

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM3742-30SL-341

FEATURES :

- LOW INTERMODULATION DISTORTION
 $IM_3 = -45$ dBc at $P_o = 34.5$ dBm,
 Single Carrier Level
- HIGH POWER
 $P_{1dB} = 45$ dBm at 3.3 GHz to 3.6 GHz
- HIGH GAIN
 $G_{1dB} = 11$ dB at 3.3 GHz to 3.6 GHz
- BROAD BAND INTERNALLY MATCHED
- HERMETICALLY SEALED PACKAGE

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

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Compression Point	P_{1dB}	$V_{DS} = 10$ V $f = 3.3 \sim 3.6$ GHz	dBm	44.0	45.0	-
Power Gain at 1dB Compression Point	G_{1dB}		dB	10.0	11.0	-
Drain Current	I_{DS1}		A	-	7.0	8.0
Gain Flatness	ΔG		dB	-	-	± 0.8
Power Added Efficiency	η_{add}		%	-	42	-
3rd Order Intermodulation Distortion	IM_3	Note 1	dBc	-42	-45	-
Drain Current	I_{DS2}		A	-	7.0	8.0
Channel-Temperature Rise	ΔT_{ch}	$V_{DS} \times I_{DS} \times R_{th}(c-c)$	$^\circ C$	-	-	100

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

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Trans-conductance	g_m	$V_{DS} = 3$ V $I_{DS} = 10$ A	mS	-	6300	-
Pinch-off Voltage	V_{GSoff}	$V_{DS} = 3$ V $I_{DS} = 100$ mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	I_{DSS}	$V_{DS} = 3$ V $V_{GS} = 0$ V	A	-	18	22
Gate-Source Breakdown Voltage	V_{GSO}	$I_{GS} = -350$ μ A	V	-5	-	-
Thermal Resistance	$R_{th}(c-c)$	Channel to Case	$^\circ C/W$	-	1.0	1.3

Note 1: 2 tone Test $P_{out} = 34.5$ dBm Single Carrier Level.

Recommended Gate Resistance(R_g) : $R_g = R_{g1}(10 \Omega) + R_{g2}(18 \Omega) = 28 \Omega$ (MAX)

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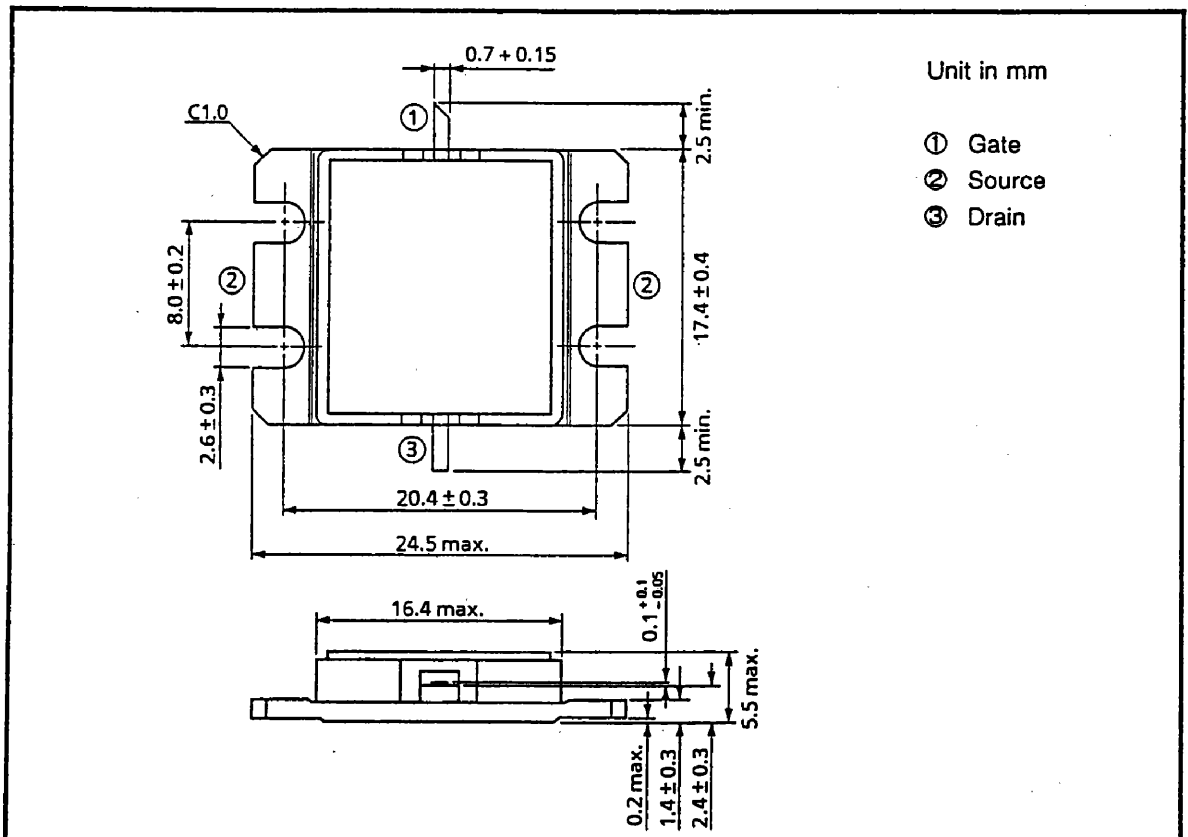


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ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V _{DS}	V	15
Gate-Source Voltage	V _{GS}	V	-5
Drain Current	I _{DS}	A	22
Total Power Dissipation (T _C = 25°C)	P _T	W	115
Channel Temperature	T _{ch}	°C	175
Storage Temperature	T _{slg}	°C	-65~175

PACKAGE OUTLINE (2-16G1B)

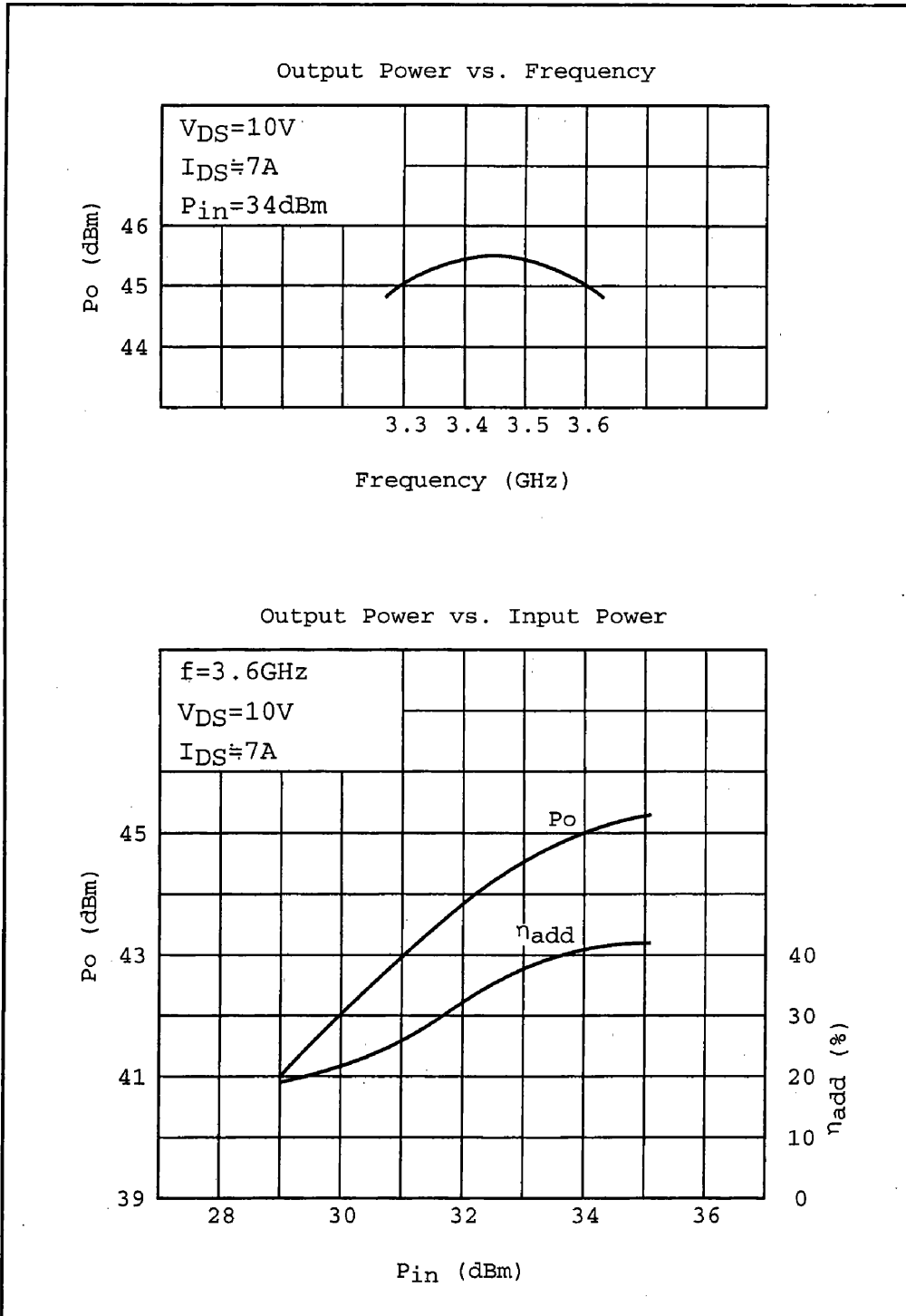


HANDLING PRECAUTIONS FOR PACKAGED TYPE

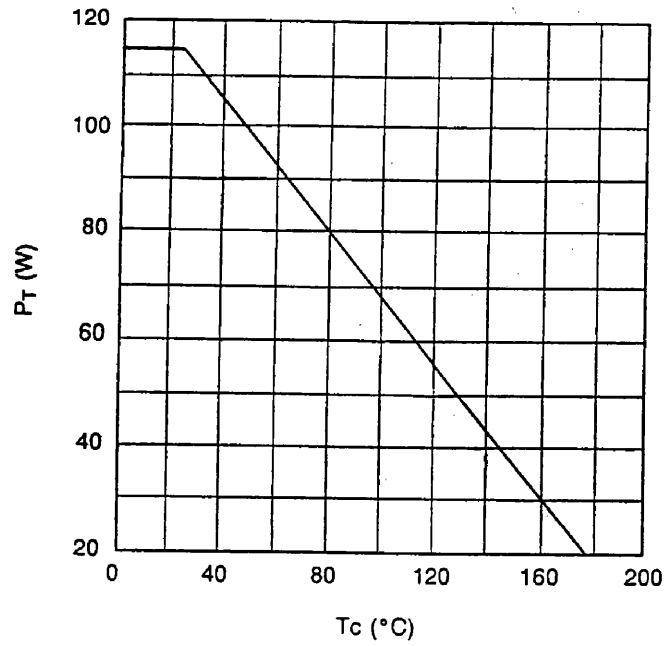
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

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RF PERFORMANCES.



POWER DISSIPATION VS. CASE TEMPERATURE



IM₃ VS. OUTPUT POWER CHARACTERISTICS

