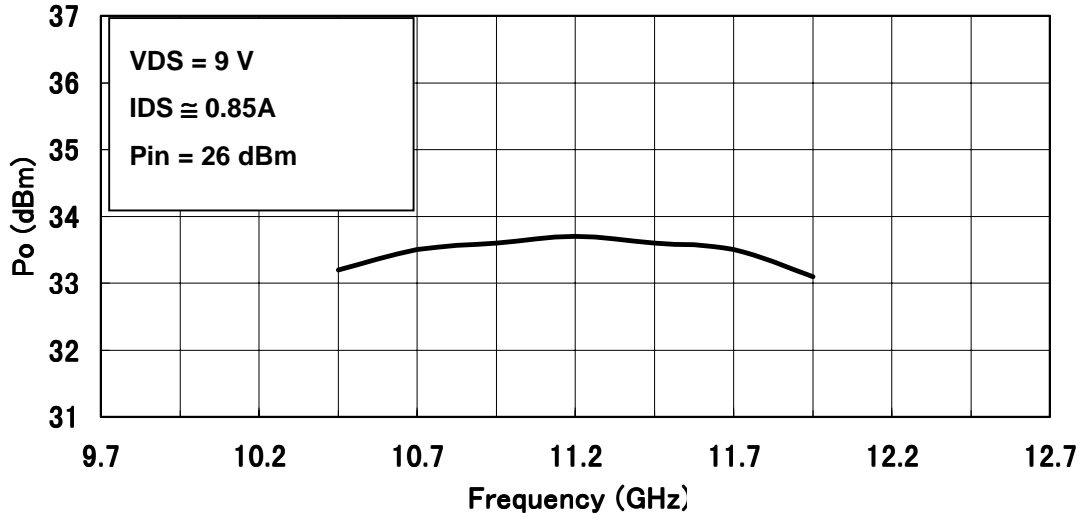
## PACKAGE OUTLINE (2-9D1B)



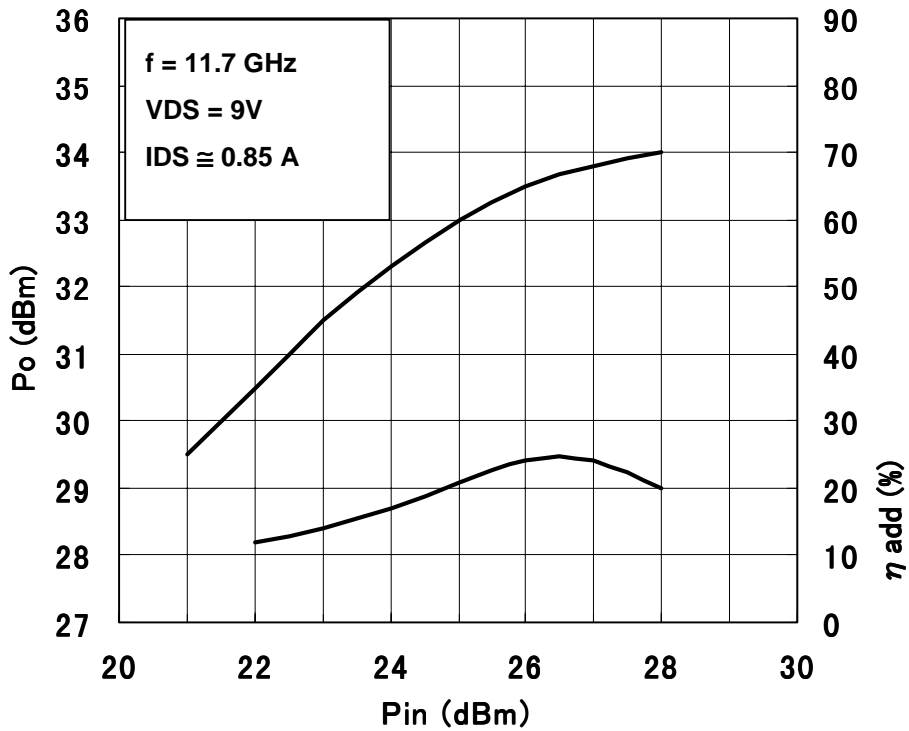
## HANDLING PRECAUTIONS FOR PACKAGED TYPE

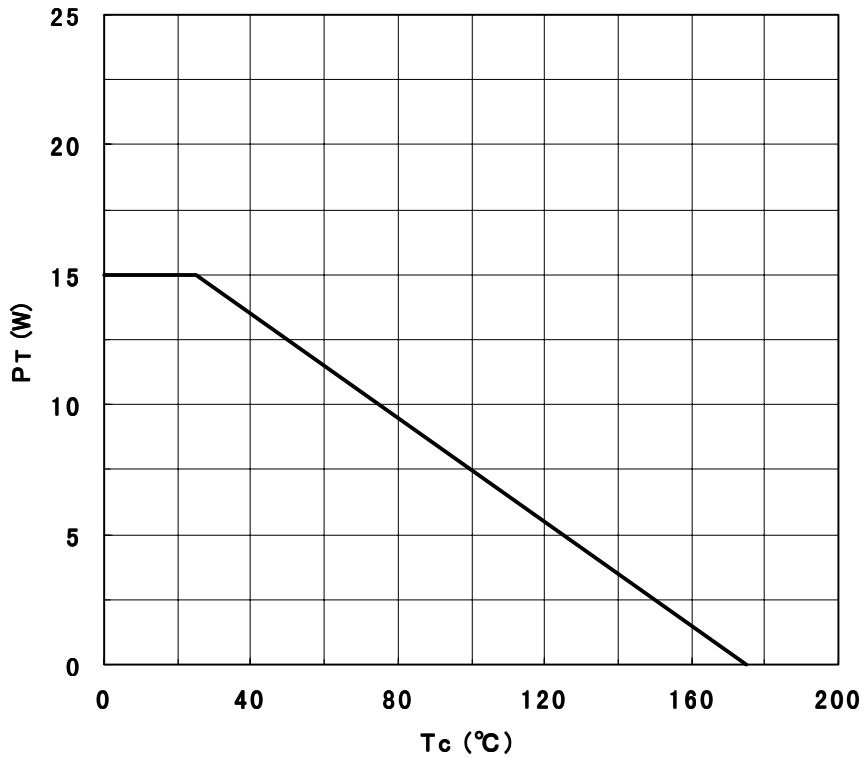
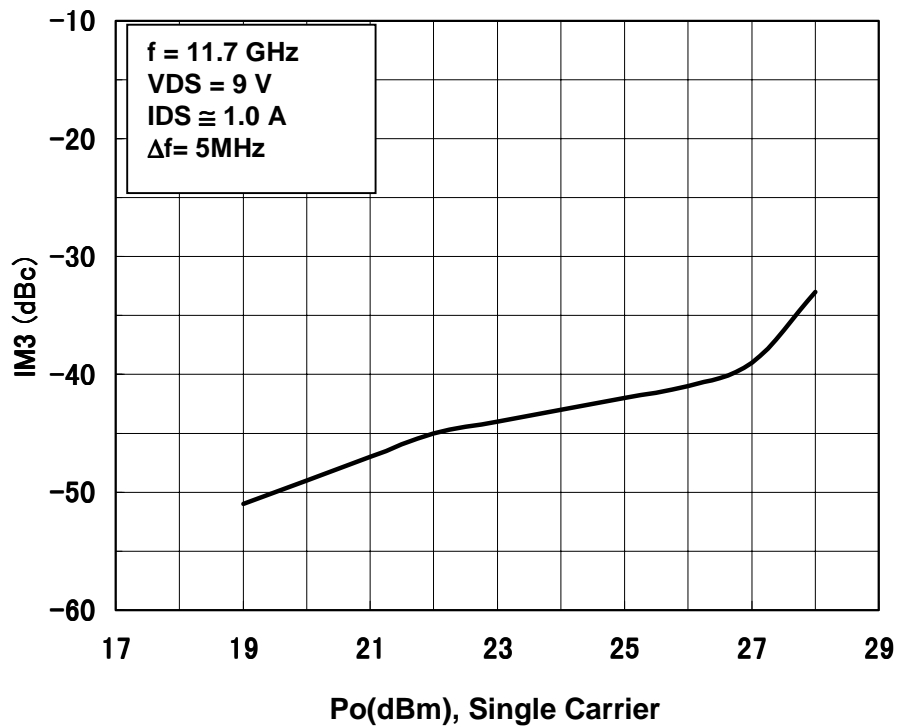
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

Output Power vs. Frequency



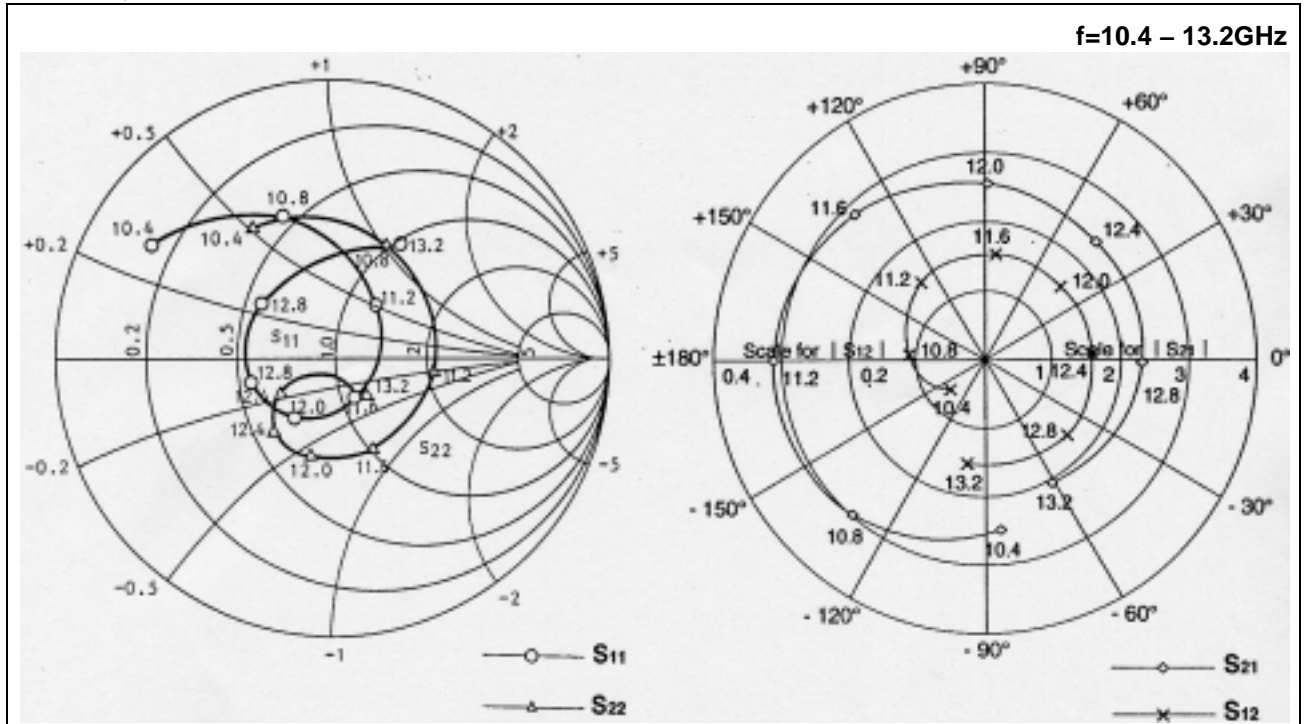
Output Power vs. Input Power



**POWER DISSIPATION VS. CASE TEMPERATURE****IM3 vs. OUTPUT POWER CHARACTERISTICS**

**TIM11011-2L S-PARAMETERS**  
(MAGN. and ANGLES)

VDS=9V, IDS=1.0A



FREQUENCY (GHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10.4	0.76	148	2.49	-85	0.066	-139	0.55	121
10.8	0.54	110	2.98	-131	0.110	176	0.46	62
11.2	0.25	50	3.12	180	0.145	129	0.38	-9
11.6	0.16	-63	2.84	132	0.153	84	0.36	-67
12.0	0.26	-123	2.55	89	0.155	43	0.37	-103
12.4	0.30	-164	2.37	46	0.158	3	0.34	-130
12.8	0.34	142	2.30	-1	0.164	-42	0.22	-146
13.2	0.49	58	2.05	-61	0.154	-100	0.18	-48