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	P_{1dB}	VDS= 9V f =10.7-11.7GHz	32.5	33.5	—	dBm
Power Gain at 1dB Compression Point	G_{1dB}		6.5	7.5	—	dB
Drain Current	I_{DS1}		—	0.85	1.1	A
Power Added Efficiency	η_{add}		—	24	—	%
3rd Order Intermodulation Distortion	IM3	Two Tone Test P=22dBm (Single Carrier Level)	-42	-45	—	dBc
Drain Current	I_{DS2}		—	0.85	1.1	A
Channel Temperature Rise	ΔTch	VDS X IDS X Rth(c-c)	—	—	80	°C

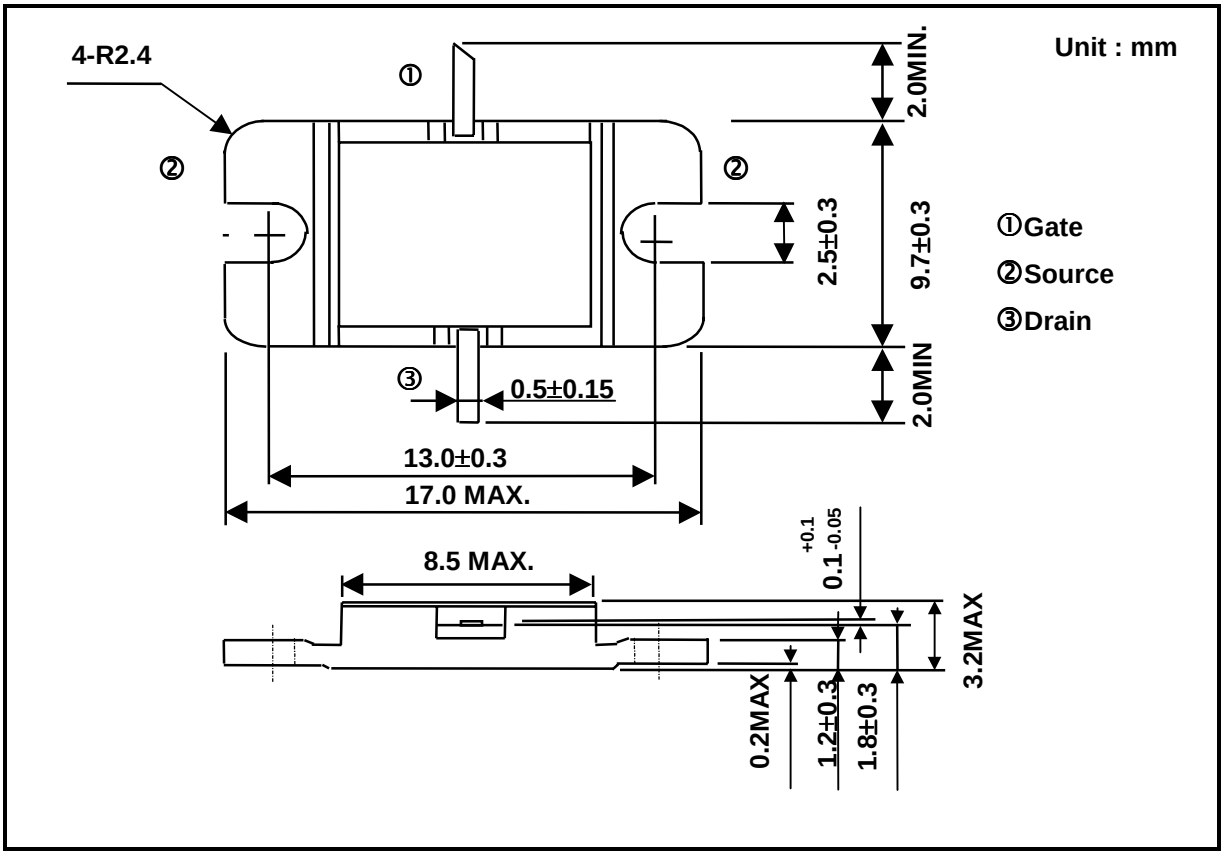
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Transconductance	gm	VDS= 3V IDS=1.0A	—	600	—	mS
Pinch-off Voltage	V_{GSoff}	VDS= 3V IDS= 30mA	-2.0	-3.5	-5.0	V
Saturated Drain Current	I_{DSS}	VDS= 3V VGS= 0V	—	2.0	2.6	A
Gate-Source Breakdown Voltage	V_{GSO}	IGS= -30μA	-5	—	—	V
Thermal Resistance	Rth(c-c)	Channel to Case	—	5.0	6.0	°C/W

ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DS}	15	V
Gate-Source Voltage	V_{GS}	-5	V
Drain Current	I_{DS}	2.6	A
Total Power Dissipation (Tc= 25 °C)	P_T	15	W
Channel Temperature	T_{ch}	175	°C
Storage	T_{stg}	-65 ~ +175	°C

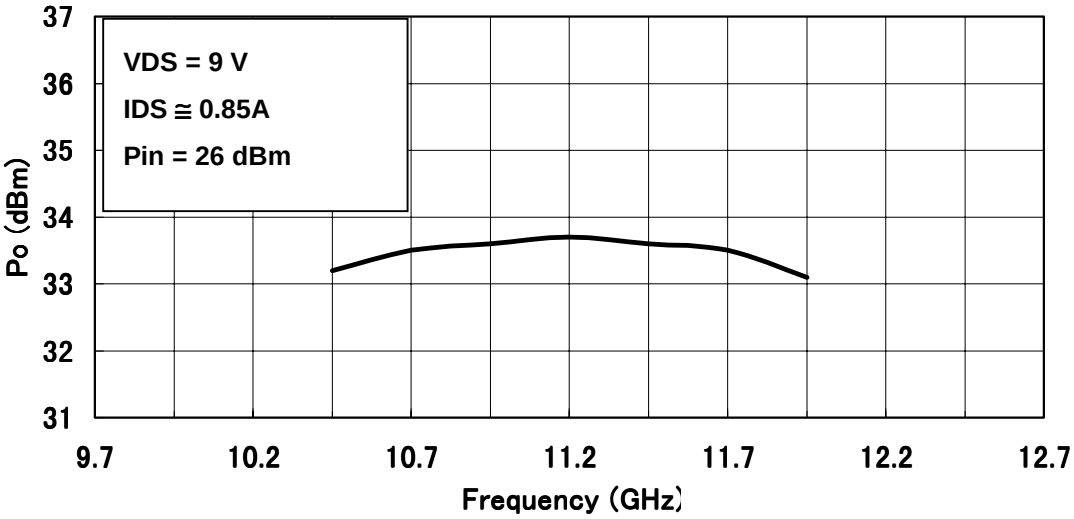
PACKAGE OUTLINE (2-9D1B)



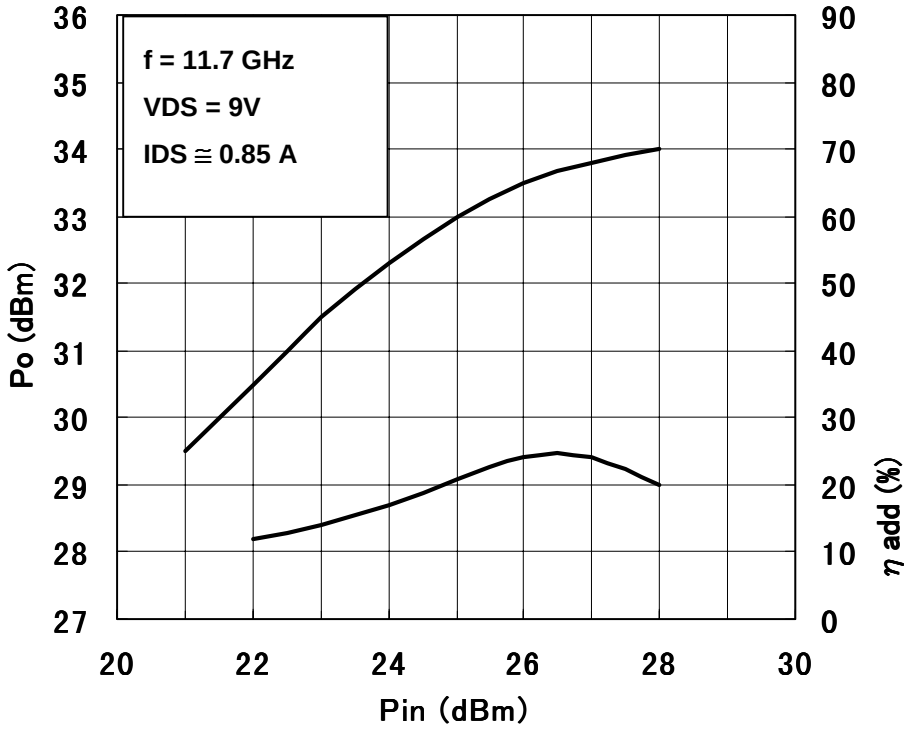
HANDLING PRECAUTIONS FOR PACKAGED TYPE

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

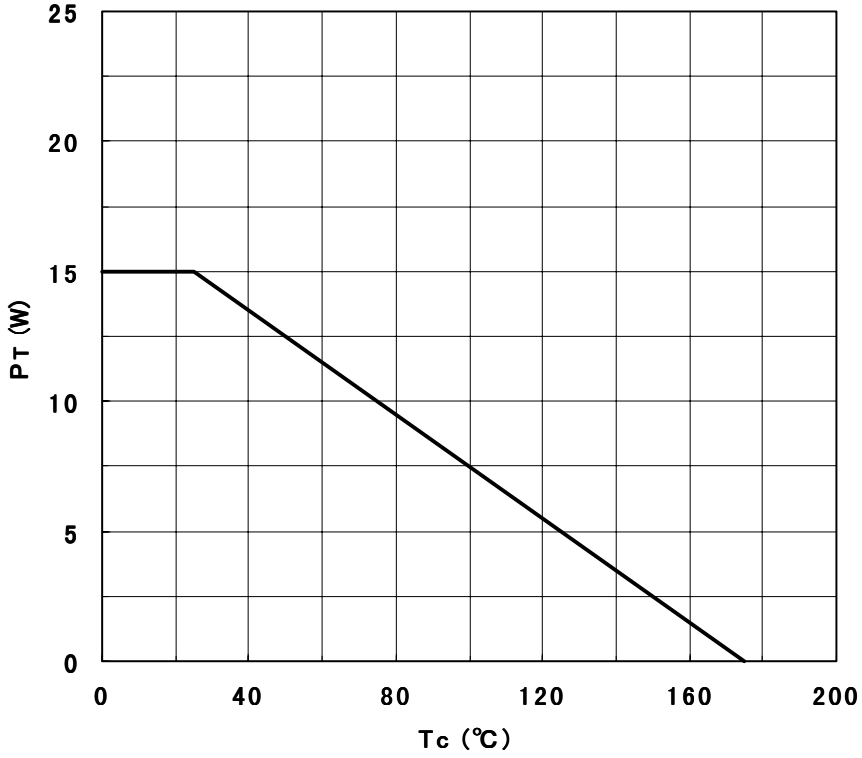
Output Power vs. Frequency



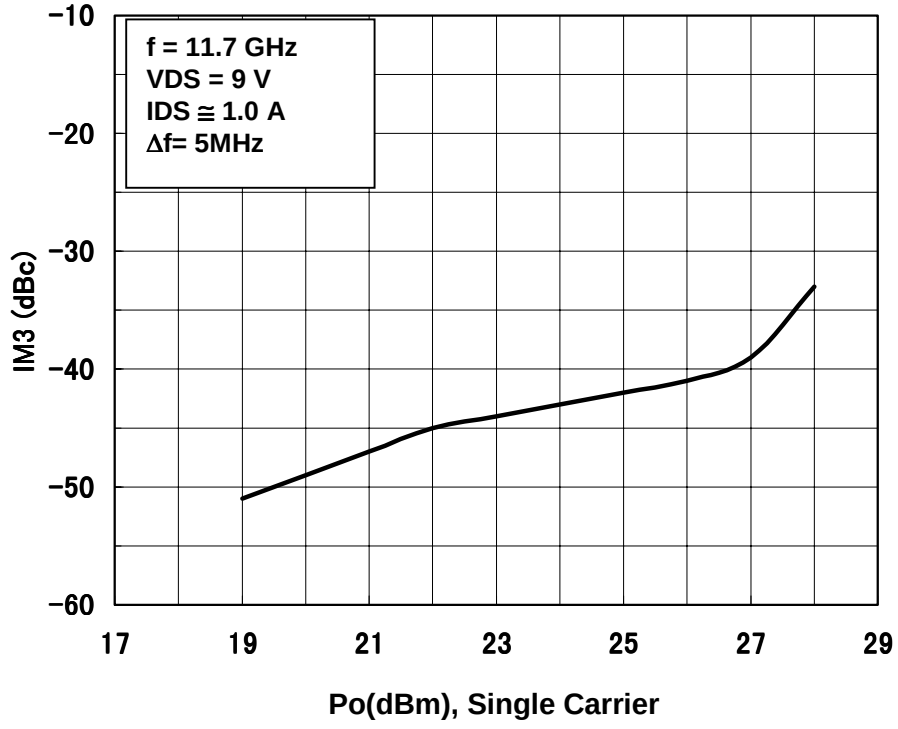
Output Power vs. Input Power



POWER DISSIPATION VS. CASE TEMPERATURE



IM3 vs. OUTPUT POWER CHARACTERISTICS

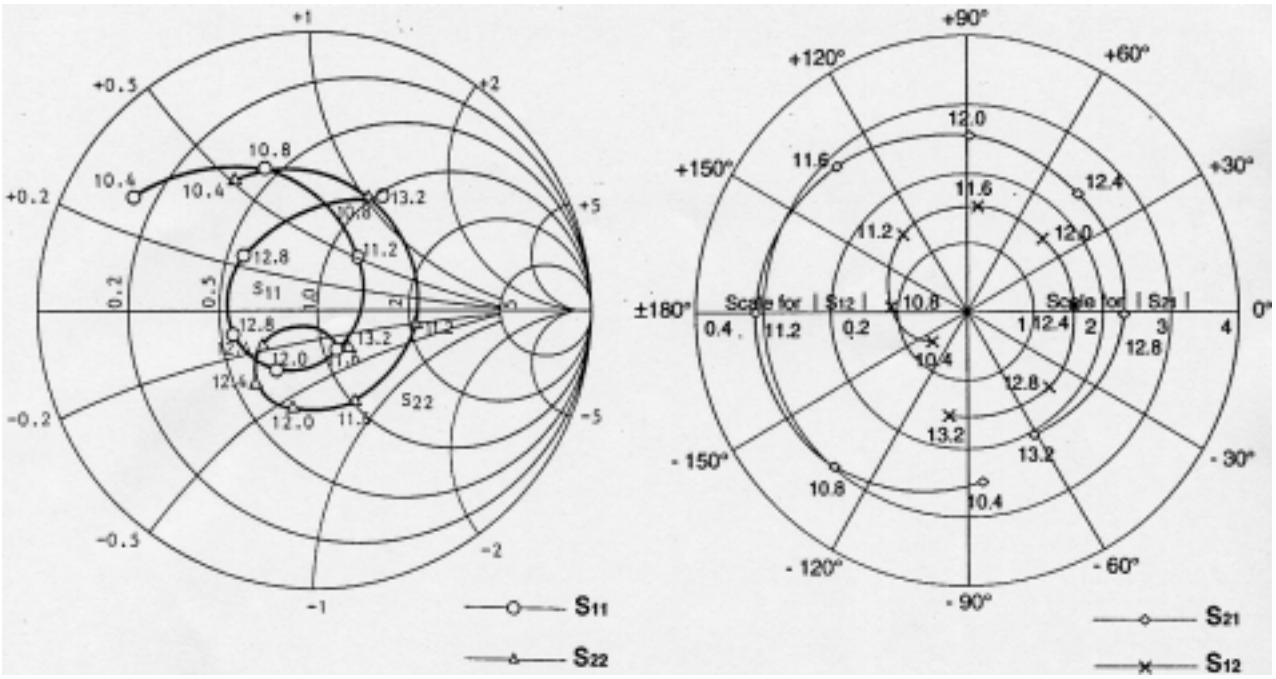


TIM11011-2L S-PARAMETERS

(MAGN. and ANGLES)

VDS=9V, IDS=1.0A

f=10.4 – 13.2GHz



FREQUENCY	S11		S21		S12		S22	
(GHz)	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