

FEATURES

- **LOW INTERMODULATION DISTORTION**
 IM3=-45 dBc at Pout= 31.5dBm
 Single Carrier Level
- **HIGH POWER**
 P1dB=42.5dBm at 5.9GHz to 6.4GHz
- **HIGH GAIN**
 G1dB=8.0dB at 5.9GHz to 6.4GHz
- **BROAD BAND INTERNALLY MATCHED FET**
- **HERMETICALLY SEALED PACKAGE**

RF PERFORMANCE SPECIFICATIONS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Gain Compression Point	P1dB	VDS= 10V f= 5.9 to 6.4GHz	dBm	41.5	42.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	7.0	8.0	—
Drain Current	IDS1		A	—	4.4	5.0
Gain Flatness	ΔG		dB	—	—	±0.8
Power Added Efficiency	ηadd		%	—	34	—
3 rd Order Intermodulation Distortion	IM3	Two-Tone Test Po=31.5dBm	dBc	-42	-45	—
Drain Current	IDS2	(Single Carrier Level)	A	—	4.4	5.0
Channel Temperature Rise	ΔTch	(VDS X IDS + Pin - P1dB) X Rth(c-c)	°C	—	—	80

Recommended Gate Resistance(Rg): 100 Ω (Max.)

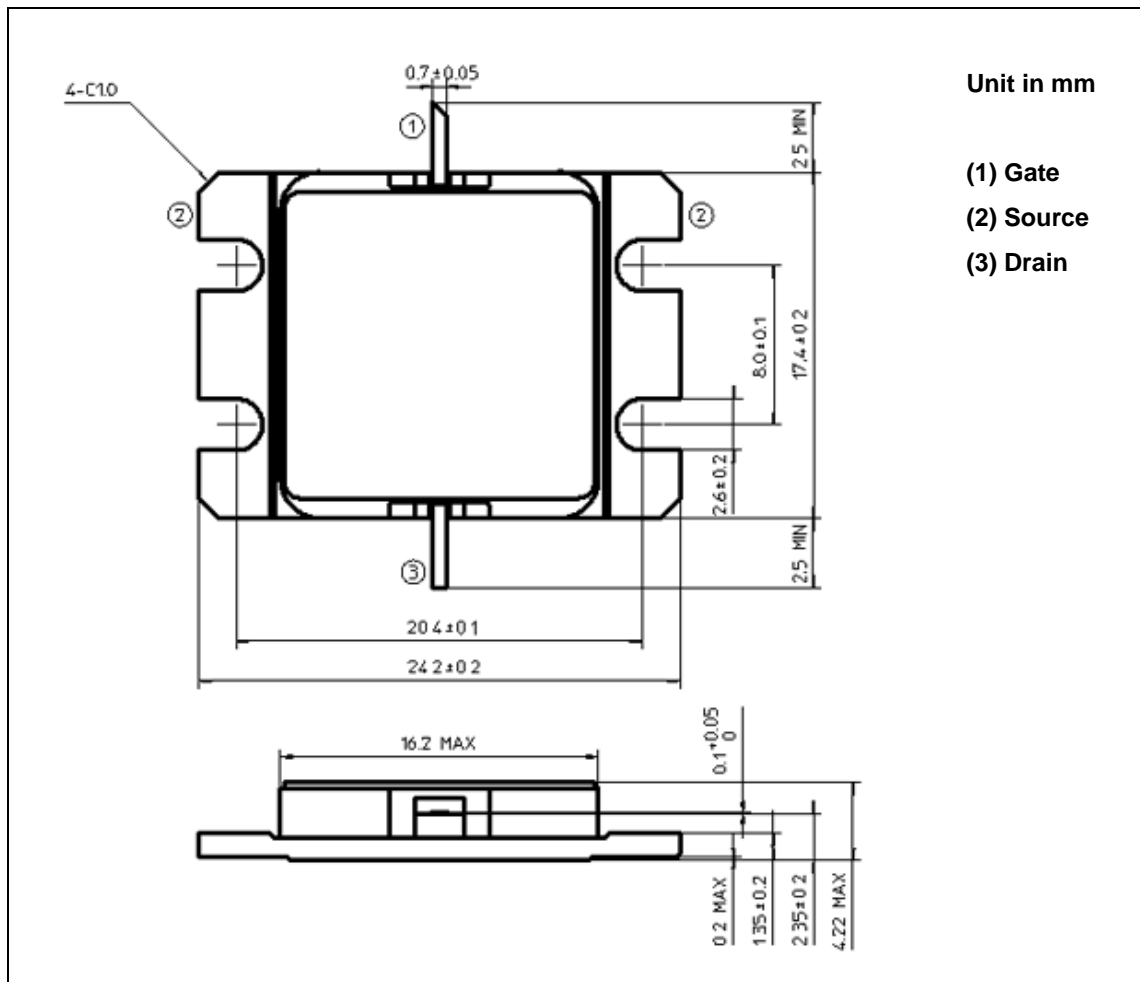
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 6A	mS	—	3600	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 60mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	10.5	—
Gate-Source Breakdown Voltage	VGSO	IGS= -200μA	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	1.5	2.0

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ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

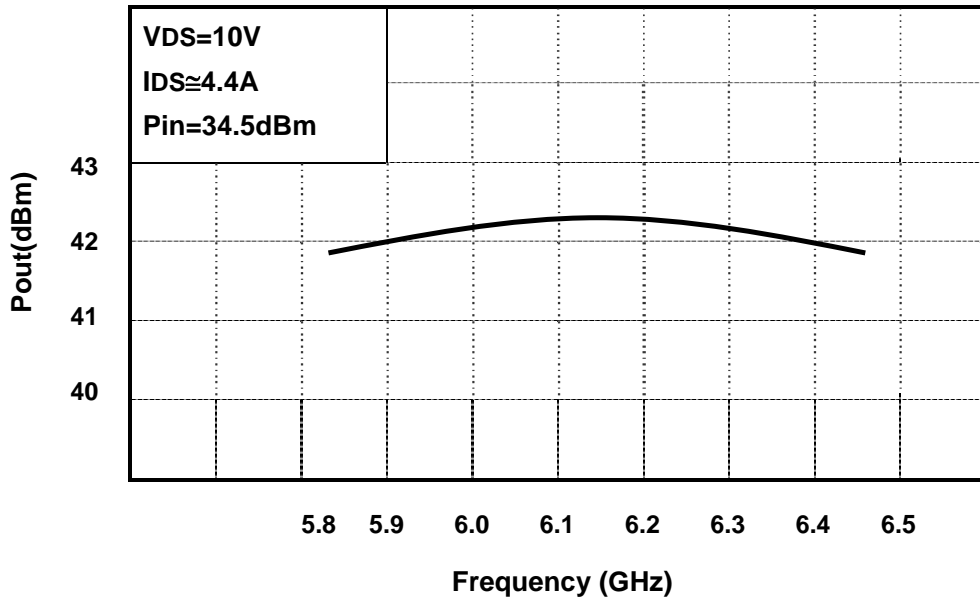
CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	VDS	V	15
Gate-Source Voltage	VGS	V	-5
Drain Current	IDS	A	14.0
Total Power Dissipation (Tc= 25 °C)	PT	W	75.0
Channel Temperature	Tch	°C	175
Storage Temperature	Tstg	°C	-65 to +175

PACKAGE OUTLINE (2-16G1B)**HANDLING PRECAUTIONS FOR PACKAGE MODEL**

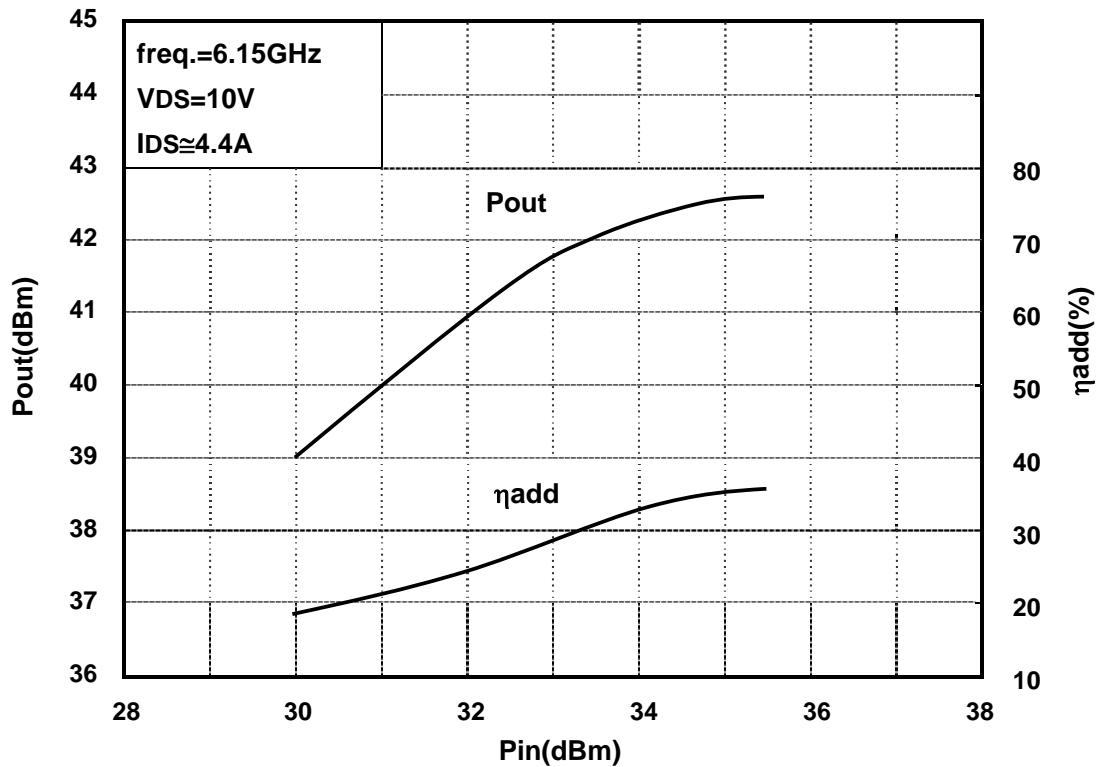
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCE

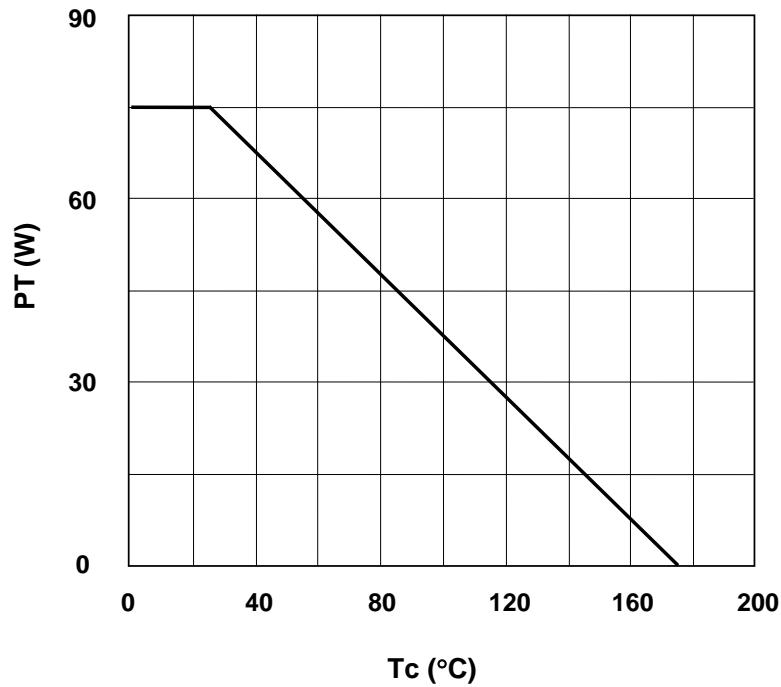
Output Power vs. Frequency



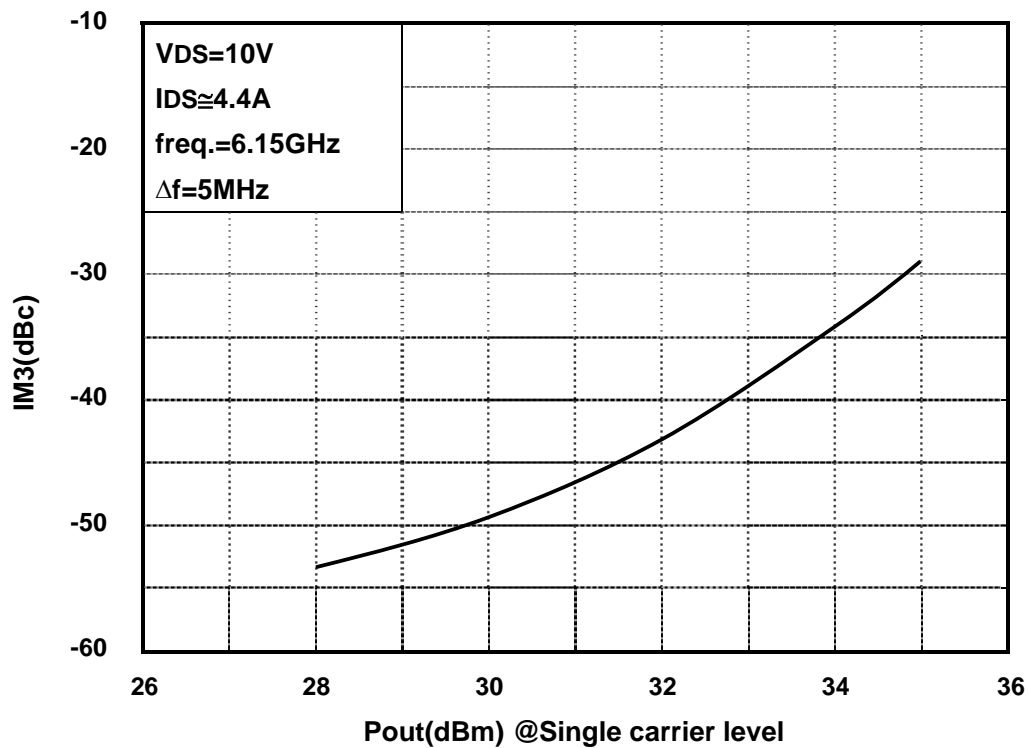
Output Power(Pout) vs. Input Power(Pin)



Power Dissipation vs. Case Temperature



IM3 vs. Output Power Characteristics



TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM5964-16UL

FEATURES

■ HIGH POWER

P1dB=42.5dBm at 5.9GHz to 6.4GHz

■ HIGH GAIN

G1dB=10.0dB at 5.9GHz to 6.4GHz

■ BROAD BAND INTERNALLY MATCHED FET

■ HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Gain Compression Point	P1dB	VDS= 10V f = 5.9 to 6.4GHz	dBm	41.5	42.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	9.0	10.0	—
Drain Current	IDS1		A	—	4.4	5.0
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	ηadd		%	—	36	—
3rd Order Intermodulation Distortion	IM3		Two-Tone Test Po= 31.5dBm	dBc	-44	-47
Drain Current	IDS2	(Single Carrier Level)	A	—	4.4	5.0
Channel Temperature Rise	ΔTch	(VDS X IDS + Pin - P1dB) X Rth(c-c)	°C	—	—	80

Recommended gate resistance(Rg) : Rg= 100 Ω(MAX.)

ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 6.0A	mS	—	3600	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 60mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	10.5	—
Gate-Source Breakdown Voltage	VGSO	IGS= -200μA	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	1.5	1.8

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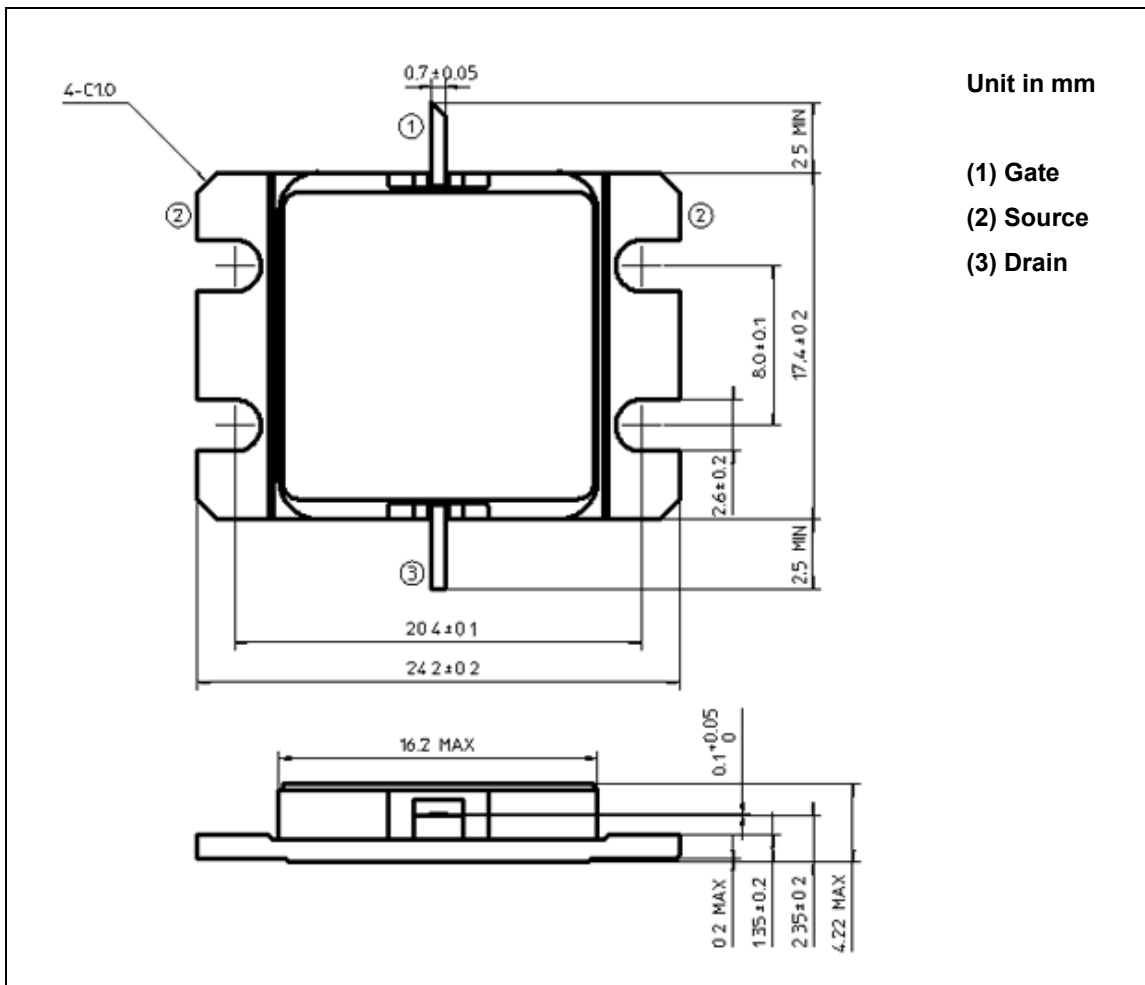
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TOSHIBA CORPORATION

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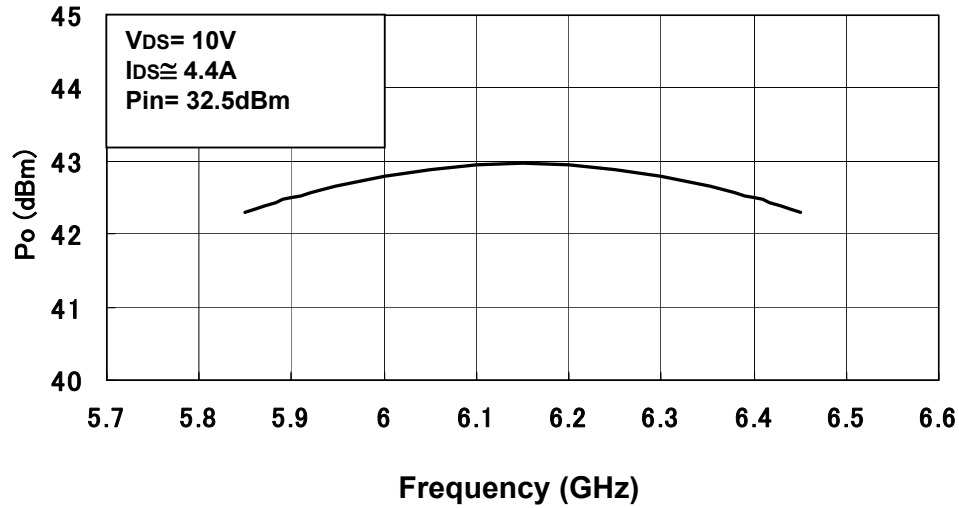
CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	VDS	V	15
Gate-Source Voltage	VGS	V	-5
Drain Current	IDS	A	14
Total Power Dissipation (Tc= 25 °C)	PT	W	83.3
Channel Temperature	Tch	°C	175
Storage	Tstg	°C	-65 to +175

PACKAGE OUTLINE (2-16G1B)**HANDLING PRECAUTIONS FOR PACKAGE MODEL**

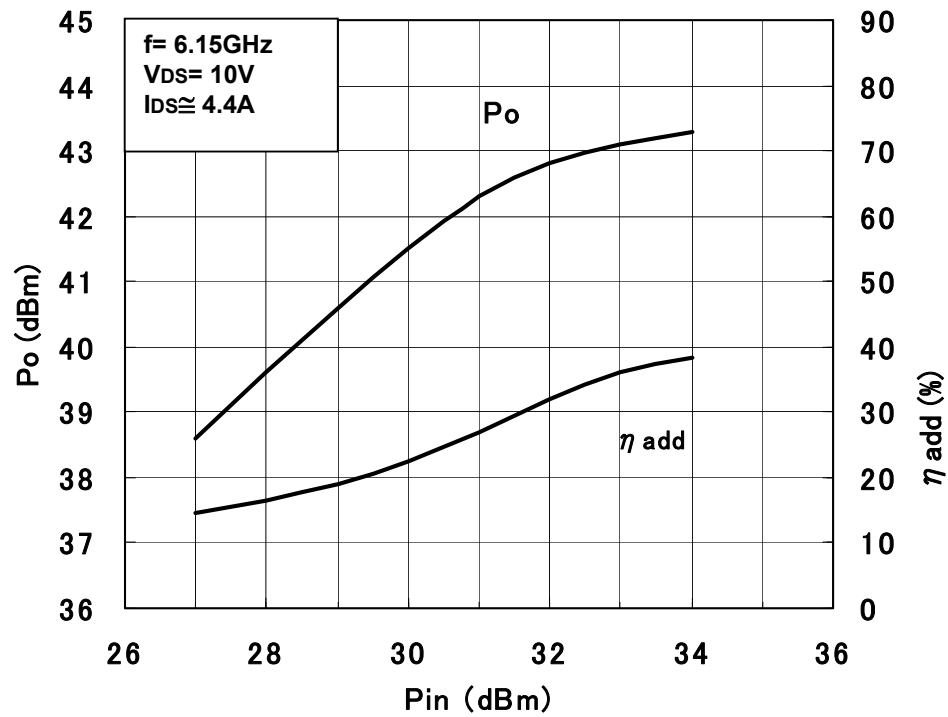
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RF PERFORMANCE

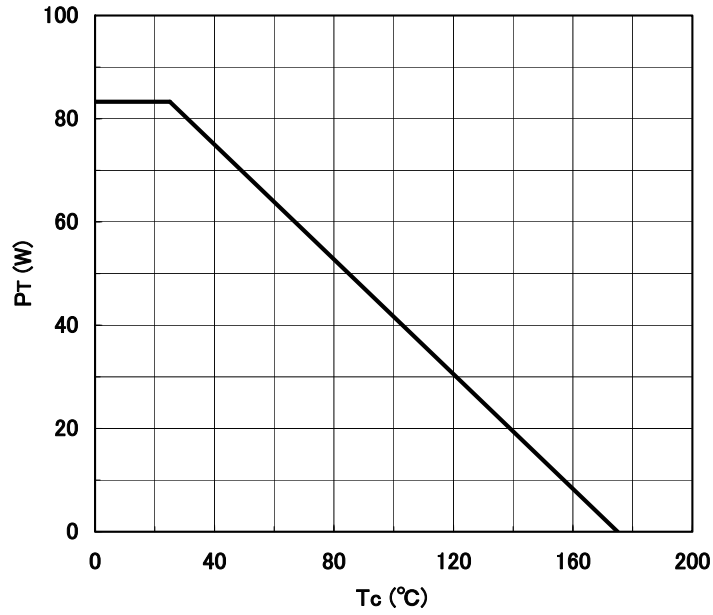
Output Power vs. Frequency



Output Power vs. Input Power



Power Dissipation vs. Case Temperature



IM3 vs. Output Power Characteristics

