TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM1414-4LA

PRELIMINARY

FEATURES

- **HIGH POWERT**
  P1dB=36.5dBm at 14.0GHz to 14.5GHz
- **HIGH GAIN**
  G1dB=6.5dB at 14.0GHz to 14.5GHz
- **BROAD BAND INTERNALLY MATCHED**
- **HERMETICALLY SEALED PACKAGE**

RF PERFORMANCE SPECIFICATIONS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Compression Point	P_{1dB}	VDS= 9V f= 14.0 to 14.5GHz	dBm	36.0	36.5	—
Power Gain at 1dB Compression Point	G_{1dB}		dB	6.0	6.5	—
Drain Current	I_{DS1}		A	—	1.7	2.2
Gain Flatness	ΔG		dB	—	—	±0.8
Power Added Efficiency	η_{add}		%	—	23	—
3rd Order Intermodulation Distortion	IM3	NOTE	dBc	-42	-45	—
Drain Current	IDS2		A	—	1.7	2.2
Channel Temperature Rise	ΔTch	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	°C	—	—	70

NOTE : Two Tone Test, Po=25dBm (Single Carrier Level)

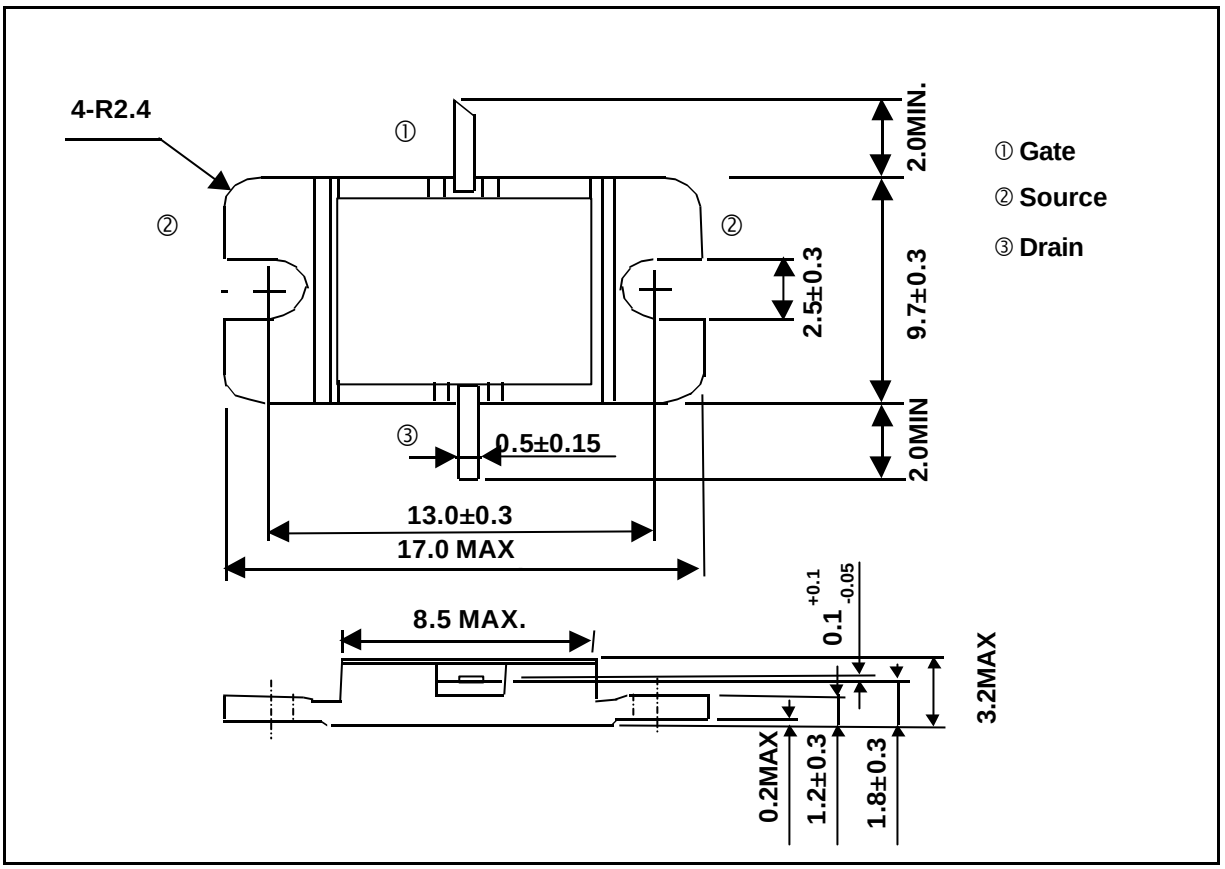
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 2.0A	mS	—	1200	—
Pinch-off Voltage	V_{GSoff}	VDS= 3V IDS= 60mA	V	-2.0	-3.5	-5.0
Saturated Drain Current	I_{DSS}	VDS= 3V VGS= 0V	A	—	4.0	5.2
Gate-Source Breakdown Voltage	V_{GSO}	IGS= -60μA	V	-5	—	—
Thermal Resistance	$R_{th(c-c)}$	Channel to Case	°C/W	—	2.9	3.5

ABSOLUTE MAXIMUM RATINGS (Ta= 25° C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V_{DS}	V	15
Gate-Source Voltage	V_{GS}	V	-5
Drain Current	I_{DS}	A	5.2
Total Power Dissipation (Tc= 25 °C)	P_T	W	30
Channel Temperature	T_{ch}	°C	175
Storage Temperature	T_{stg}	°C	-65 to +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.