

FEATURES :

■ LOW INTERMODULATION DISTORTION

$IM_3 = -45$ dBc at $P_o = 35.5$ dBm,
Single Carrier Level

■ HIGH POWER

$P_{1dB} = 46.5$ dBm at 5.9 GHz to 6.4 GHz

■ HIGH GAIN

$G_{1dB} = 9.0$ dB at 5.9 GHz to 6.4 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}	$V_{DS} = 10\text{ V}$ $f = 5.9 \sim 6.4\text{ GHz}$	dBm	46.0	46.5	—
Power Gain at 1 dB Compression Point	G_{1dB}		dB	8.0	9.0	—
Drain Current	I_{DS}		A	—	9.6	10.8
Gain Flatness	ΔG		dB	—	—	± 0.8
Power Added Efficiency	η_{add}		%	—	41	—
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 $P_{out} = 35.5$ dBm Single Carrier Level.

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

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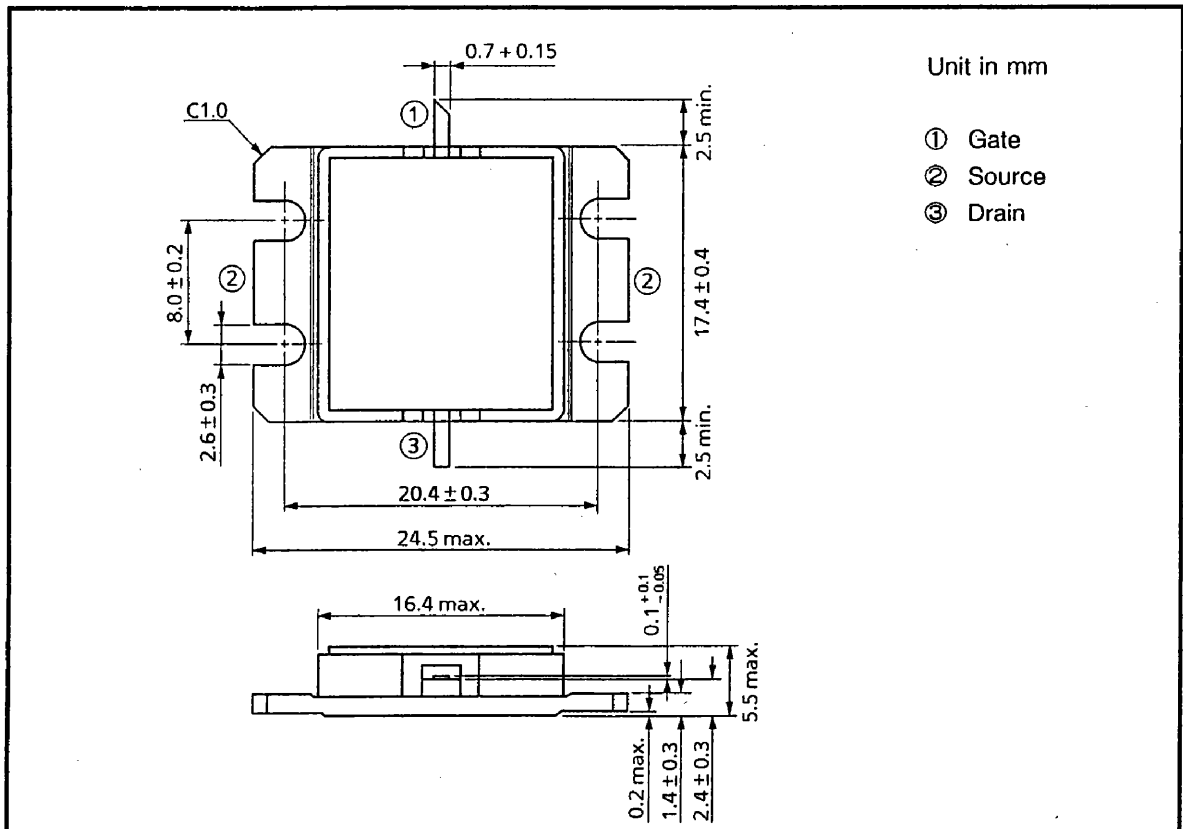


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ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V_{DS}	V	15
Gate-Source Voltage	V_{GS}	V	-5
Drain Current	I_{DS}	A	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)

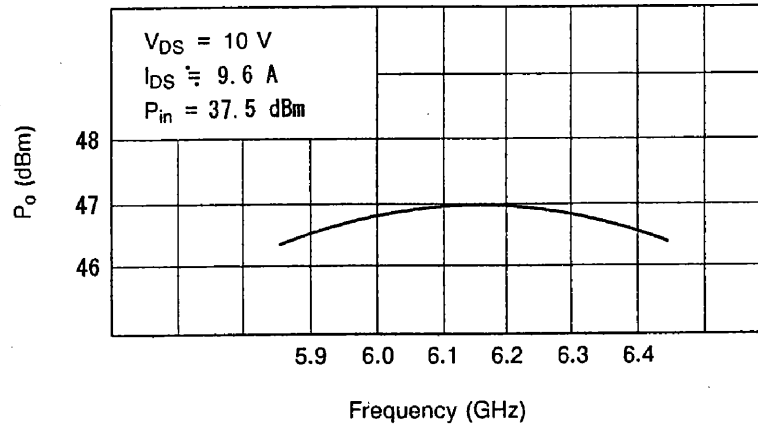


HANDLING PRECAUTIONS FOR PACKAGED TYPE

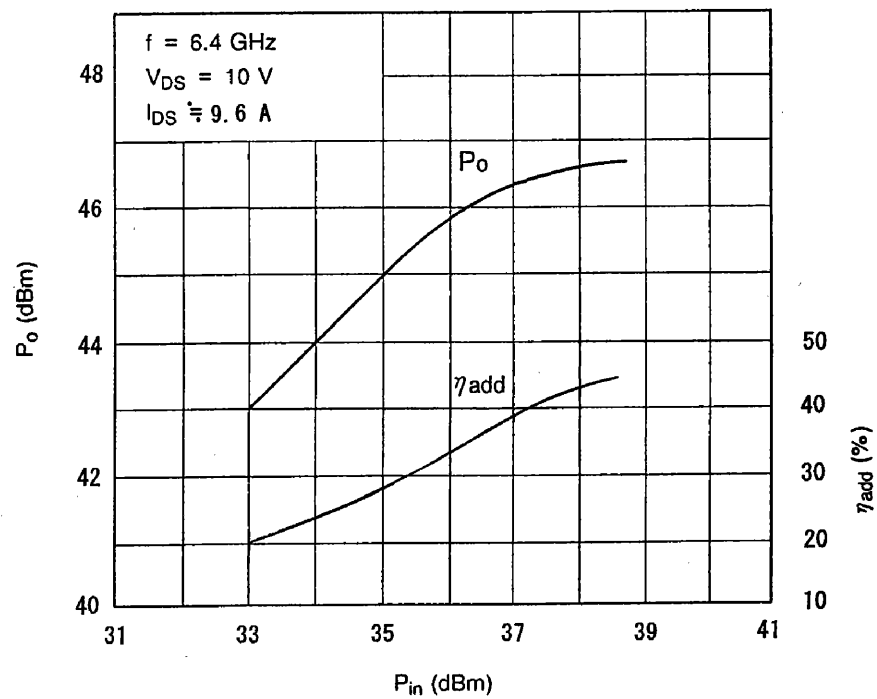
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C .

RF PERFORMANCES

Output Power vs. Frequency

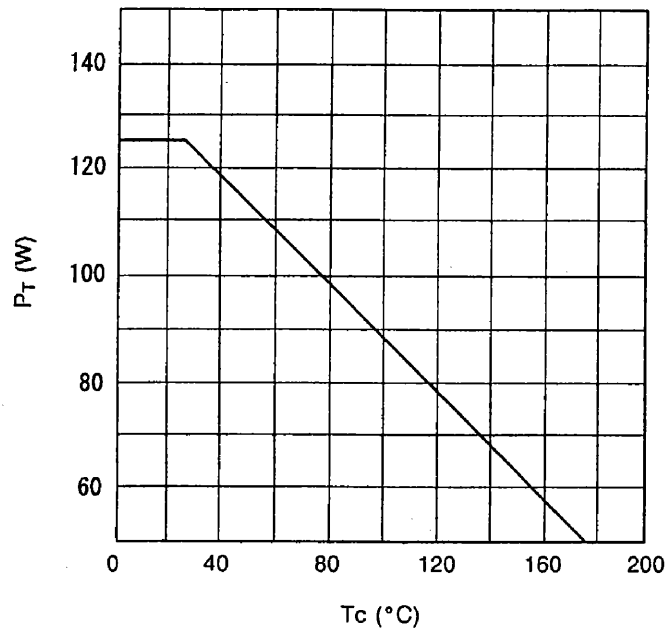


Output Power vs. Input Power

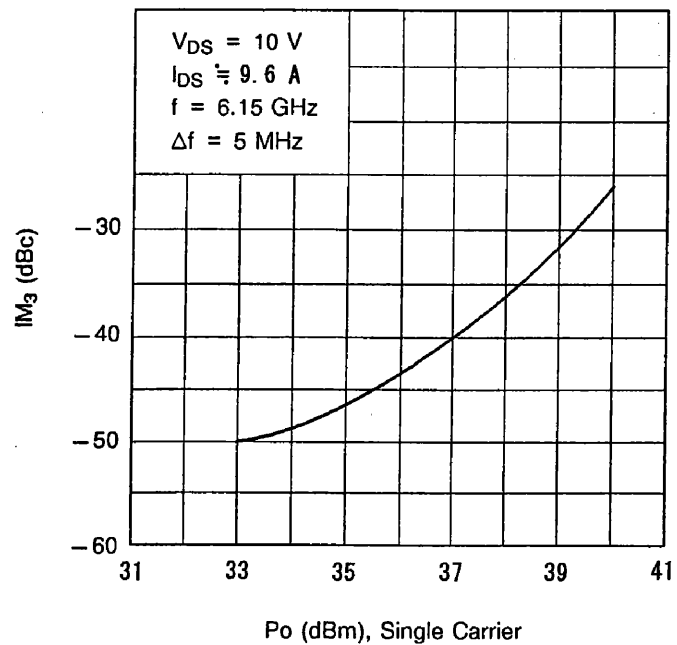


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POWER DISSIPATION VS. CASE TEMPERATURE



IM₃ VS. OUTPUT POWER CHARACTERISTICS

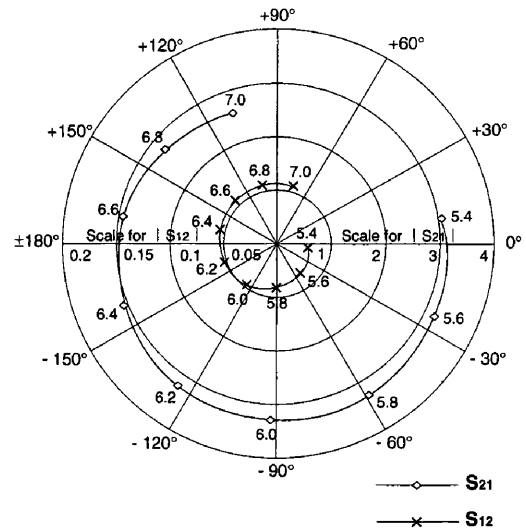
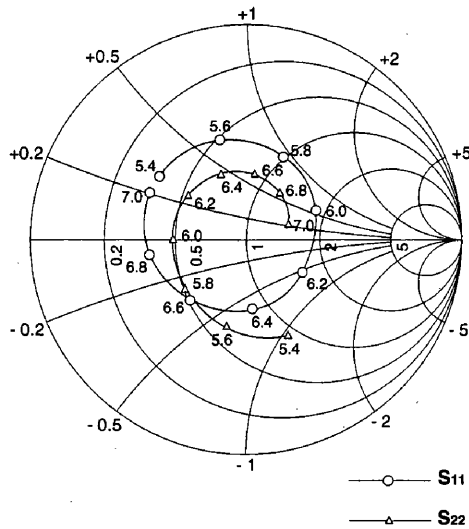


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TIM5964-45SL S-PARAMETERS (MAGN.and ANGLES)

$V_{DS} = 10V, I_{DS} = 9.6A$

$f = 5.4 \sim 7.0GHz$



FREQUENCY (GHz)	S_{11}		S_{21}		S_{12}		S_{22}	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5.4	0.50	144	3.06	9	0.029	-7	0.48	-66
5.6	0.48	105	3.20	-25	0.035	-51	0.41	-103
5.8	0.42	66	3.28	-59	0.041	-90	0.36	-142
6.0	0.35	23	3.29	-92	0.047	-126	0.34	179
6.2	0.30	-30	3.22	-125	0.052	-161	0.34	142
6.4	0.32	-85	3.08	-158	0.055	166	0.33	111
6.6	0.38	-133	2.91	170	0.056	134	0.31	83
6.8	0.45	-171	2.74	140	0.056	104	0.27	55
7.0	0.50	154	2.58	109	0.056	74	0.21	22