

Internally Matched Power GaAs FETs (X, Ku-Band)

Features

- High power
 - $P_{1dB} = 40.5$ dBm at 10.7 GHz to 11.7 GHz
- High gain
 - $G_{1dB} = 6.0$ dB at 10.7 GHz to 11.7 GHz
- Broadband internally matched
- Hermetically sealed package

RF Performance Specifications ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max
Output Power at 1dB Compression Point	P_{1dB}	$V_{DS} = 9V$ $f = 10.7 - 11.7$ GHz	dBm	40.0	40.5	–
Power Gain at 1dB Compression Point	G_{1dB}		dB	5.0	6.0	–
Drain Current	I_{DS}		A	–	3.0	5.0
Power Added Efficiency	η_{add}		%	–	20	–
Channel-Temperature Rise	ΔT_{ch}	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	$^\circ\text{C}$	–	–	90

Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max.
Transconductance	gm	$V_{DS} = 3V$ $I_{DS} = 4.8A$	mS	–	2800	–
Pinch-off Voltage	V_{GSoff}	$V_{DS} = 3V$ $I_{DS} = 145$ mA	V	-2	-3.5	-5
Saturated Drain Current	I_{DSS}	$V_{DS} = 3V$ $V_{GS} = 0V$	A	–	10.0	11.5
Gate-Source Breakdown Voltage	V_{GSO}	$I_{GS} = -145$ μA	V	-5	–	–
Thermal Resistance	$R_{th(c-c)}$	Channel to Case	$^\circ\text{C/W}$	–	2.0	2.5

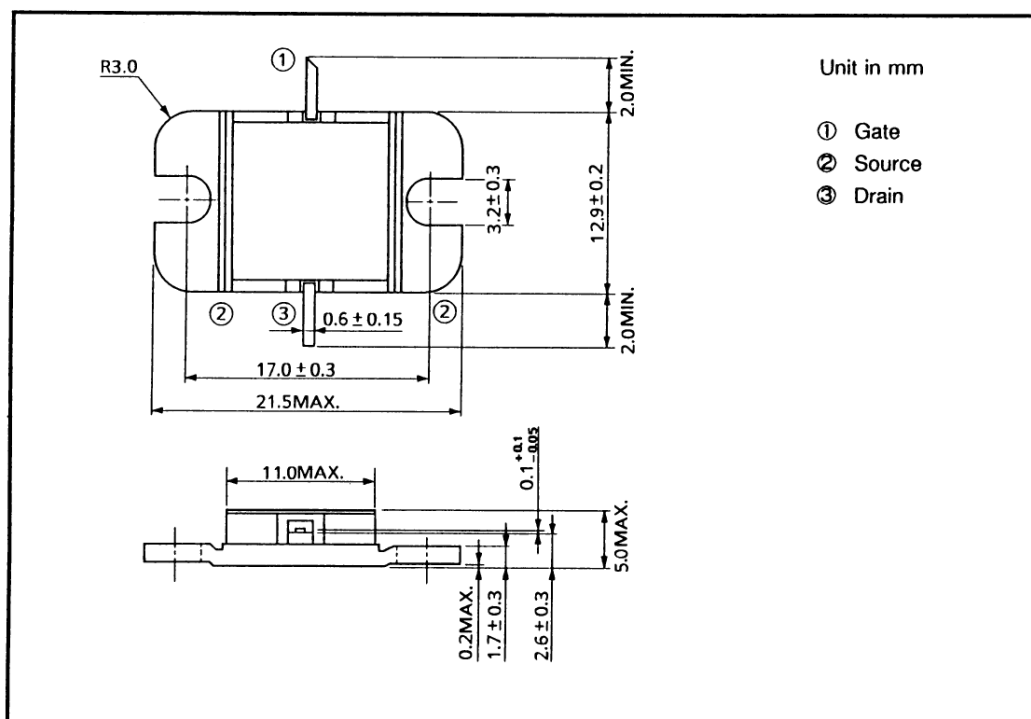
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Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Unit	Rating
Drain-Source Voltage	V_{DS}	V	15
Gate-Source Voltage	V_{GS}	V	-5
Drain Current	I_D	A	11.5
Total Power Dissipation ($T_c = 25^\circ\text{C}$)	P_T	W	60
Channel Temperature	T_{ch}	$^\circ\text{C}$	175
Storage Temperature	T_{stg}	$^\circ\text{C}$	-65 ~ 175

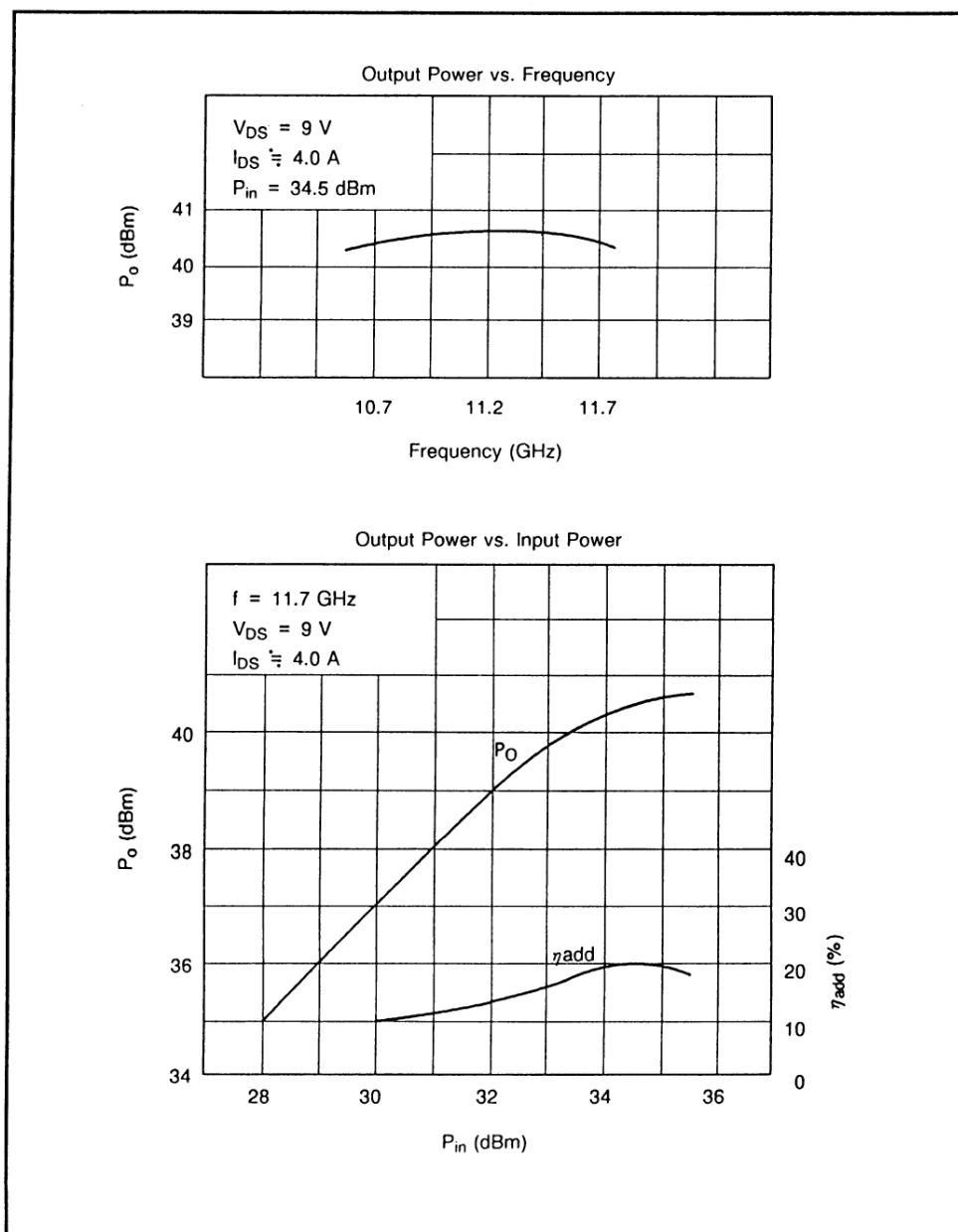
Package Outline (2-11C1B)



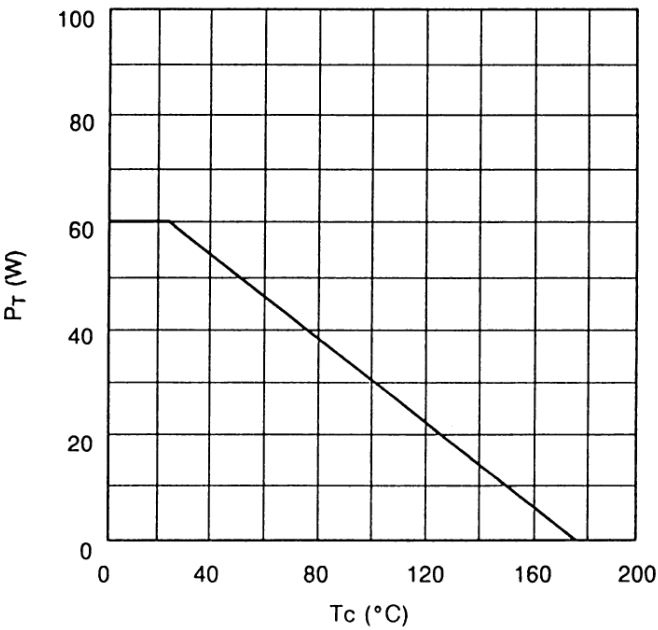
Handling Precautions for Packaged Type

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

RF Performances



Power Dissipation vs. Case Temperature



TIM1011-10 S-Parameters (Magn. and Angles)

 $V_{DS} = 9V$, $I_{DS} = 4.0A$ $f = 10.0-12.8GHz$ 