

Internally Matched Power GaAs FETs (C-Band)

Features

- High power
 - $P_{1dB} = 36.0$ dBm at 3.7 GHz to 4.2 GHz
- High gain
 - $G_{1dB} = 10.5$ dB at 3.7 GHz to 4.2 GHz
- Broad band internally matched
- Hermetically sealed package

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

Characteristics	Symbol	Condition	Unit	Min.	Typ.	Max
Output Power at 1dB Compression Point	P_{1dB}	$V_{DS} = 10V$ $f = 3.7 \sim 4.2 \text{ GHz}$	dBm	35.0	36.0	—
Power Gain at 1dB Compression Point	G_{1dB}		dB	9.5	10.5	—
Drain Current	I_{DS}		A	—	1.1	1.5
Power Added Efficiency	η_{add}		%	—	33	—
Channel-Temperature Rise	ΔT_{ch}	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	$^\circ\text{C}$	—	—	80

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

Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max
Trans-conductance	gm	$V_{DS} = 3V$ $I_{DS} = 1.5 \text{ A}$	mS	—	900	—
Pinch-off Voltage	V_{GSoff}	$V_{DS} = 3V$ $I_{DS} = 20\text{mA}$	V	-2	-3.5	-5
Saturated Drain Current	I_{DSS}	$V_{DS} = 3V$ $V_{GS} = 0V$	A	—	2.9	3.8
Gate to Source Breakdown Voltage	V_{GSO}	$I_{GS} = -60 \mu\text{A}$	V	-5	—	—
Thermal Resistance	$R_{th(c-c)}$	Channel to case	$^\circ\text{C/W}$	—	4.0	6.0

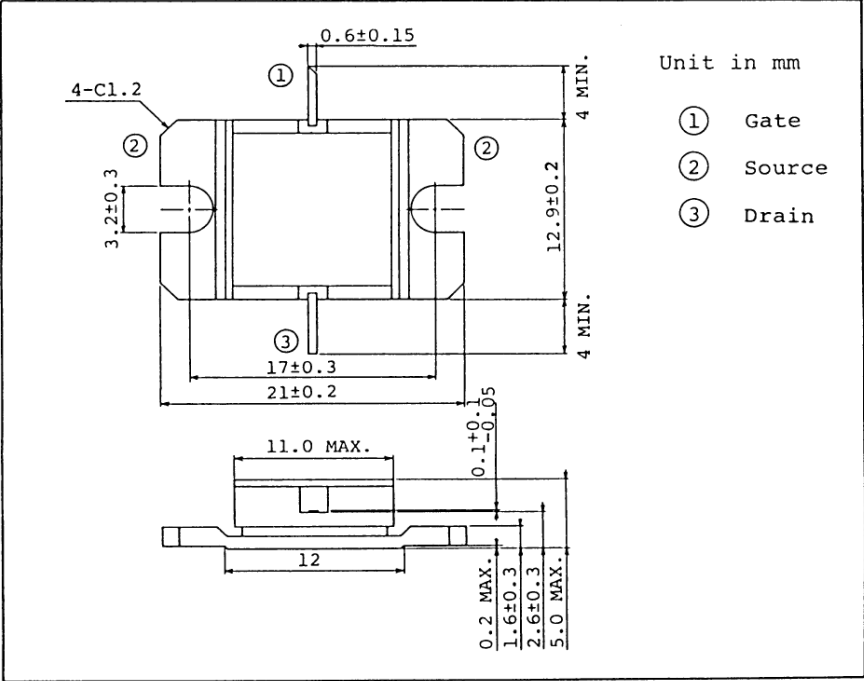
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Absolute Maximum Ratings (T_a = 25° C)

Characteristic	Symbol	Unit	Rating
Drain Source Voltage	V _{DS}	V	15
Gate Source Voltage	V _{GS}	V	-5
Drain Current	I _D	A	4
Total Power Dissipation (T _c = 25°C)	P _T	W	20
Channel Temperature	T _{ch}	°C	175
Storage Temperature	T _{stg}	°C	-65~175

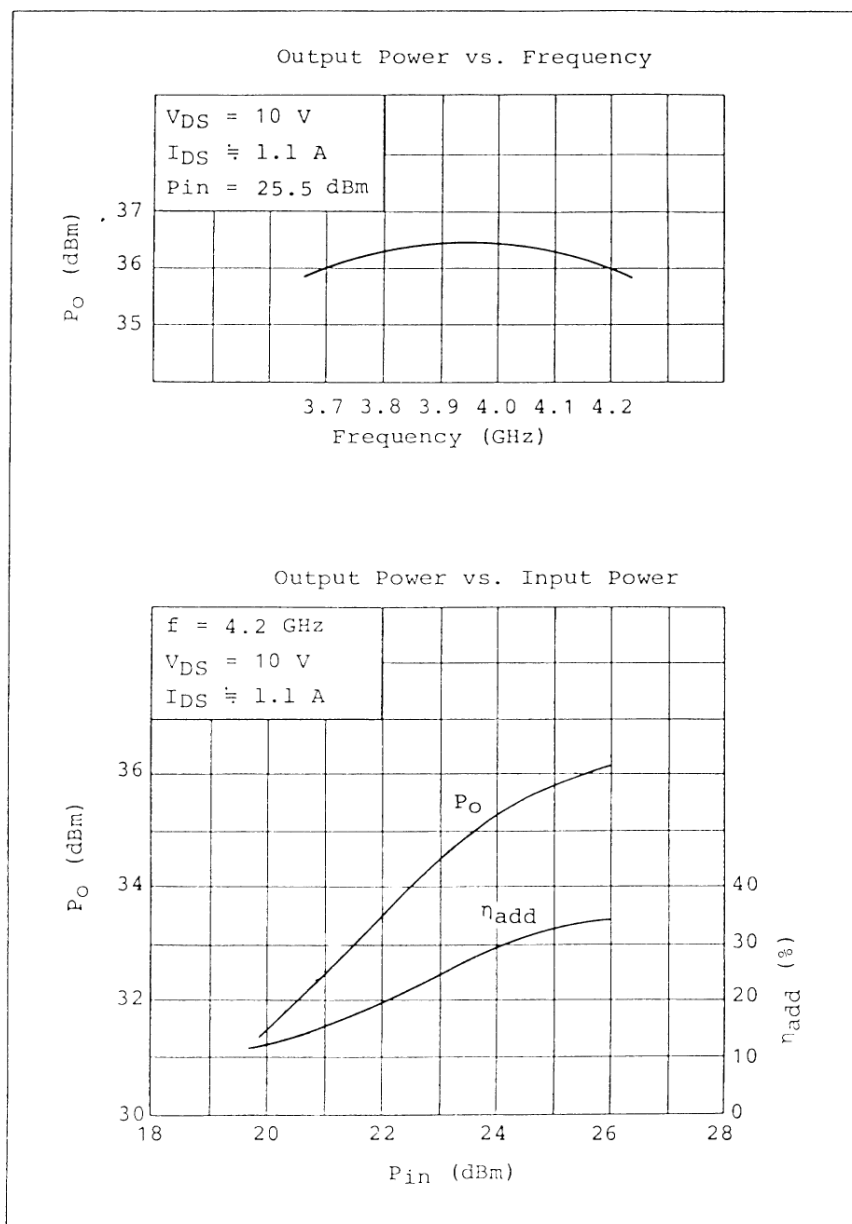
Package Outline (2-11D1B)



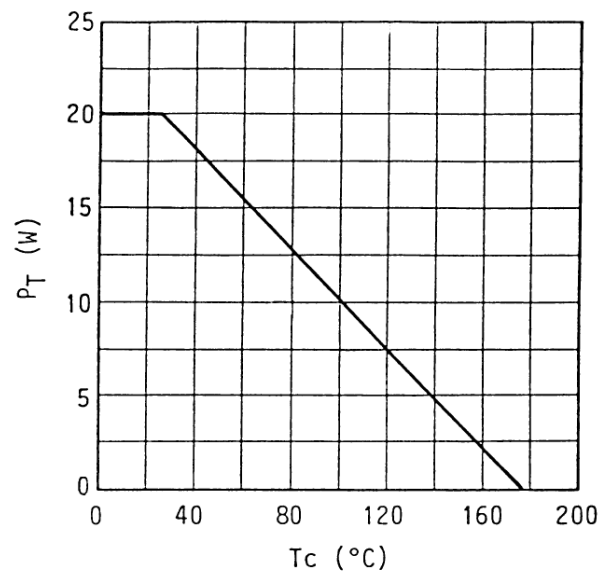
Handling Precautions for Packaged Type

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

RF Performances



Power Dissipation vs. Case Temperature



**TPM3742-4 S-Parameters
(MAGN. and ANGLES)**
 $V_{DS} = 10 \text{ V}, I_{DS} = 1.0 \text{ A}$
