

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM1011-5L

FEATURES

■ HIGH POWER

P1dB=37.5dBm at 10.7GHz to 11.7GHz

■ HIGH GAIN

G1dB=7.0dB 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	37.0	37.5	—	dBm
Power Gain at 1dB Compression Point	G1dB		6.0	7.0	—	dB
Drain Current	IDS1		—	2.0	2.5	A
Power Added Efficiency	η_{add}		—	23	—	%
3rd Order Intermodulation Distortion	IM3	Two Tone Test P=26dBm (Single Carrier Level)	-42	-45	—	dBc
Drain Current	IDS2		—	2.0	2.5	A
Channel Temperature Rise	ΔT_{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=2.4A	—	1400	—	mS
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 72mA	-2.0	-3.5	-5.0	V
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	—	5.0	5.7	A
Gate-Source Breakdown Voltage	VGSO	IGS= -72μA	-5	—	—	V
Thermal Resistance	Rth(c-c)	Channel to Case	—	3.0	3.7	°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

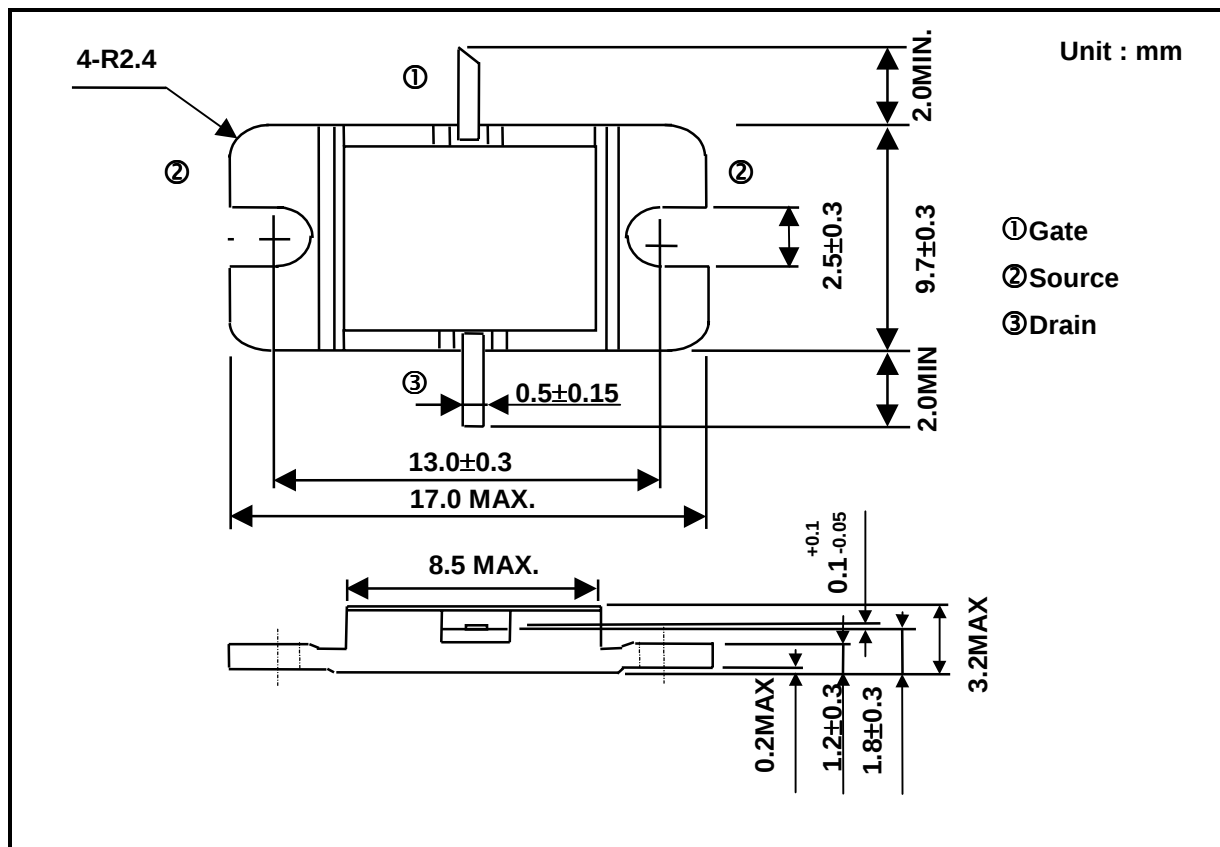
Apr. 2000



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	5.7	A
Total Power Dissipation (Tc= 25 °C)	PT	30	W
Channel Temperature	Tch	175	°C
Storage	Tstg	-65 ~ +175	°C

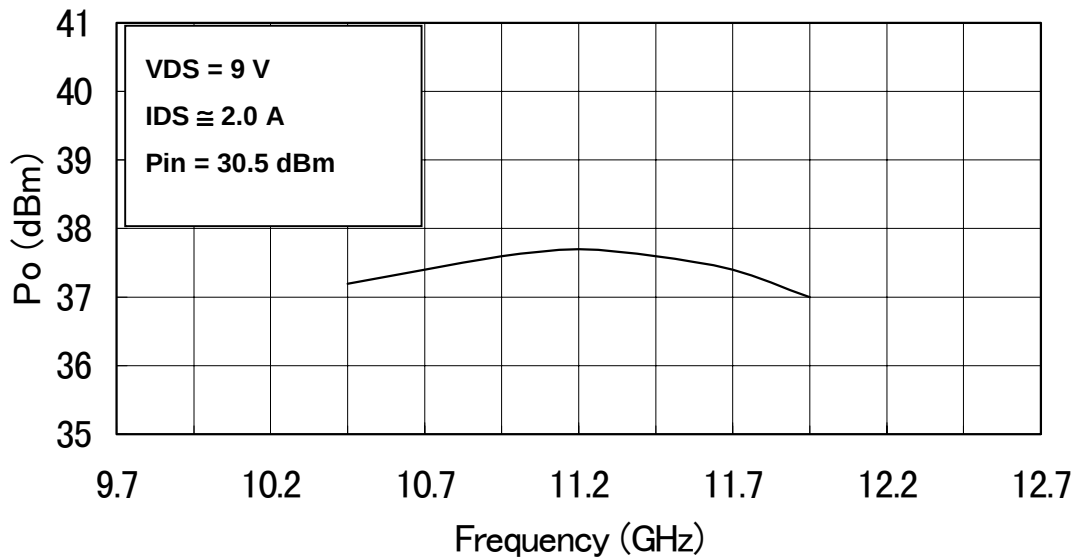
PACKAGE OUTLINE (2-9D1B)



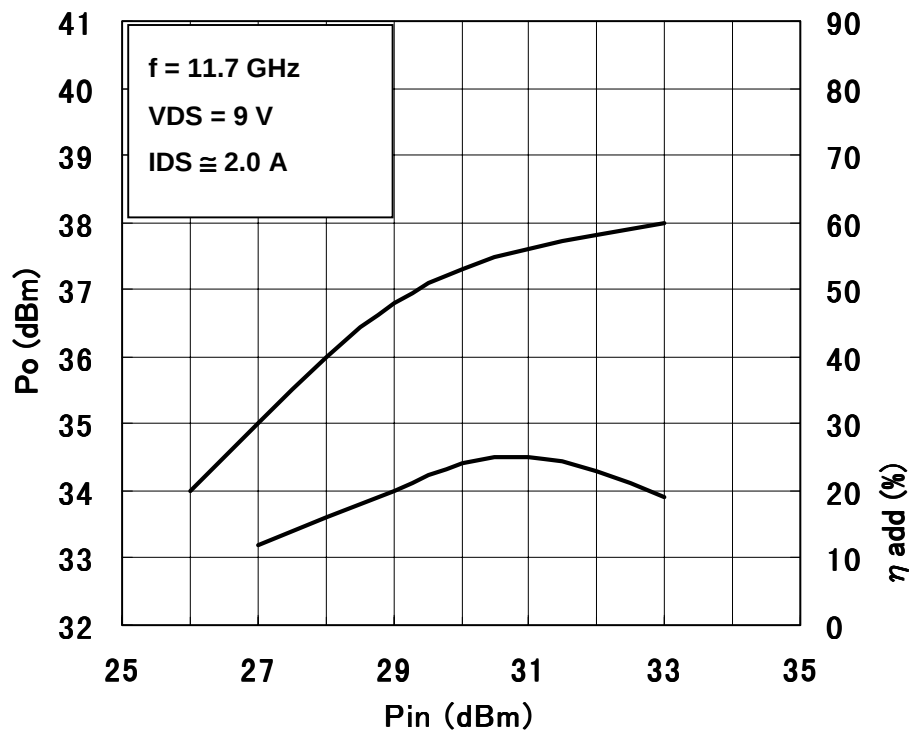
HANDLING PRECAUTIONS FOR PACKAGED TYPE

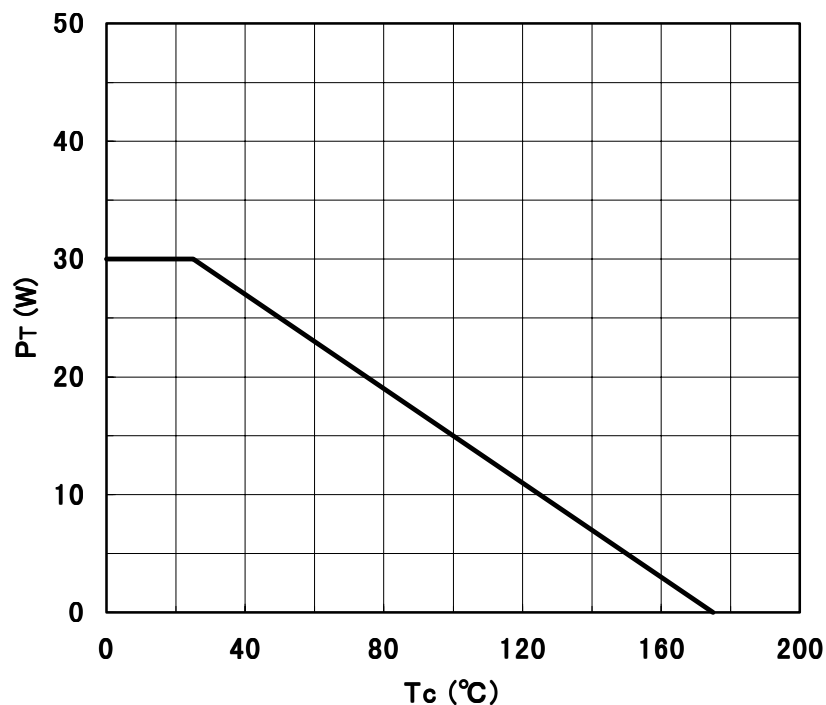
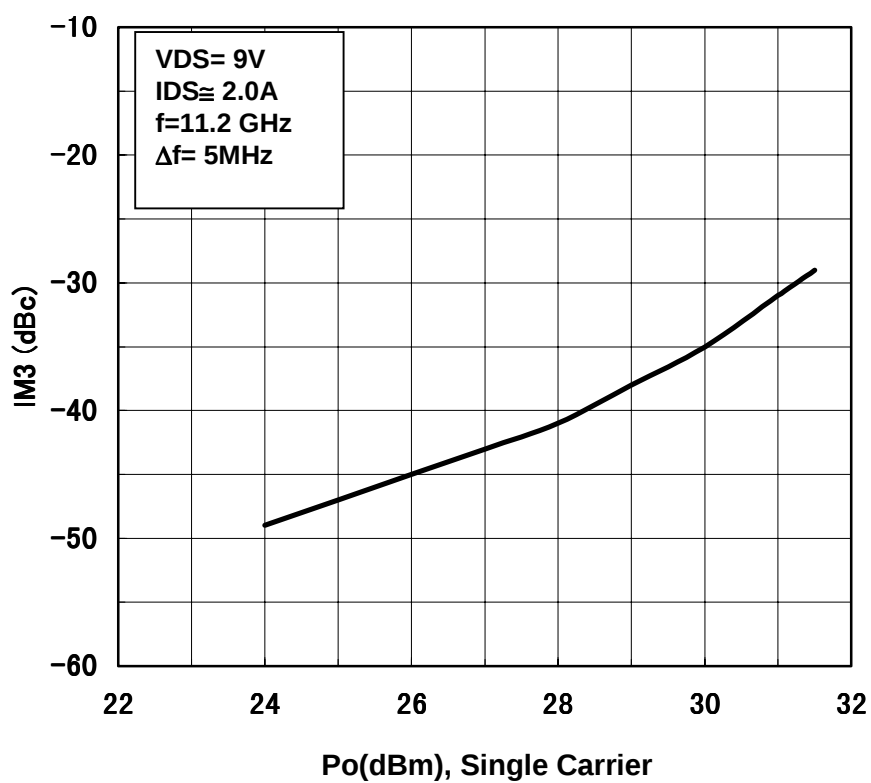
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

Output Power vs. Frequency



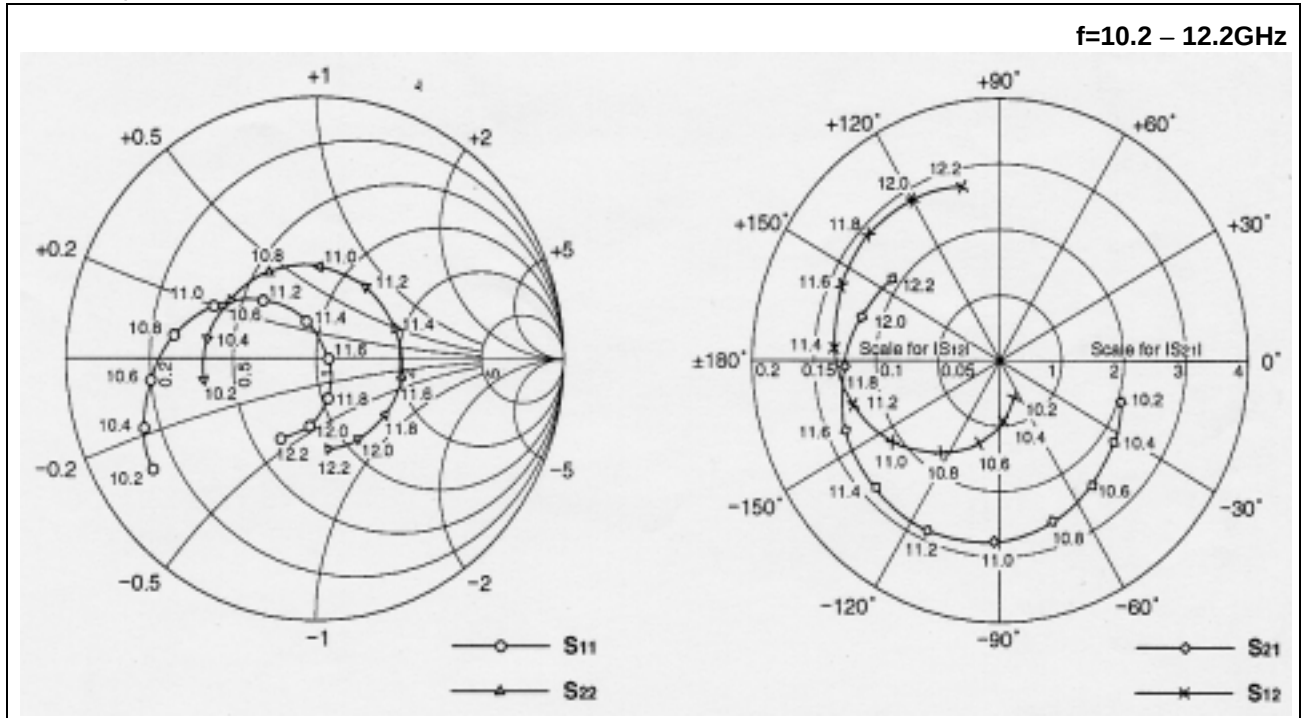
Output Power vs. Input Power



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

TIM1011-5L S-PARAMETERS
(MAGN. and ANGLES)

VDS=9V, IDS=2.0A



FREQUENCY (GHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10.2	0.78	-147	2.06	-18	0.031	-69	0.46	-170
10.4	0.74	-159	2.22	-34	0.047	-87	0.44	170
10.6	0.67	-173	2.42	-52	0.066	-105	0.41	147
10.8	0.58	171	2.61	-71	0.085	-124	0.38	120
11.0	0.46	154	2.76	-92	0.106	-144	0.35	88
11.2	0.31	134	2.83	-114	0.123	-164	0.34	54
11.4	0.15	106	2.81	-136	0.135	176	0.34	20
11.6	0.05	-1	2.70	-157	0.141	156	0.35	-11
11.8	0.16	-73	2.53	-178	0.144	138	0.35	-37
12.0	0.26	-96	2.33	163	0.141	120	0.35	-61
12.2	0.34	-115	2.14	144	0.136	103	0.35	-82