MICROWAVE POWER GaAs FET

High Efficiency and Low Distortion Internally Matched Power GaAs FETs (C-Band)

Features

- · Low intermodulation distortion
 - IM_3 = -45 dBc at Po = 31.5 dBm, Single Carrier Level
- · High power
 - P_{1dB} = 42.5 dBm at 5.9 GHz to 6.4 GHz
- · High gain
 - $G_{1dB} = 8.0 \text{ dB}$ at 5.9 GHz to 6.4 GHz
- · Broadband internally matched
- · Hermetically sealed package

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

Characteristic	Symbol	Condition	Unit	Min.	Тур.	Max.
Output Power at 1dB Compression Point	P _{1dB}		dBm	41.5	42.5	-
Power Gain at 1dB Compression Point	G _{1dB}	V _{DS} = 10V	dB	7.0	8.0	-
Drain Current	I _{DS}	f = 5.9 ~ 6.4 GHz	Α	-	4.4	5.0
Gain Flatness	ΔG		dB	-	_	±0.8
Power Added Efficiency	η_{add}		%	-	34	-
3rd Order Intermodulation Distortion	IM ₃	Note 1	dBc	-42	-45	-
Channel-Temperature Rise	ΔT_{ch}	V _{DS} x I _{DS} x R _{th (c-c)}	°C	_	_	80

Electrical Characteristics (T_a = 25°C)

Characteristic	Symbol	Condition	Unit	Min.	Тур.	Max.
Transconductance	gm	$V_{DS} = 3V$ $I_{DS} = 6.0A$	mS	_	3600	-
Pinch-off Voltage	V _{GSoff}	$V_{DS} = 3V$ $I_{DS} = 60 \text{ mA}$	V	-1	-2.5	-4.0
Saturated Drain Current	I _{DSS}	$V_{DS} = 3V$ $V_{GS} = 0V$	Α	-	10.5	14.0
Gate-Source Breakdown Voltage	V_{GSO}	I _{GS} = -200 μA	V	-5	-	-
Thermal Resistance	R _{th (c-c)}	Channel to Case	°C/W	_	1.5	2.0

Note 1: 2-tone Test Pout = 31.5 dBm Single Carrier Level.

The information contained here is subject to change without notice.

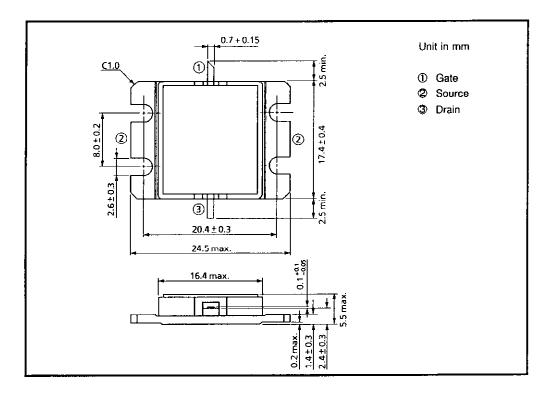
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Absolute Maximum Ratings ($T_a = 25^{\circ}C$)

Characteristic	Symbol	Unit	Rating
Drain-Source Voltage	V_{DS}	V	15
Gate-Source Voltage	V_{GS}	V	-5
Drain Current	I _D	А	14
Total Power Dissipation (T _C = 25°C)	P _T	W	75
Channel Temperature	T _{ch}	°C	175
Storage Temperature	T _{stg}	°C	-65 ~ 175

Package Outline (2-16G1B)

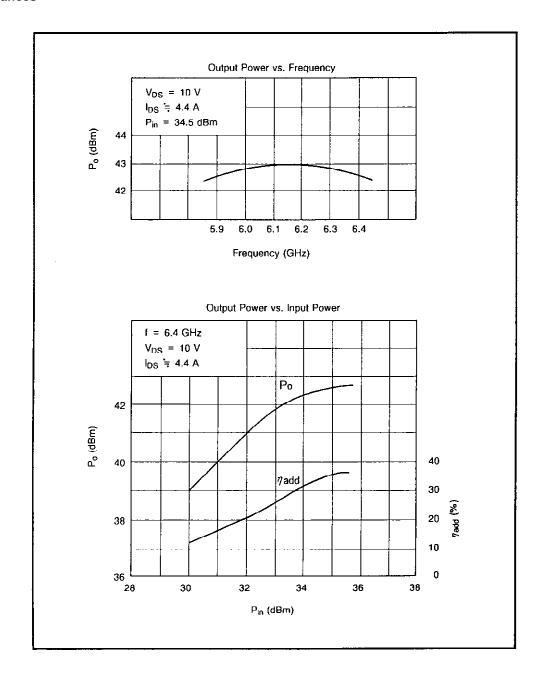


Handling Precautions for Packaged Type

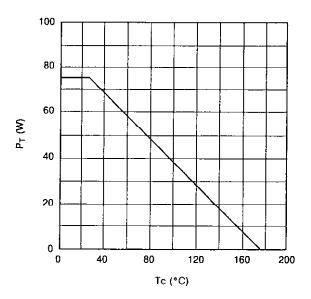
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

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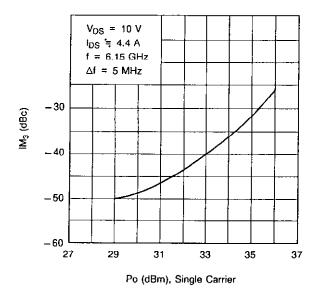
RF Performances



Power Dissipation vs. Case Temperature

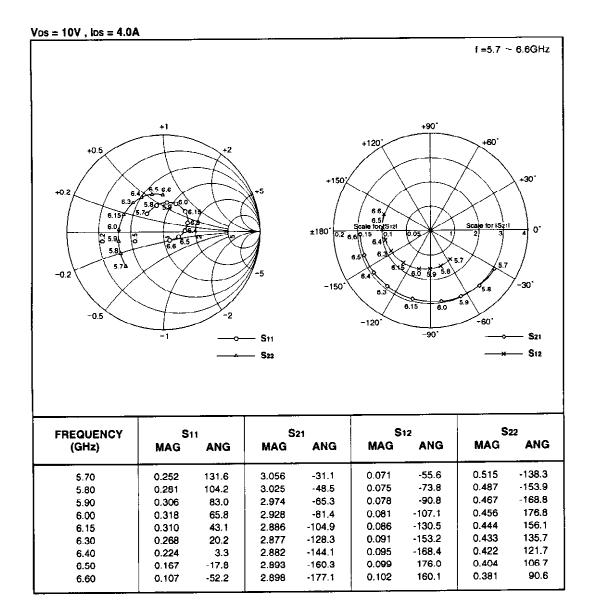


IM₃ vs. Output Power Chacteristics



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TIM5964-16SL S-Parameters (Magn. and Angles)



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