

FEATURES :

- LOW INTERMODULATION DISTORTION
IM₃ = -45 dBc at P_o = 25.5 dBm,
Single Carrier Level
- HIGH POWER
P_{1dB} = 36.5 dBm at 7.7 GHz to 8.5 GHz
- HIGH EFFICIENCY
η_{add} = 32 % at 7.7 GHz to 8.5 GHz
- HIGH GAIN
G_{1dB} = 6.5 dB at 7.7 GHz to 8.5 GHz
- BROAD BAND INTERNALLY MATCHED
- HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1 dB Compression Point	P _{1dB}	V _{DS} = 10 V f = 7.7 ~ 8.5 GHz	dBm	35.5	36.5	—
Power Gain at 1 dB Compression Point	G _{1dB}		dB	5.5	6.5	—
Drain Current	I _{DS}		A	—	1.1	1.3
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	η _{add}		%	—	32	—
3rd Order Intermodulation Distortion	IM ₃	Note 1	dBc	-42	-45	—
Channel-Temperature Rise	ΔT _{ch}	V _{DS} × I _{DS} × R _{th} (c-c)	°C	—	—	80

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	V _{DS} = 3 V I _{DS} = 1.5 A	mS	—	900	—
Pinch-off Voltage	V _{GSoff}	V _{DS} = 3 V I _{DS} = 15 mA	V	-1	-2.5	-4.0
Saturated Drain Current	I _{DSS}	V _{DS} = 3 V V _{GS} = 0 V	A	—	2.6	3.5
Gate-Source Breakdown Voltage	V _{GSO}	I _{GS} = -50 μA	V	-5	—	—
Thermal Resistance	R _{th} (c-c)	Channel to Case	°C/W	—	4.5	6.5

Note 1 : 2 tone Test Pout = 25.5 dBm Single Carrier Level.

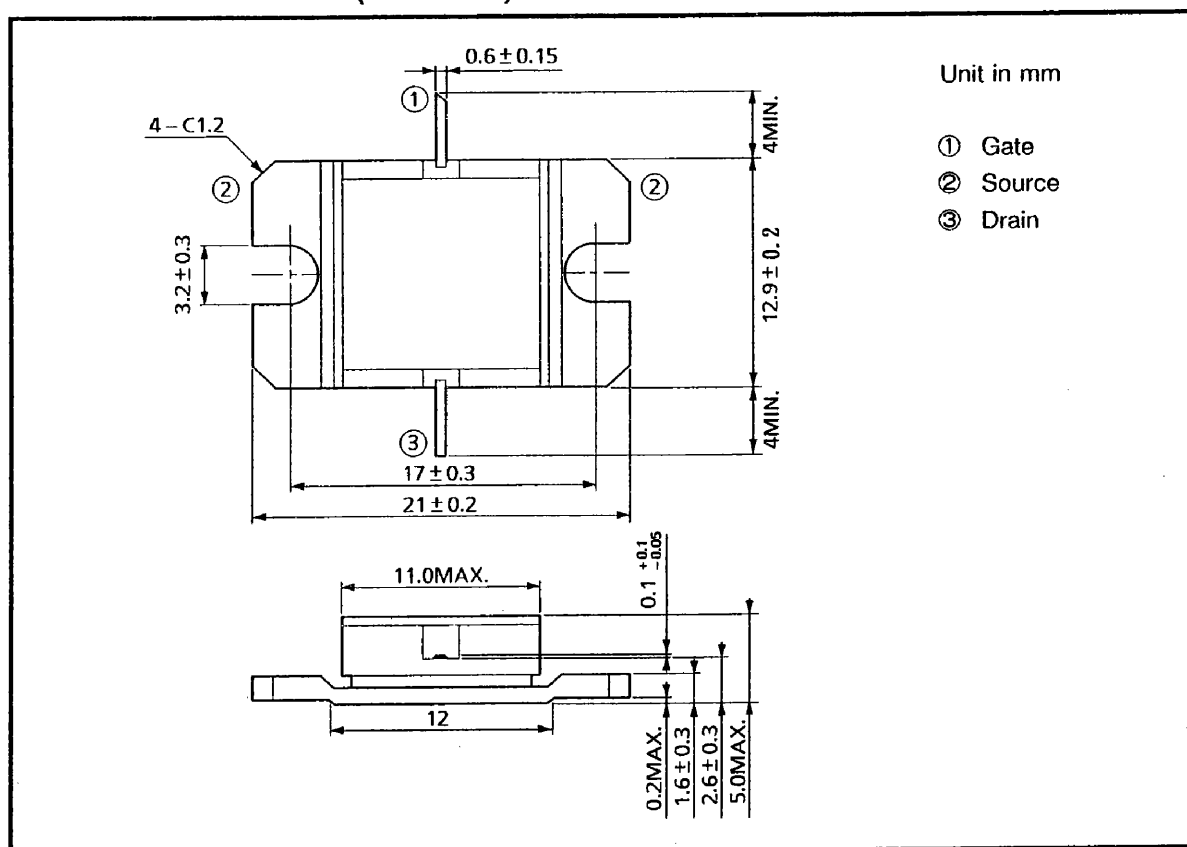
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ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V_{DS}	V	15
Gate-Source Voltage	V_{GS}	V	-5
Drain Current	I_{DS}	A	3.5
Total Power Dissipation ($T_C = 25^\circ\text{C}$)	P_T	W	23
Channel Temperature	T_{ch}	$^\circ\text{C}$	175
Storage Temperature	T_{stg}	$^\circ\text{C}$	-65 ~ 175

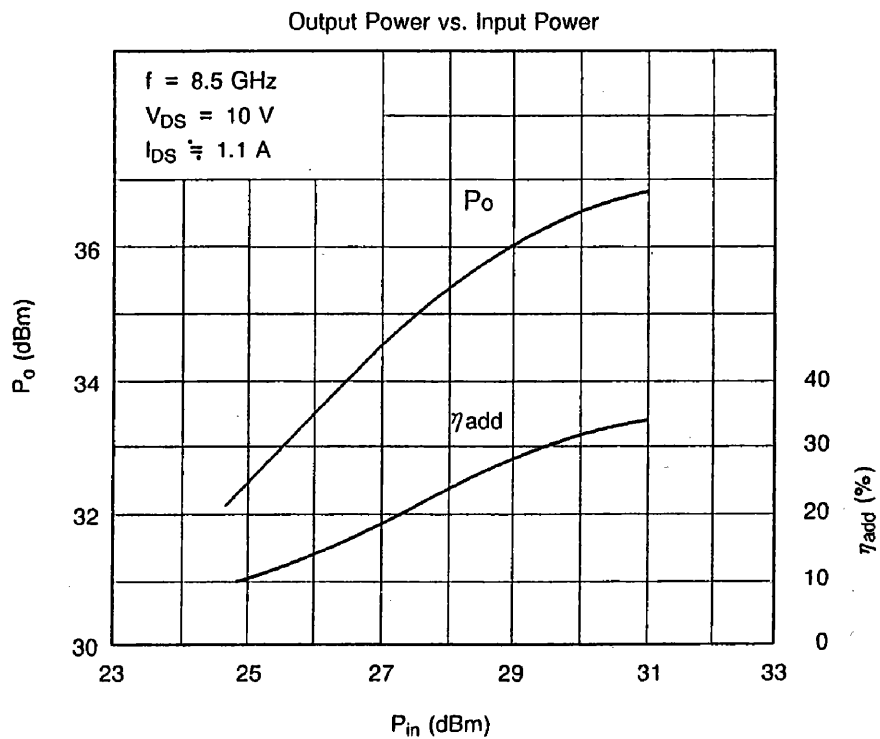
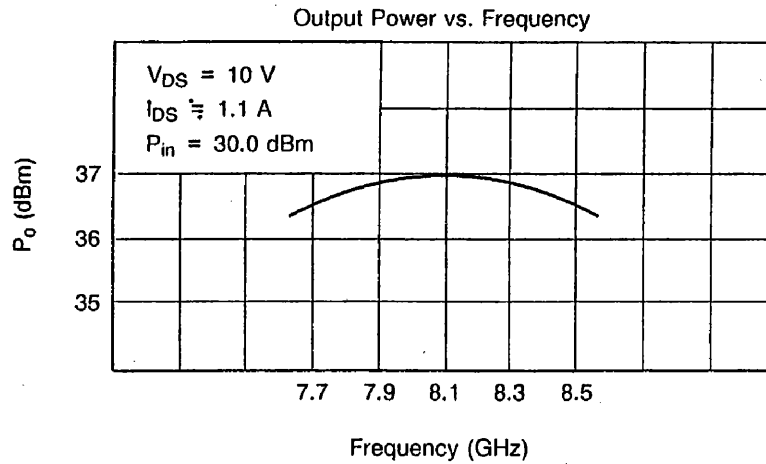
PACKAGE OUTLINE (2-11D1B)



HANDLING PRECAUTIONS FOR PACKAGED TYPE

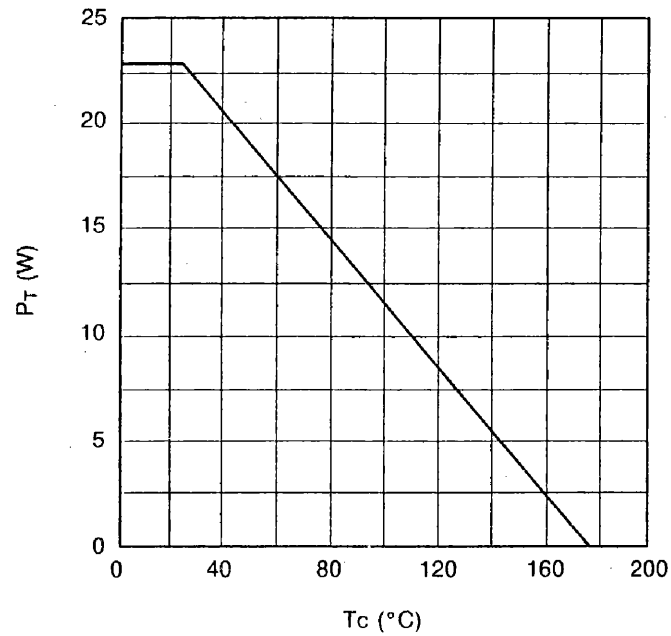
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C .

RF PERFORMANCES

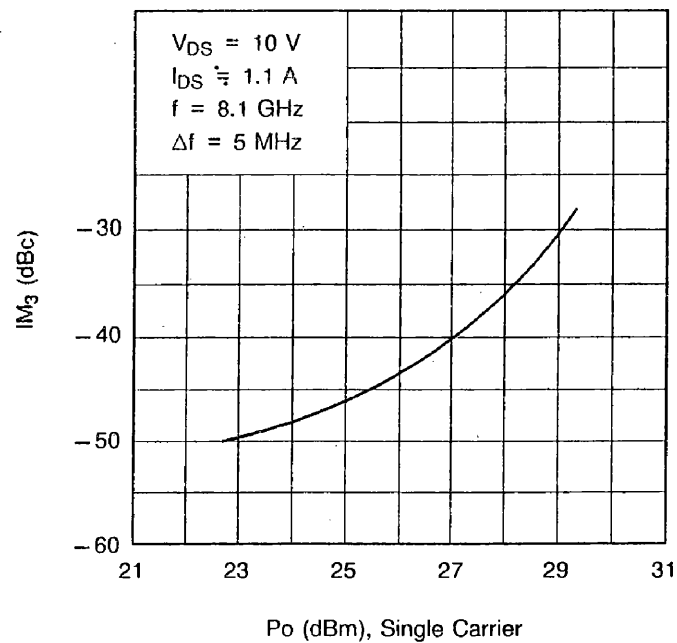


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POWER DISSIPATION VS. CASE TEMPERATURE



IM₃ VS. OUTPUT POWER CHARACTERISTICS

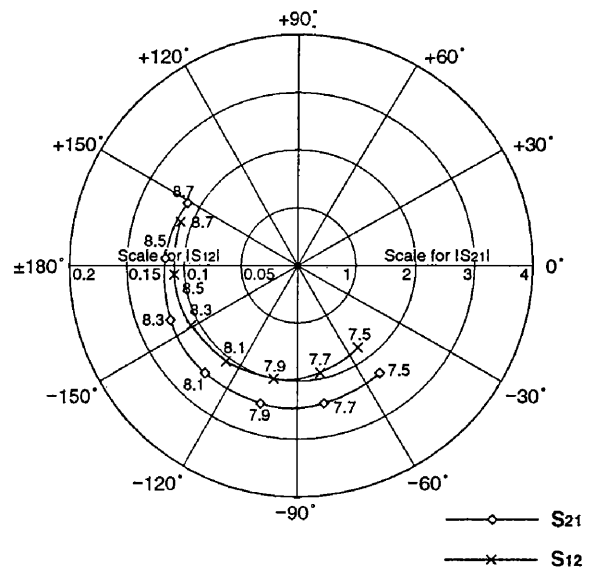
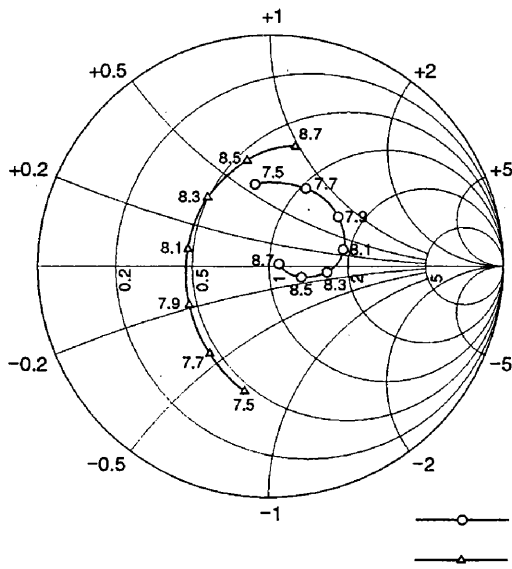


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TIM7785-4SL S-PARAMETERS (MAGN. and ANGLES)

$V_{DS} = 10V$, $I_{DS} = 1.0A$

$f = 7.5 \sim 8.7GHz$



FREQUENCY (GHz)	S11		S12		S21		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
7.50	0.359	100	0.088	-54	2.329	-53	0.550	-101
7.70	0.368	65	0.095	-78	2.423	-79	0.457	-124
7.90	0.361	36	0.100	-102	2.468	-105	0.384	-154
8.10	0.321	13	0.104	-127	2.472	-131	0.359	168
8.30	0.246	-6	0.107	-151	2.426	-157	0.399	132
8.50	0.145	-19	0.109	-176	2.337	177	0.466	102
8.70	0.044	15	0.110	160	2.217	151	0.529	78