

FEATURES :

- LOW INTERMODULATION DISTORTION
IM₃ = -45 dBc at P_o = 28.5 dBm,
Single Carrier Level
- HIGH POWER
P_{1dB} = 39.5 dBm at 7.7 GHz to 8.5 GHz
- HIGH EFFICIENCY
η_{add} = 30 % at 7.7 GHz to 8.5 GHz
- HIGH GAIN
G_{1dB} = 6.0 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	38.5	39.5	—
Power Gain at 1 dB Compression Point	G _{1dB}		dB	5.0	6.0	—
Drain Current	I _{DS}		A	—	2.2	2.6
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	η _{add}		%	—	30	—
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} = 3.0 A	mS	—	1800	—
Pinch-off Voltage	V _{GSoff}	V _{DS} = 3 V I _{DS} = 30 mA	V	-1	-2.5	-4.0
Saturated Drain Current	I _{DSS}	V _{DS} = 3 V V _{GS} = 0 V	A	—	5.2	7.0
Gate-Source Breakdown Voltage	V _{GS0}	I _{GS} = -100 μA	V	-5	—	—
Thermal Resistance	R _{th} (c-c)	Channel to Case	°C/W	—	2.5	3.8

Note 1 : 2 tone Test Pout = 28.5 dBm Single Carrier Level.

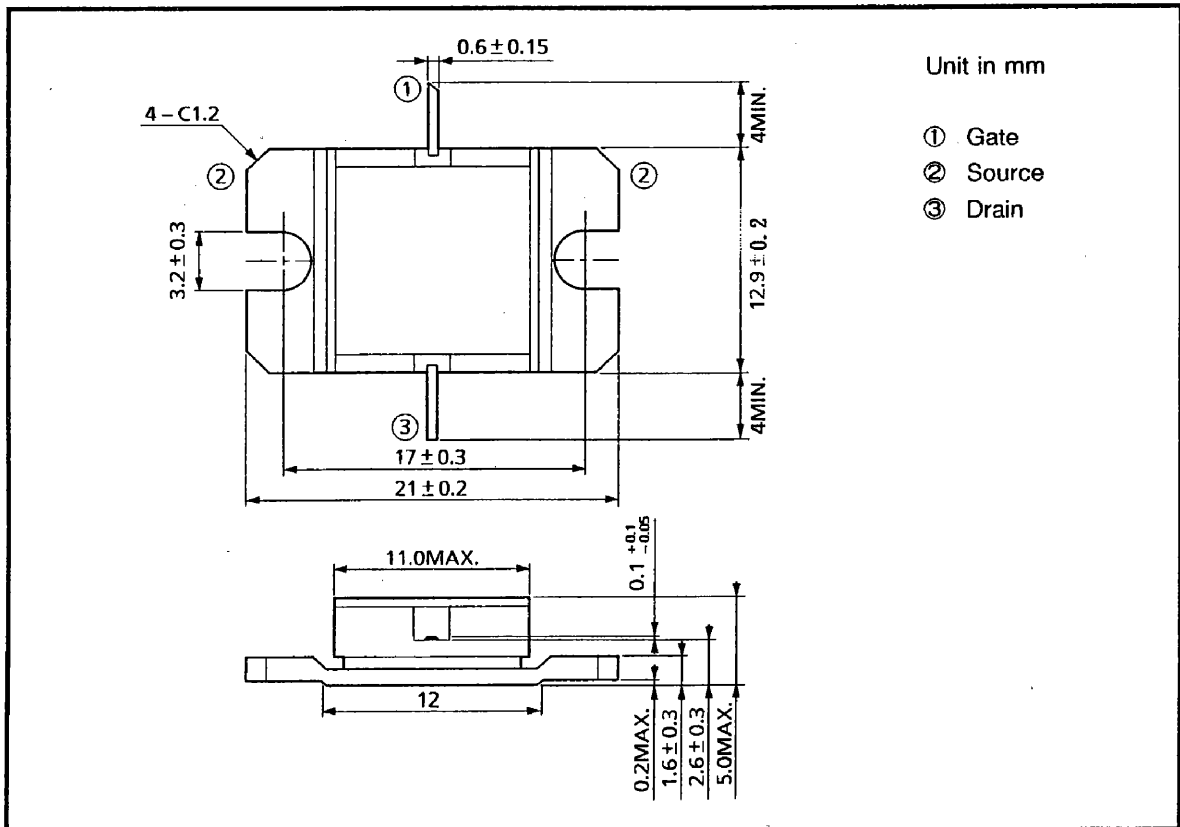
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ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V _{DS}	V	15
Gate-Source Voltage	V _{GS}	V	-5
Drain Current	I _{DS}	A	7.0
Total Power Dissipation (T _C = 25°C)	P _T	W	37.5
Channel Temperature	T _{ch}	°C	175
Storage Temperature	T _{stg}	°C	-65~175

PACKAGE OUTLINE (2-11D1B)

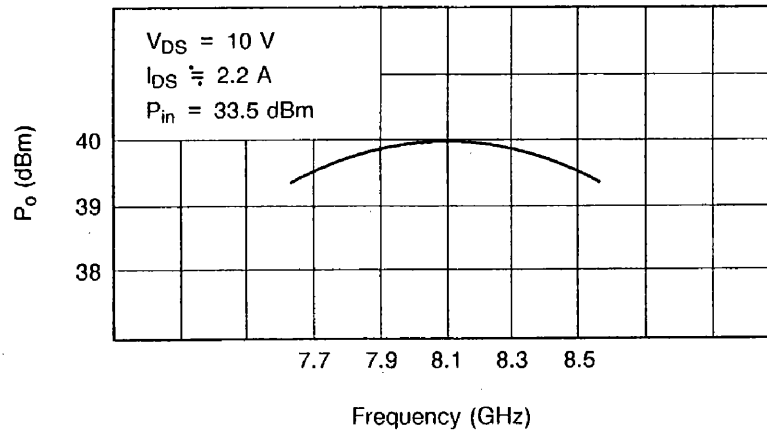


HANDLING PRECAUTIONS FOR PACKAGED TYPE

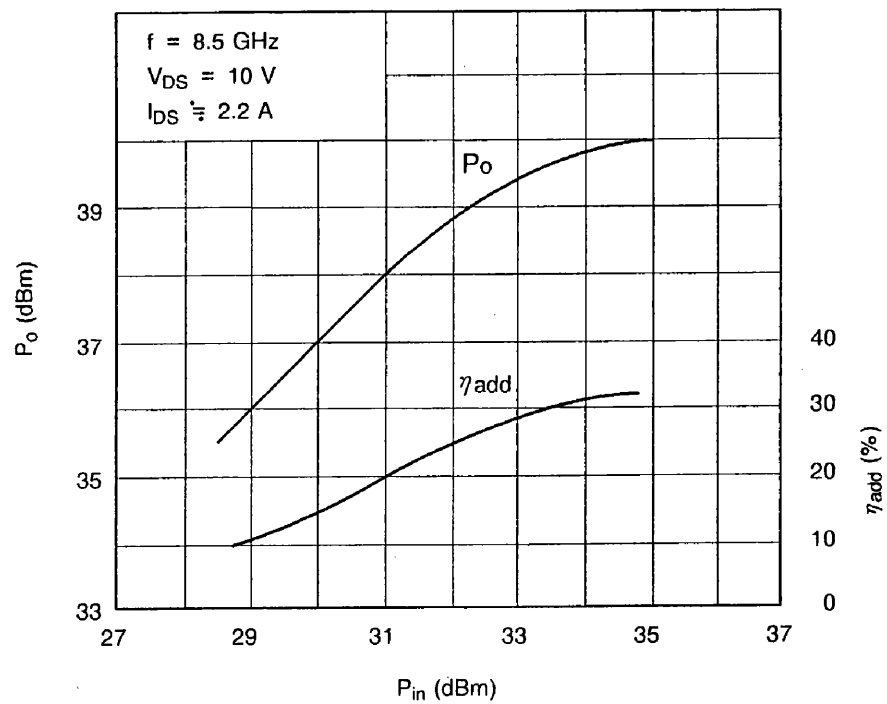
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCES

Output Power vs. Frequency

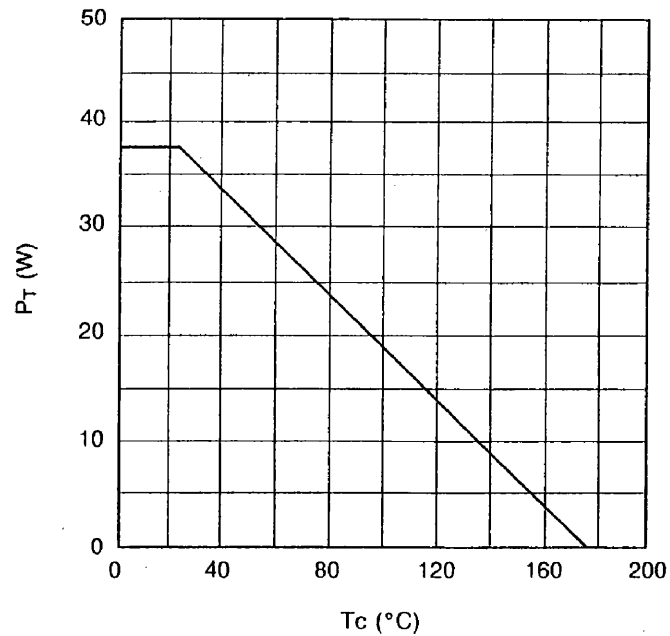


Output Power vs. Input Power

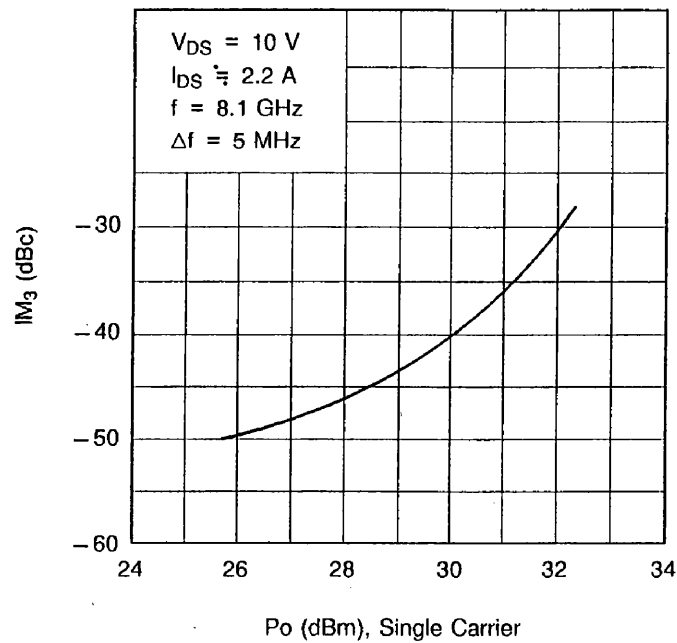


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POWER DISSIPATION VS. CASE TEMPERATURE



IM₃ VS. OUTPUT POWER CHARACTERISTICS

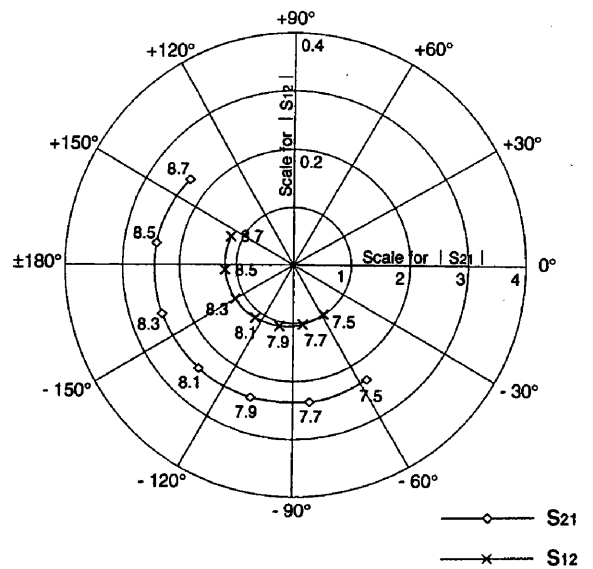
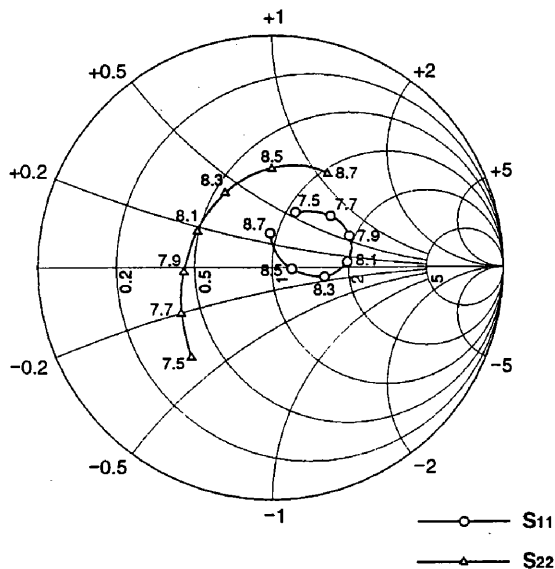


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TIM7785-8SL S-PARAMETERS (MAGN. and ANGLES)

$V_{DS} = 10V$, $I_{DS} = 2.0A$

$f = 7.5 \sim 8.7GHz$



FREQUENCY (GHz)	S_{11}		S_{12}		S_{21}		S_{22}	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
7.50	0.260	67	0.099	-58	2.334	-57	0.517	-132
7.70	0.339	41	0.103	-81	2.366	-83	0.437	-153
7.90	0.363	22	0.107	-103	2.388	-108	0.379	-177
8.10	0.329	4	0.112	-126	2.422	-133	0.357	154
8.30	0.232	-10	0.117	-150	2.447	-160	0.380	122
8.50	0.086	-4	0.120	-176	2.435	171	0.426	90
8.70	0.149	93	0.120	156	2.342	141	0.471	59