

FEATURES :

■ LOW INTERMODULATION DISTORTION

$IM_3 = -45 \text{ dBc}$ at $P_o = 35.5 \text{ dBm}$,
Single Carrier Level

■ HIGH POWER

$P_{1dB} = 46.5 \text{ dBm}$ at 7.7 GHz to 8.5 GHz

■ HIGH GAIN

$G_{1dB} = 6.0 \text{ dB}$ at 7.7 GHz to 8.5 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 1 dB Compression Point	P_{1dB}	$V_{DS} = 10 \text{ V}$ $f = 7.7 \sim 8.5 \text{ GHz}$	dBm	46.0	46.5	—
Power Gain at 1 dB Compression Point	G_{1dB}		dB	5.0	6.0	—
Drain Current	I_{DS}		A	—	9.6	10.8
Gain Flatness	ΔG		dB	—	—	± 0.8
Power Added Efficiency	η_{add}		%	—	35	—
3rd Order Intermodulation Distortion	IM_3	Note 1	dBc	-42	-45	—
Channel-Temperature Rise	ΔT_{ch}	$V_{DS} \times I_{DS} \times R_{th} (c-c)$	$^\circ\text{C}$	—	—	100

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

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	$V_{DS} = 3 \text{ V}$ $I_{DS} = 11.0 \text{ A}$	mS	—	8000	—
Pinch-off Voltage	V_{GSoff}	$V_{DS} = 3 \text{ V}$ $I_{DS} = 170 \text{ mA}$	V	-1.0	-2.5	-4.0
Saturated Drain Current	I_{DSS}	$V_{DS} = 3 \text{ V}$ $V_{GS} = 0 \text{ V}$	A	—	24	31
Gate-Source Breakdown Voltage	V_{GSO}	$I_{GS} = -500 \text{ } \mu\text{A}$	V	-5	—	—
Thermal Resistance	$R_{th} (c-c)$	Channel to Case	$^\circ\text{C/W}$	—	0.8	1.2

Note 1 : 2 tone Test $P_{out} = 35.5 \text{ dBm}$ Single Carrier Level.

Recommended gate resistance (R_g) : $R_g = R_{g1} (10 \text{ } \Omega) + R_{g2} (18 \text{ } \Omega) = 28 \text{ } \Omega$ (MAX.)

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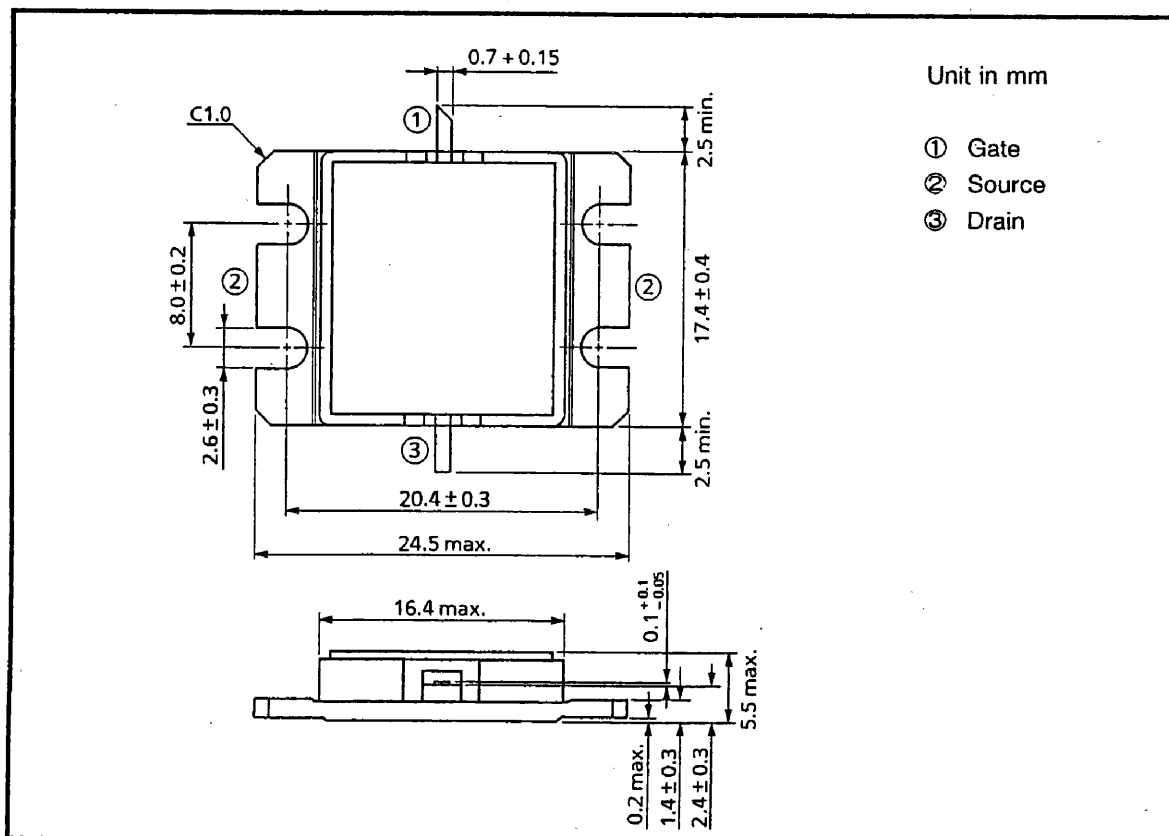


TIM7785-45SL

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	31
Total Power Dissipation ($T_C = 25^\circ\text{C}$)	P_T	W	125
Channel Temperature	T_{ch}	$^\circ\text{C}$	175
Storage Temperature	T_{stg}	$^\circ\text{C}$	-65~175

PACKAGE OUTLINE (2-16G1B)

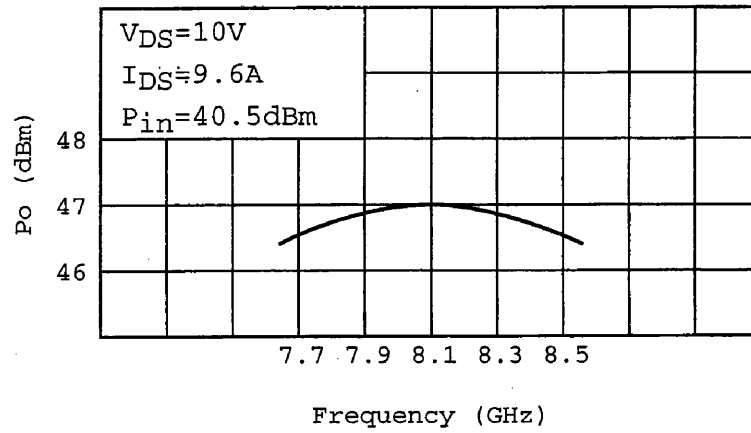


HANDLING PRECAUTIONS FOR PACKAGED TYPE

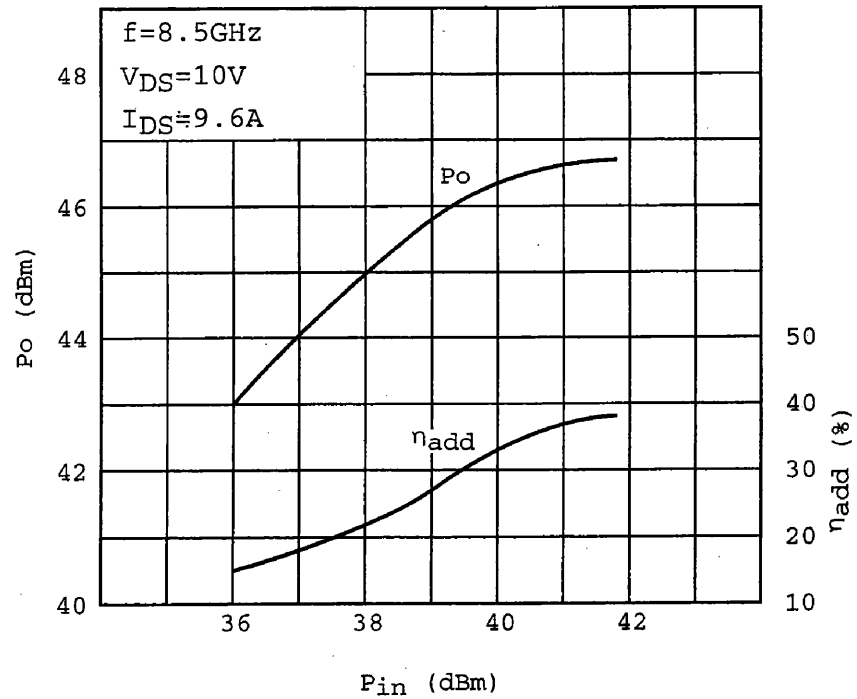
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C .

RF PERFORMANCES.

Output Power vs. Frequency

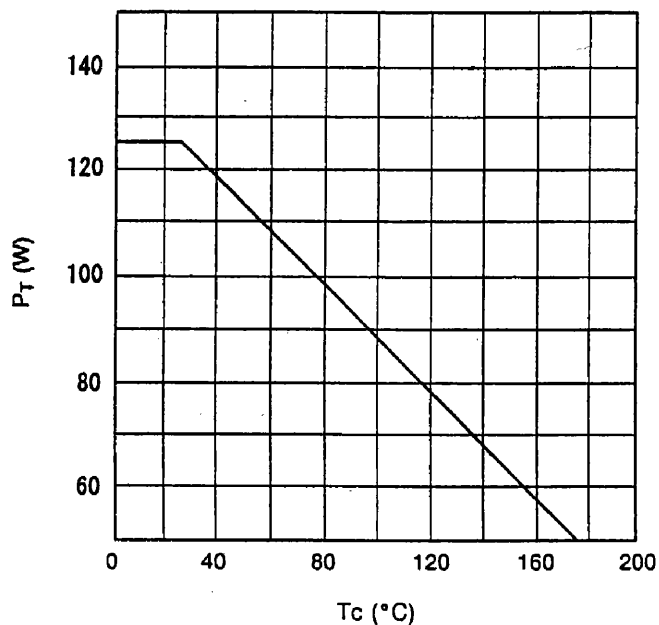


Output Power vs. Input Power



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POWER DISSIPATION VS. CASE TEMPERATURE



IM₃ VS. OUTPUT POWER CHARACTERISTICS

