

ELM6472-16F

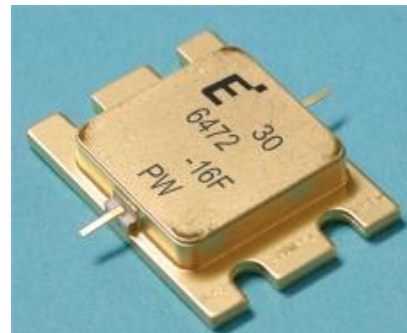
C-Band Internally Matched FET

FEATURES

- High Output Power: P1dB=42.5dBm (Typ)
- High Gain: G1dB=9.5dB (Typ.)
- High PAE: $\eta_{add}=40\%$ (Typ.)
- Broad Band: 6.4~7.2GHz
- Impedance Matched Zin/Zout = 50 Ω
- Hermetically Sealed Package

DESCRIPTION

The ELM6472-16F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 Ω system.



ABSOLUTE MAXIMUM RATING (Ambient Temperature Ta=25 deg-C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	15	V
Gate-Source Voltage	V _{GS}	-5	V
Total Power Dissipation	P _T	46.9	W
Storage Temperature	T _{STG}	-65 to +175	deg-C
Channel Temperature	T _{CH}	175	deg-C

RECOMMENDED OPERATING CONDITION

Item	Symbol	Condition	Limit	Unit
DC Input Voltage	V _{DS}		<10	V
Forward Gate Current	I _{GF}	R _G =51 ohm	<+43.0	mA
Reverse Gate Current	I _{GR}	R _G =51 ohm	>-11.0	mA
Storage Temperature	T _{STG}		-55 to +125	deg-C
Channel Temperature	T _{CH}		155	deg-C

ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25 deg-C)

Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Drain Current	I _{DSS}	V _{DS} =5V, V _{GS} =0V	-	7.6	11.4	A
Trans conductance	gm	V _{DS} =5V, I _{DS} =4200mA	-	5	-	S
Pinch-off Voltage	V _P	V _{DS} =5V, I _{DS} =300mA	-0.5	-1.5	-3.0	V
Gage-Source Breakdown Voltage	V _{GS0}	I _{GS} =85uA	-5.0	-	-	V
Output Power at 1dB G.C.P	P _{1dB}	V _{DS} =10V I _{DSDC} =2.8A(Typ.) f=6.4~7.2 GHz	41.5	42.5	-	dBm
Power Gain at 1dB G.C.P	G _{1dB}		8.5	9.5	-	dB
Drain Current	I _{dsr}		-	4.0	5.0	A
Power added Efficiency	η_{add}		-	40	-	%
Gain Flatness	ΔG		-	-	1.2	dB
3 rd Order Inter modulation Distortion	IM ₃	f=7.2GHz Δf =10MHz, 2-tone Test Pout=31.5dBm (S.C.L)	-40	-45	-	dBc
R _{th}	R _{th}	Channel to Case	-	2.7	3.2	Deg-C/W
ΔT_{ch}	ΔT_{ch}	(V _{DS} × I _{dsr} - P _{out} + P _{in}) × R _{th}	-	-	100	Deg-C

CASE STYLE: I2C

ESD	Class 3 A	4000-8000V
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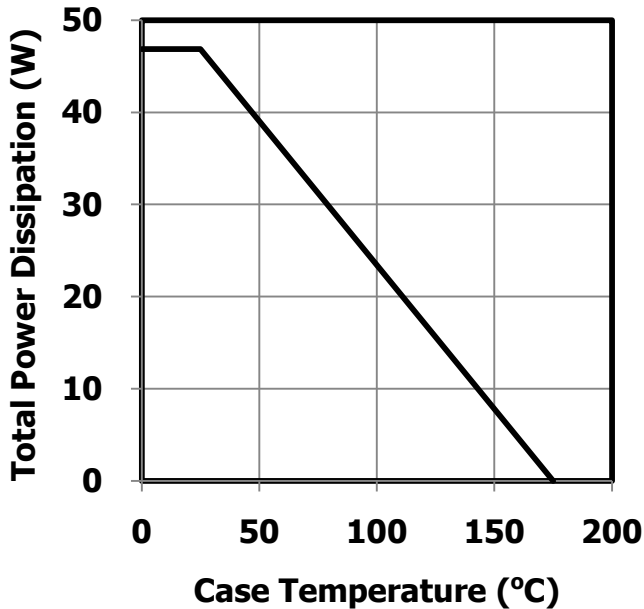
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- RF Characteristics

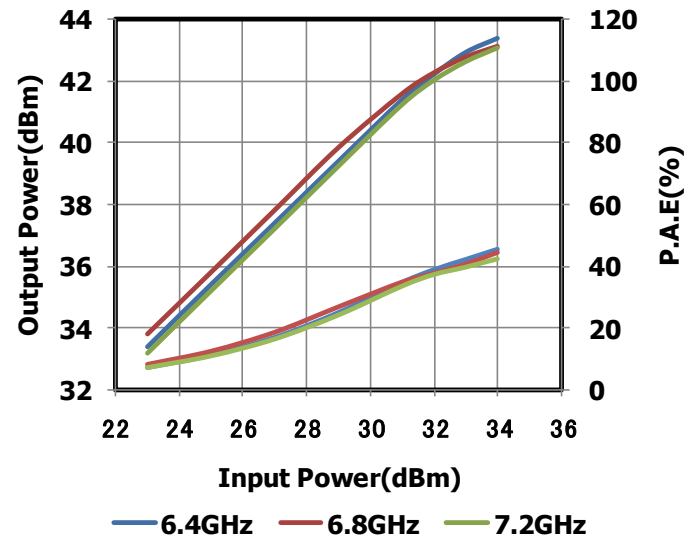


Power Derating Curve



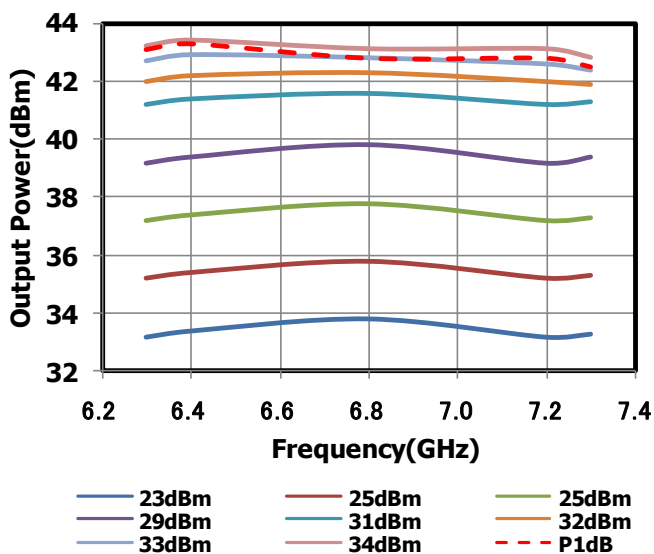
Input Power vs. Output Power, Power Added Efficiency

$V_{DS}=10V, I_{DS(DC)}=2.8A$



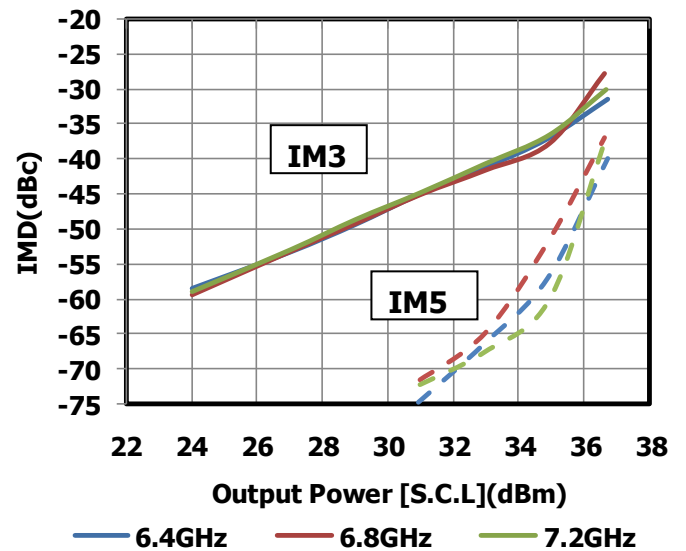
Output Power vs. Frequency

$V_{DS}=10V, I_{DS(DC)}=2.8A$



IMD vs. Output Power

$V_{DS}=10V, I_{DS(DC)}=2.8A$



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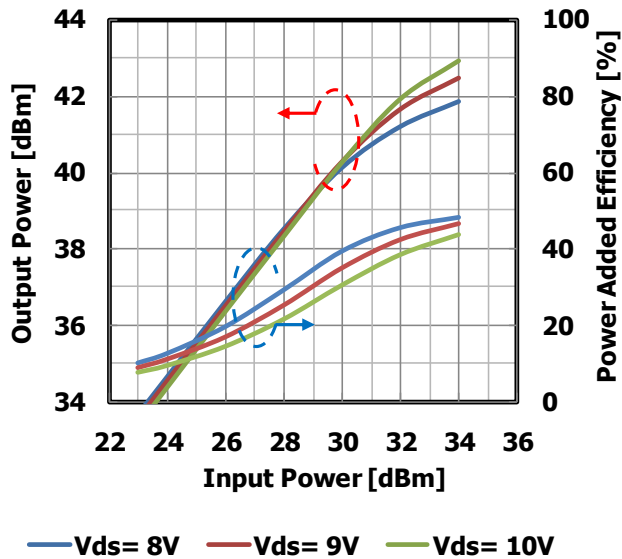
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Input Power vs. Output Power, Power Added

Efficiency by Drain Voltage

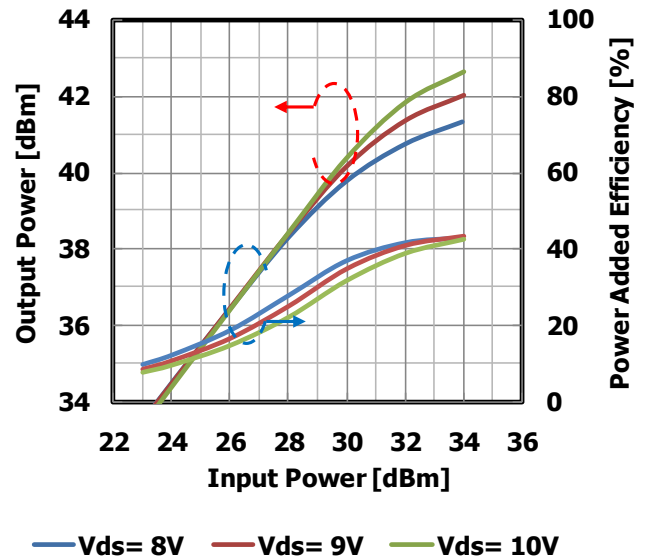
$I_{DS(DC)} = 2800\text{mA}$ @6.4GHz



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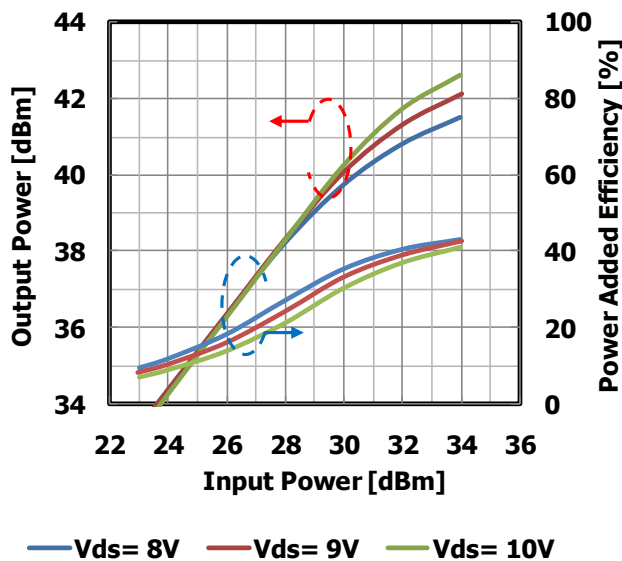
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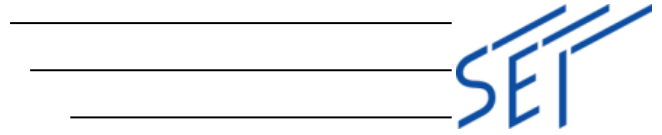
Efficiency by Drain Voltage

$I_{DS(DC)} = 2800\text{mA}$ @7.2GHz



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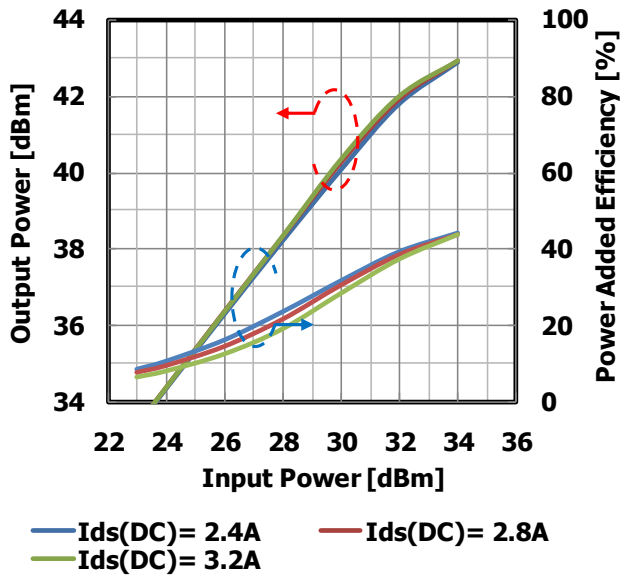
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Input Power vs. Output Power, Power Added

Efficiency by Quiescent Drain Current

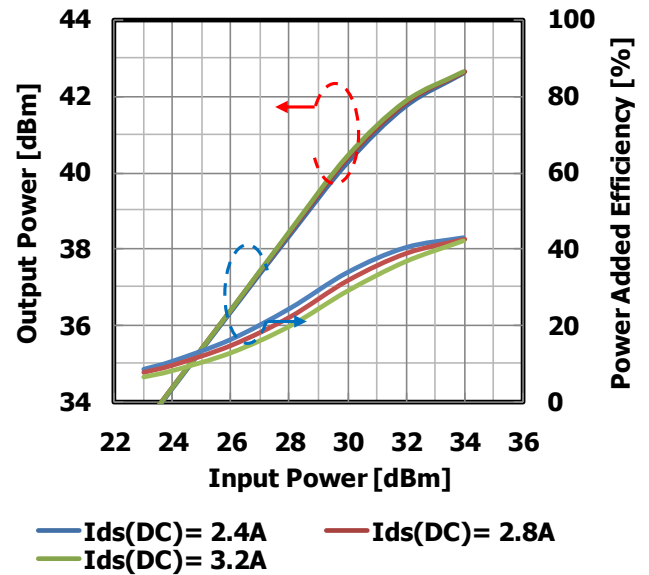
$V_{DS}=10V$ @6.4GHz



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Efficiency by Quiescent Drain Current

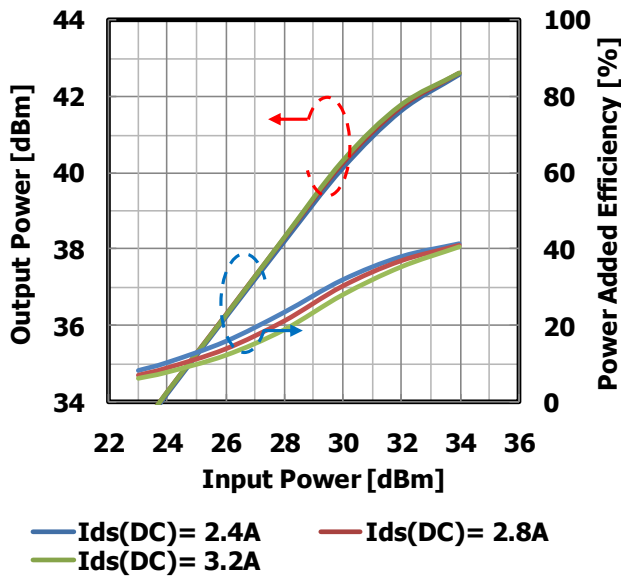
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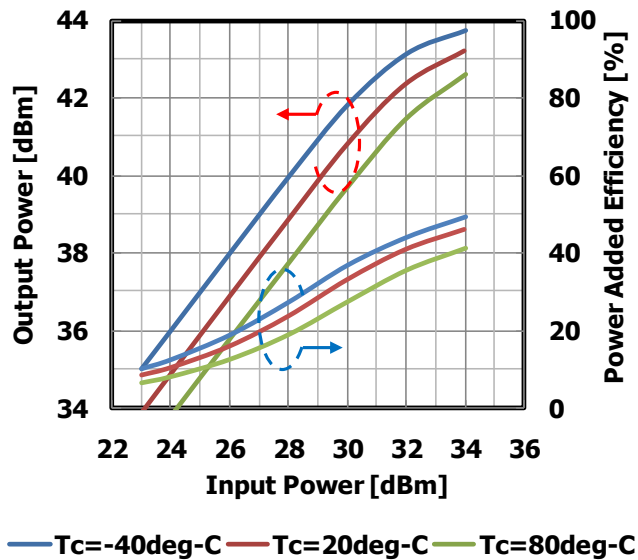
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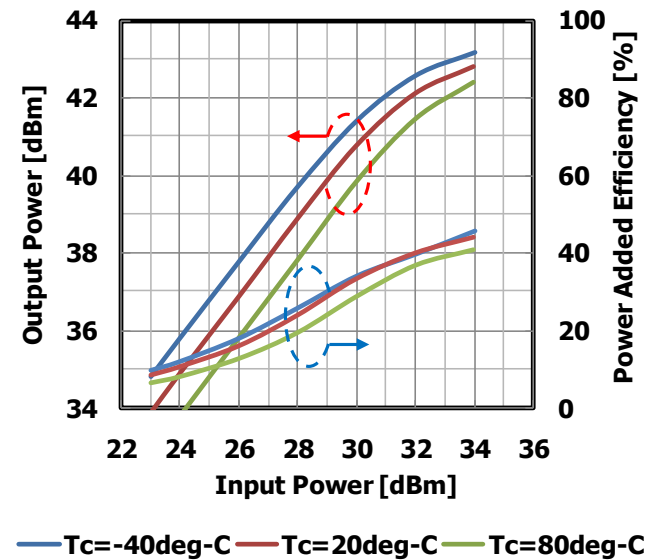
Input Power vs. Output Power, Power Added
Efficiency by Temperature

$V_{DS}=10V$ $I_{DS(DC)}=2800mA$ @6.4GHz



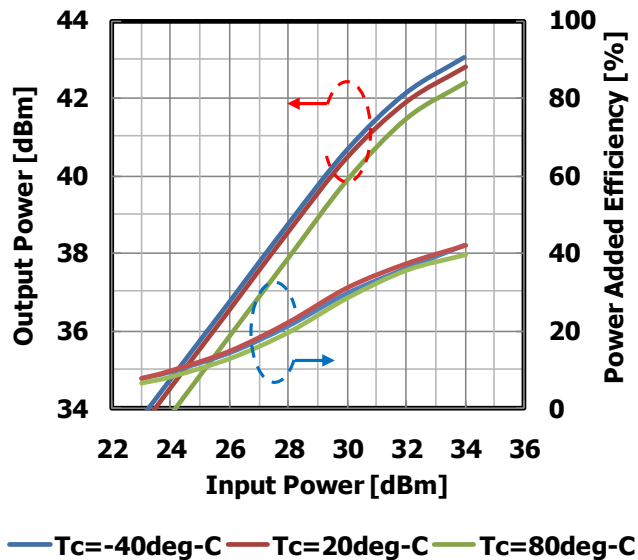
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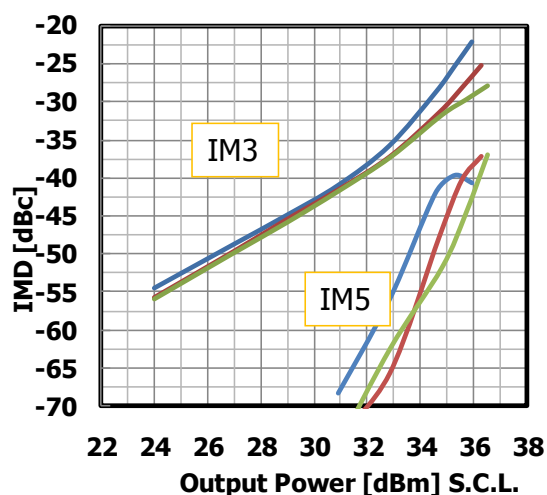


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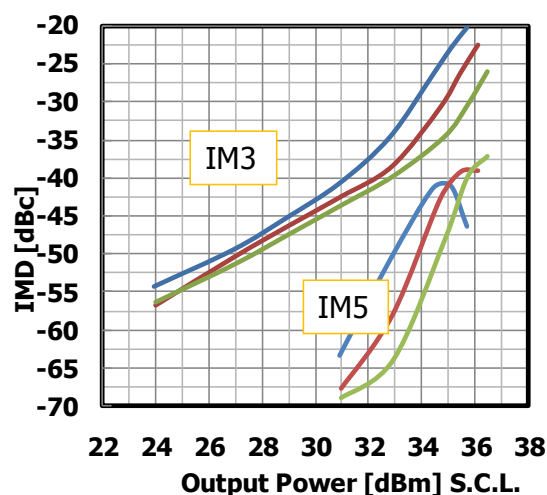
IMD Performance vs. Output Power by
Drain Voltage

$I_{DS(DC)} = 2800\text{mA}$ @6.4GHz



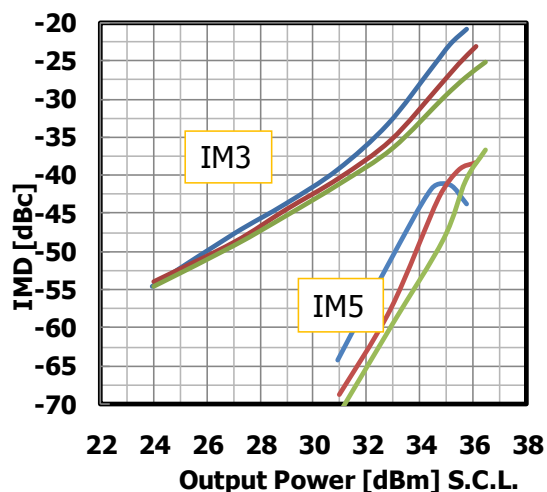
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IMD Performance vs. Output Power by Drain
Voltage

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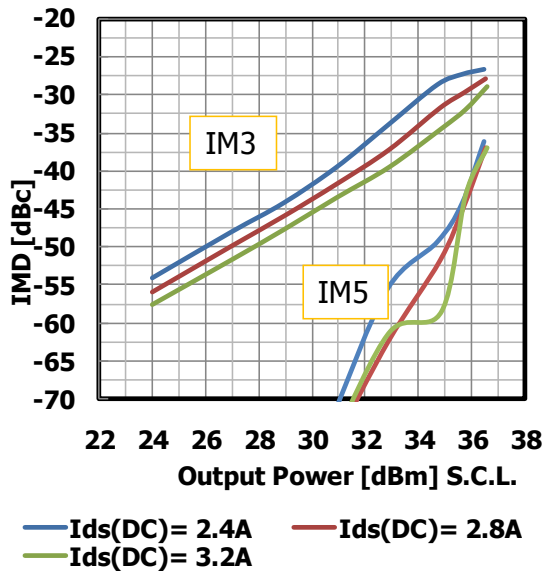


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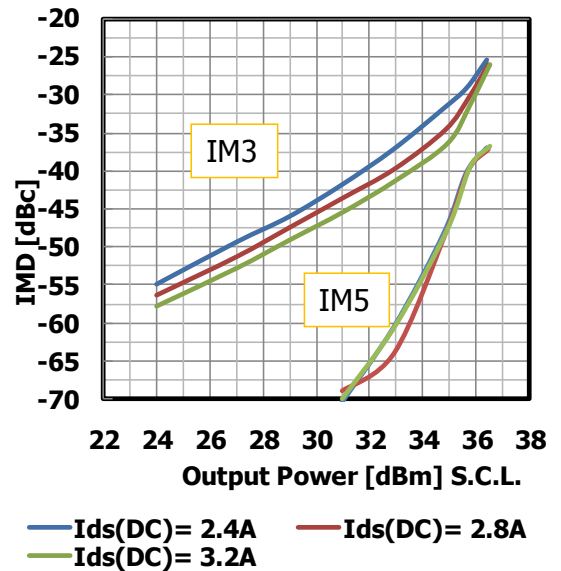
IMD Performance vs. Output Power by
Quiescent Drain Current

$V_{DS}=10V$ @6.4GHz



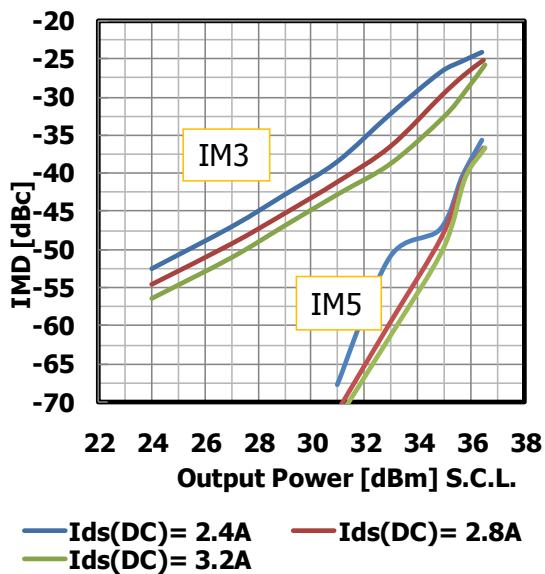
IMD Performance vs. Output Power by
Quiescent Drain Current

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Quiescent Drain Current

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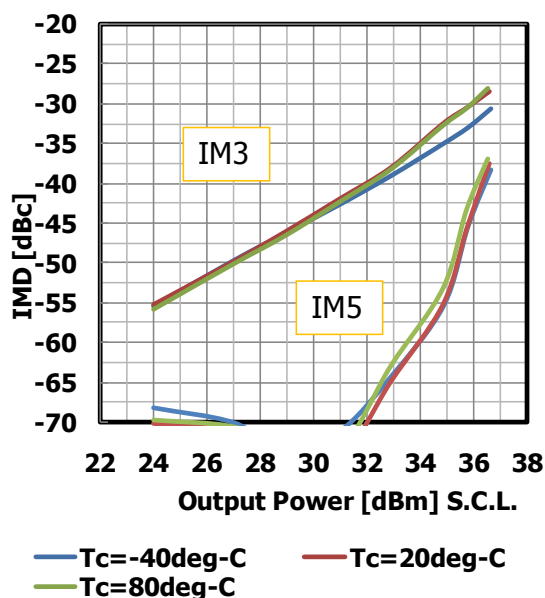
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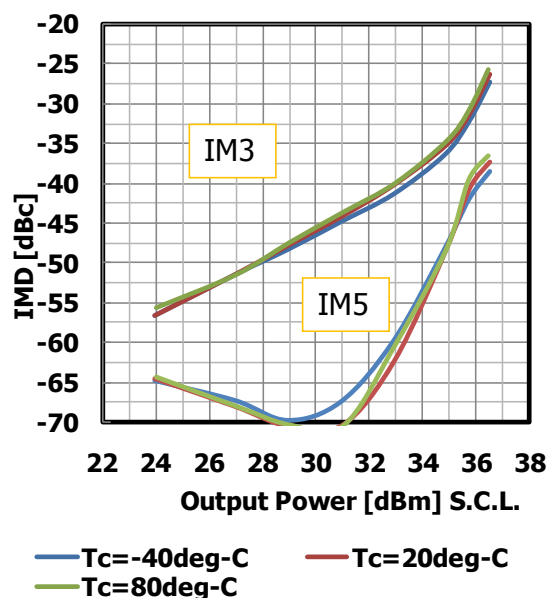
IMD Performance vs. Output Power by Temperature

$V_{DS}=10V$ $I_{DS(DC)}=2800mA$ @6.4GHz



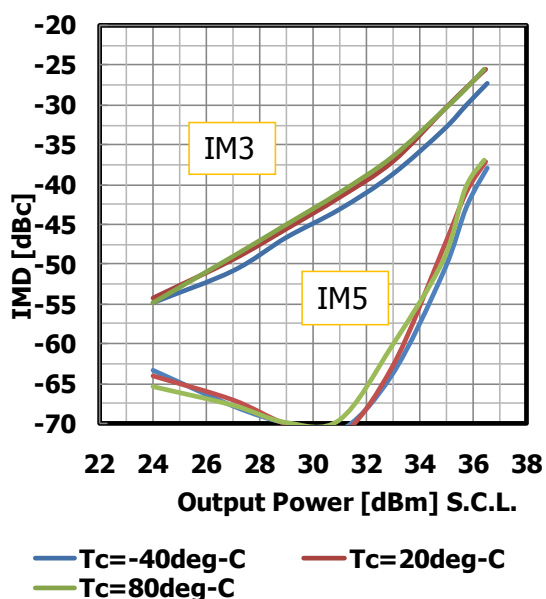
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IMD Performance vs. Output Power by Temperature

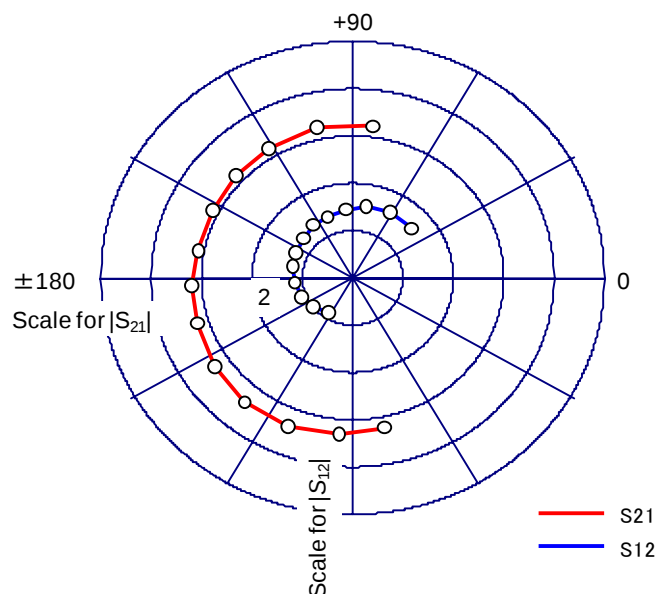
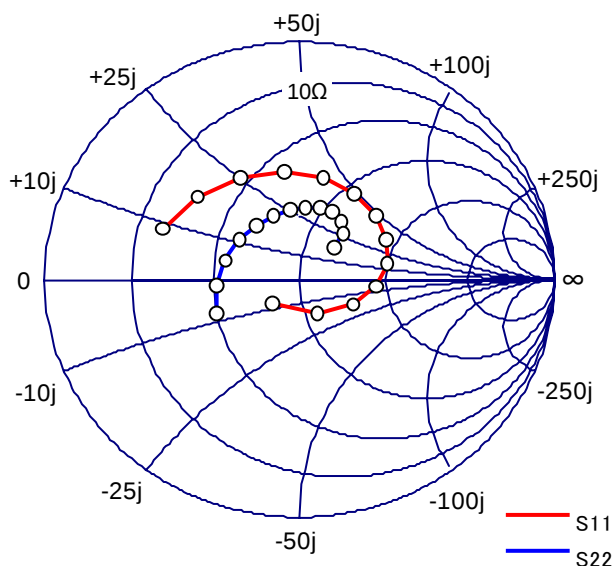
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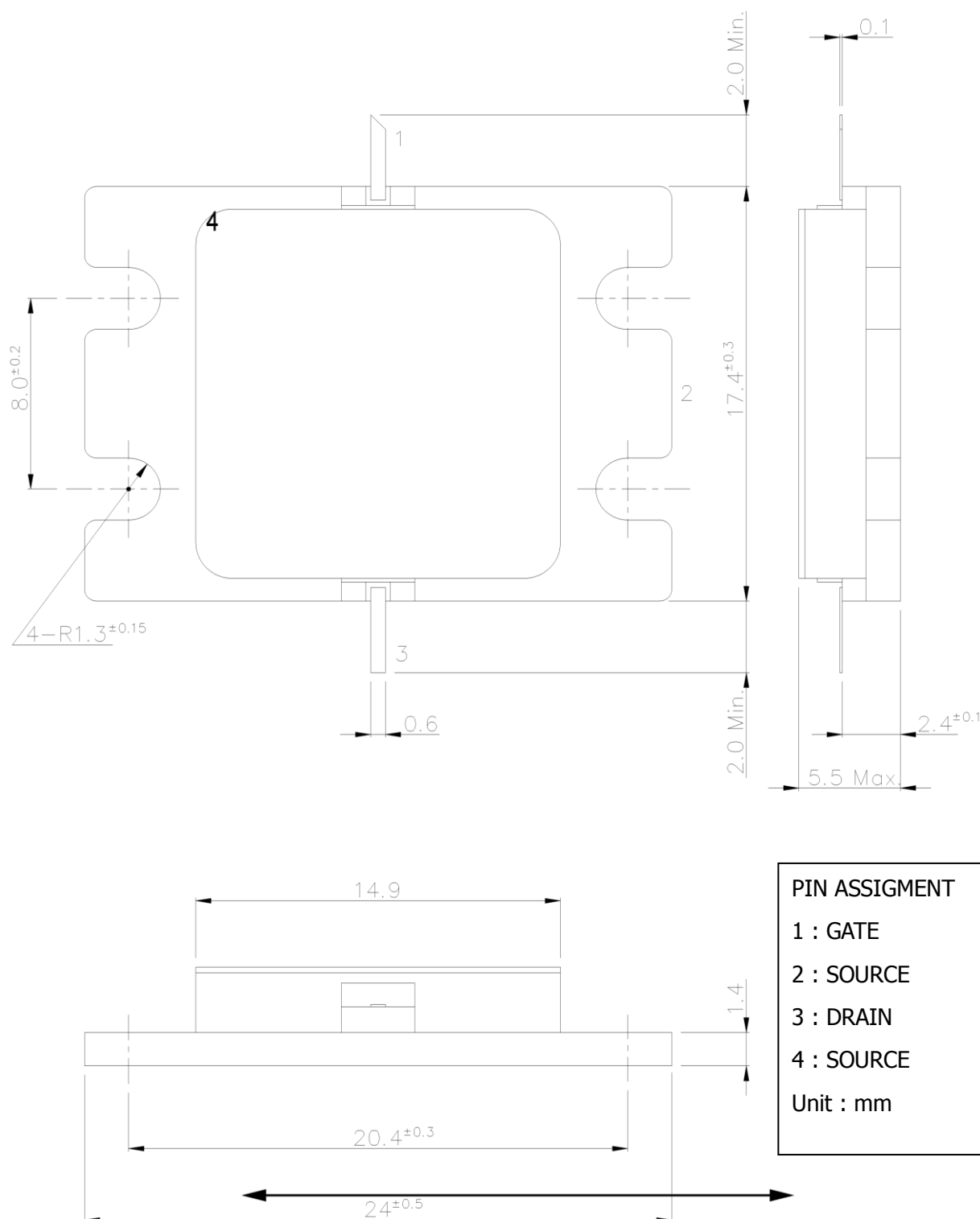
● S-Parameter

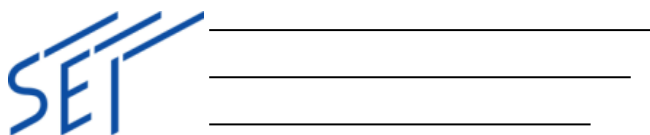


Frequency (MHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
6200	0.576	158.2	3.229	-78.7	0.053	-122.1	0.357	-156.1
6300	0.529	139.0	3.313	-94.5	0.059	-142.4	0.326	-175.3
6400	0.488	118.4	3.394	-112.3	0.065	-158.1	0.301	164.5
6500	0.458	97.5	3.394	-129.2	0.069	-174.6	0.288	144.8
6600	0.436	77.5	3.318	-145.8	0.073	168.3	0.283	126.4
6700	0.419	58.8	3.235	-162.7	0.074	155.0	0.288	110.4
6800	0.403	42.1	3.206	-177.2	0.077	139.8	0.297	96.9
6900	0.382	26.5	3.118	169.2	0.082	124.7	0.305	85.5
7000	0.351	11.4	3.114	152.7	0.083	111.1	0.314	75.0
7100	0.302	-5.3	3.168	137.1	0.087	95.7	0.312	65.4
7200	0.236	-26.2	3.204	121.2	0.093	80.0	0.295	56.1
7300	0.158	-63.0	3.259	102.4	0.094	61.8	0.257	48.1
7400	0.146	-134.9	3.228	83.0	0.094	41.9	0.192	43.5



Case Style: IK





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