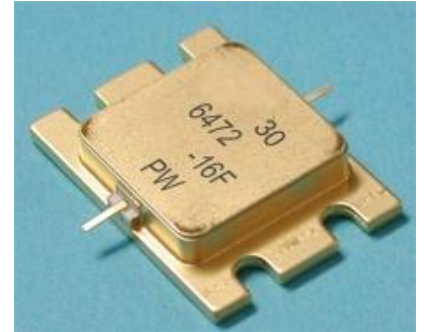


### FEATURES

- High Output Power: P<sub>1dB</sub>=42.5dBm (Typ.)
- High Gain: G<sub>1dB</sub>=9.5dB (Typ.)
- High PAE: η<sub>add</sub>=40 % (Typ.)
- Broad Band: 6.4 to 7.2GHz
- Impedance Matched Z<sub>in</sub>/Z<sub>out</sub> = 50ohm
- 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 50ohm system.



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

Item	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DS</sub>	15	V
Gate-Source Voltage	V <sub>GS</sub>	-5	V
Total Power Dissipation	P <sub>T</sub>	46.9	W
Storage Temperature	T <sub>STG</sub>	-65 to +175	deg.C
Channel Temperature	T <sub>CH</sub>	175	deg.C

### RECOMMENDED OPERATING CONDITION (Case Temperature TC = 25deg.C)

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

### ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25 deg.C)

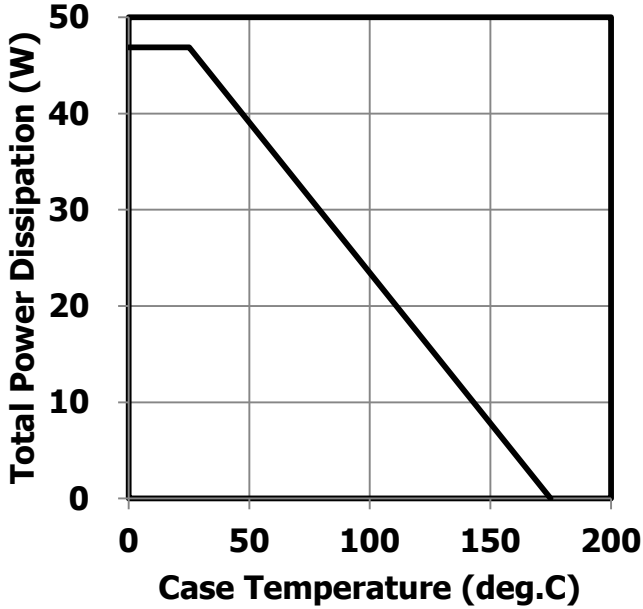
Item	Symbol	Condition	Limit			Unit	
			Min.	Typ.	Max.		
Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =0V	-	7.6	11.4	A	
Trans conductance	gm	V <sub>DS</sub> =5V, I <sub>DS</sub> =4200mA	-	5	-	S	
Pinch-off Voltage	V <sub>P</sub>	V <sub>DS</sub> =5V, I <sub>DS</sub> =300mA	-0.5	-1.5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

### CASE STYLE: IK

ESD	Class 3 A	4000 to 8000V
Note: Based on JEDEC JESD22-A114(C=100pF, R=1500ohm)		
RoHS COMPLIANCE	Yes	

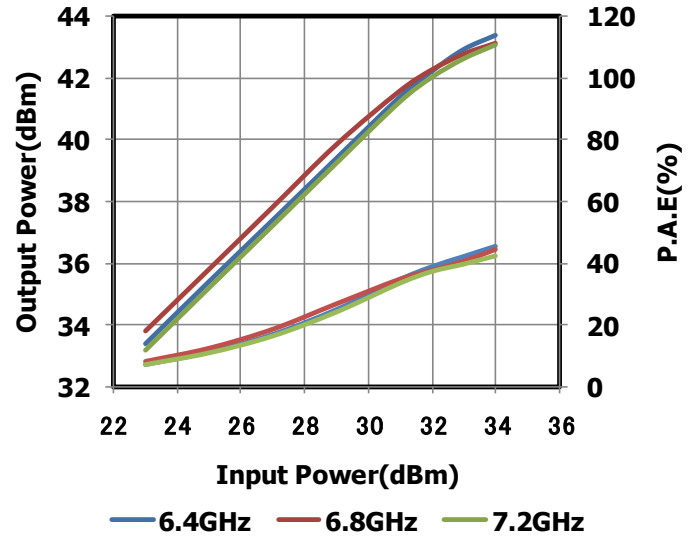
- RF Characteristics

### Power Derating Curve



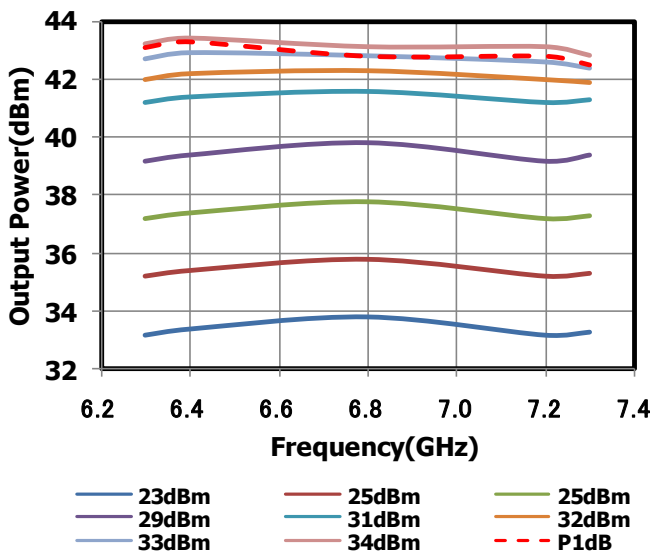
### Input Power vs. Output Power, Power Added Efficiency

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



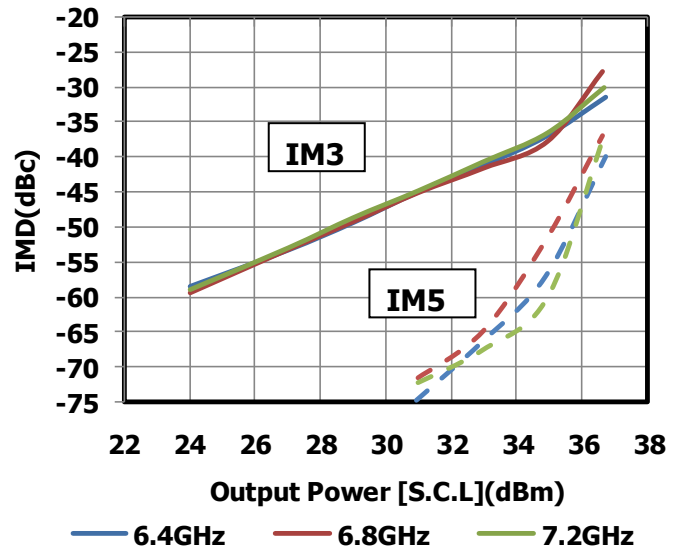
### Output Power vs. Frequency

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



### IMD vs. Output Power

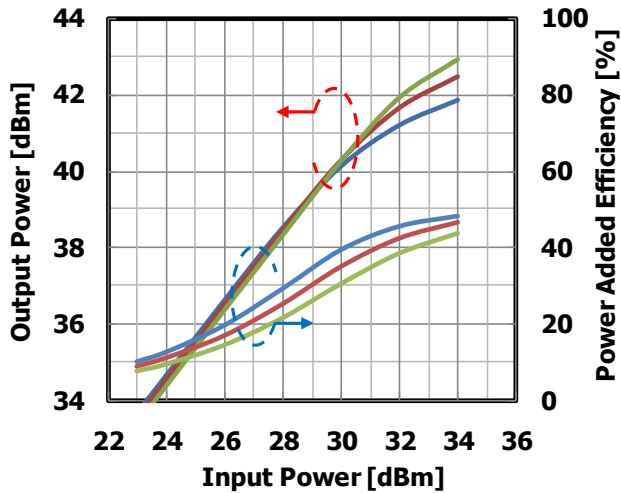
$V_{DS}=10V, I_{DS(DC)}=2.8A$



### Input Power vs. Output Power, Power Added

#### Efficiency by Drain Voltage

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

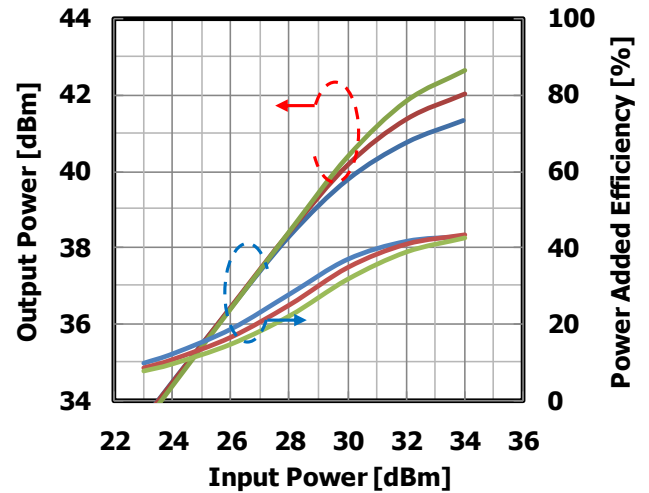


— Vds= 8V — Vds= 9V — Vds= 10V

### Input Power vs. Output Power, Power Added

#### Efficiency by Drain Voltage

$I_{DS(DC)} = 2800\text{mA}$  @6.8GHz

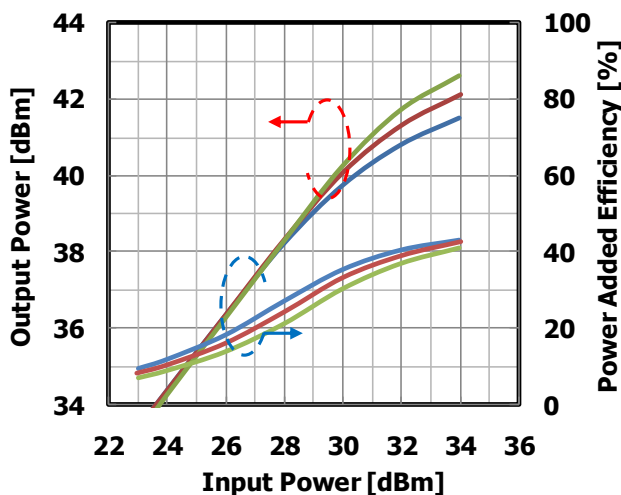


— Vds= 8V — Vds= 9V — Vds= 10V

### Input Power vs. Output Power, Power Added

#### Efficiency by Drain Voltage

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

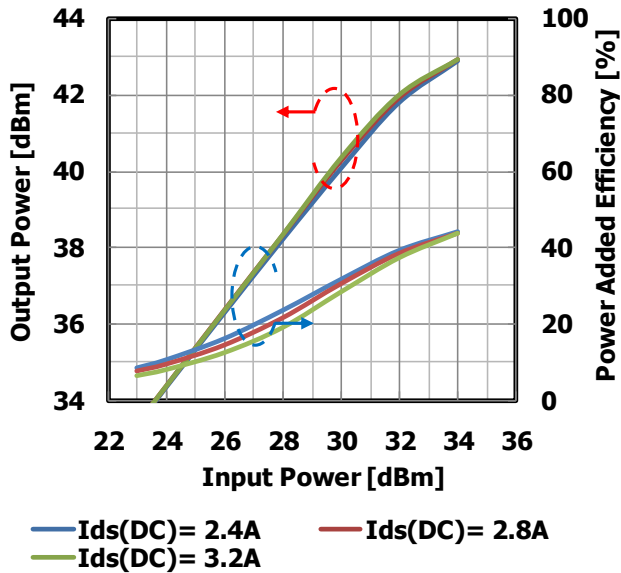


— Vds= 8V — Vds= 9V — Vds= 10V

### Input Power vs. Output Power, Power Added

#### Efficiency by Quiescent Drain Current

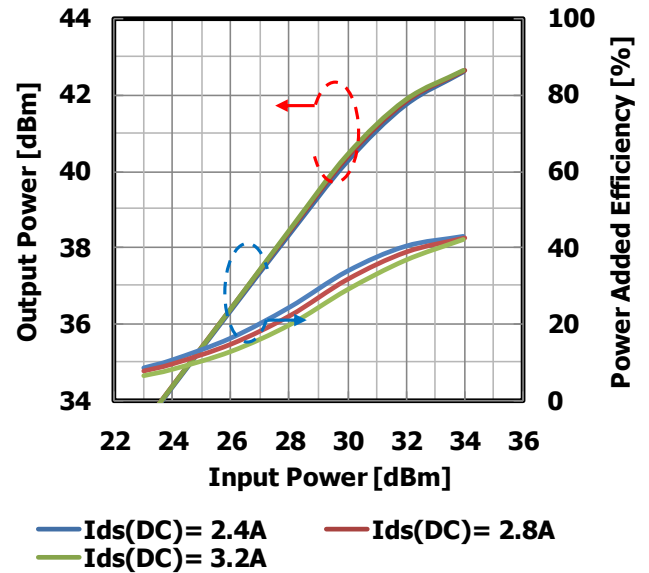
$V_{DS}=10V$  @6.4GHz



### Input Power vs. Output Power, Power Added

#### Efficiency by Quiescent Drain Current

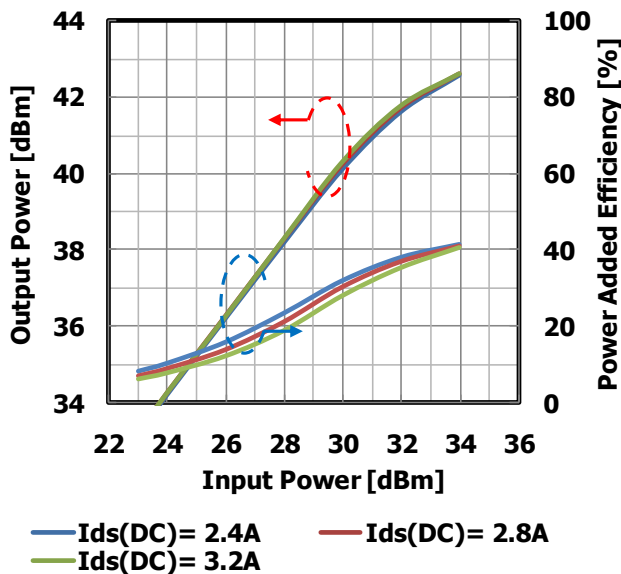
$V_{DS}=10V$  @6.8GHz



### Input Power vs. Output Power, Power Added

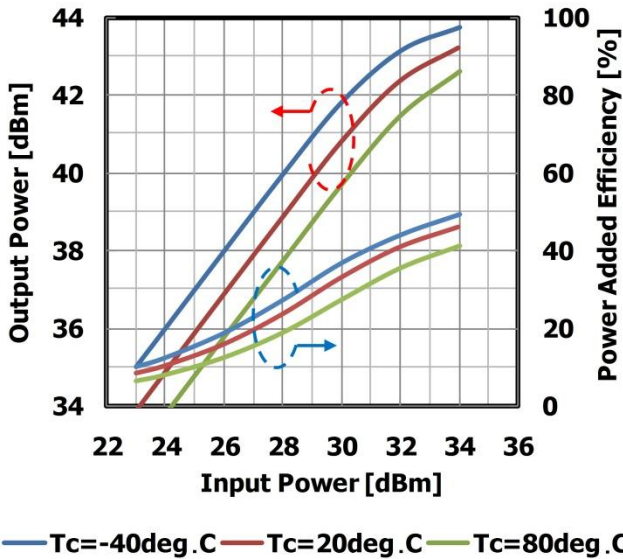
#### Efficiency by Quiescent Drain Current

$V_{DS}=10V$  @7.2GHz



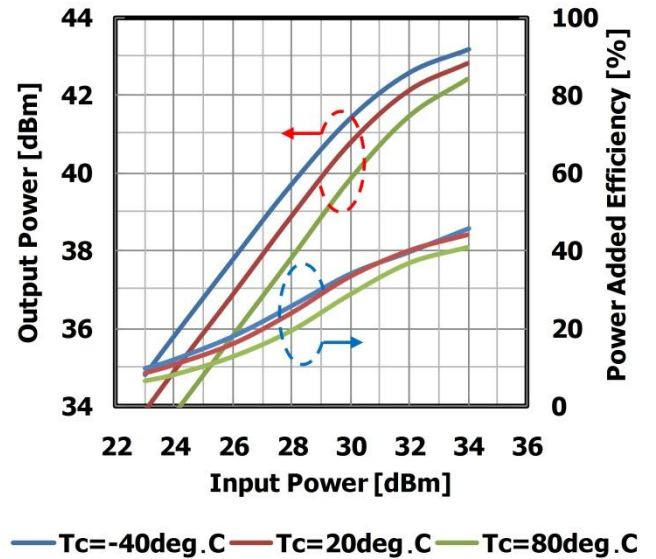
**Input Power vs. Output Power, Power Added Efficiency by Temperature**

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



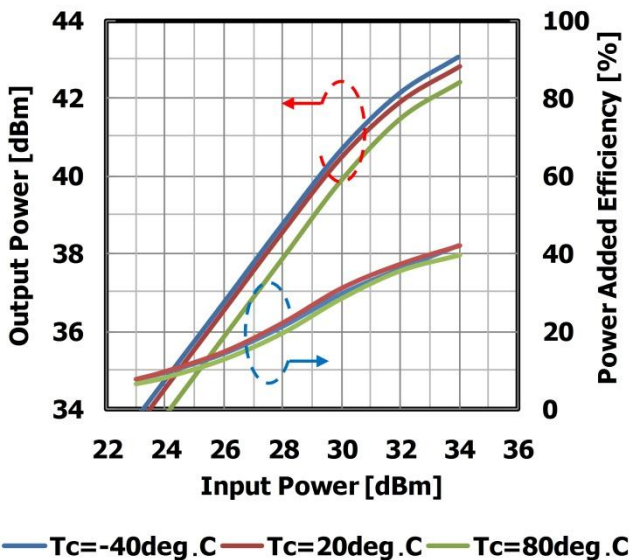
**Input Power vs. Output Power, Power Added Efficiency by Temperature**

$V_{DS}=10V$   $I_{DS(DC)}=2800mA$  @6.8GHz



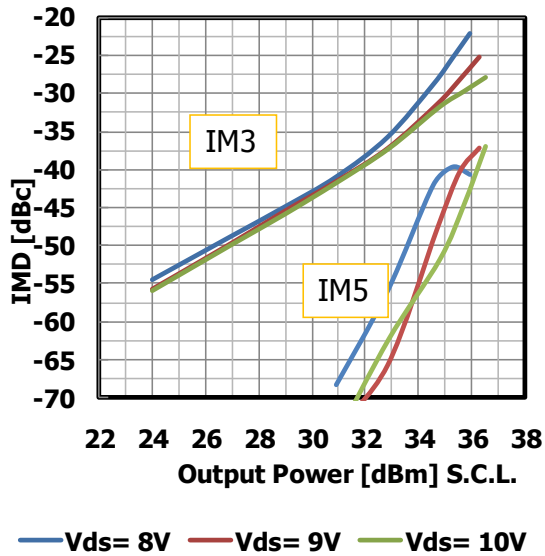
**Input Power vs. Output Power, Power Added Efficiency by Temperature**

$V_{DS}=10V$   $I_{DS(DC)}=2800mA$  @7.2GHz



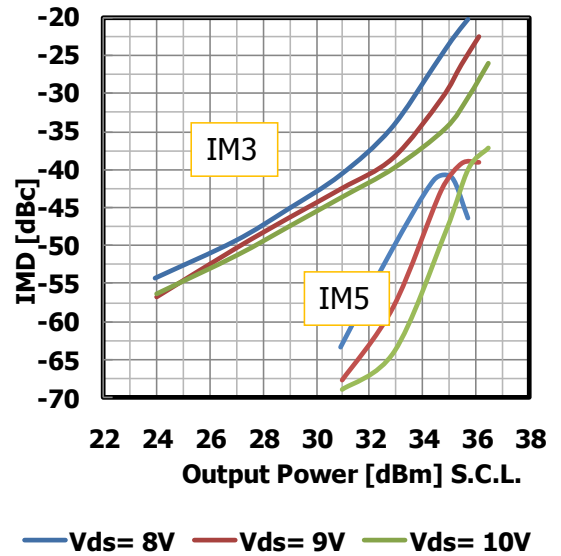
### IMD Performance vs. Output Power by Drain Voltage

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



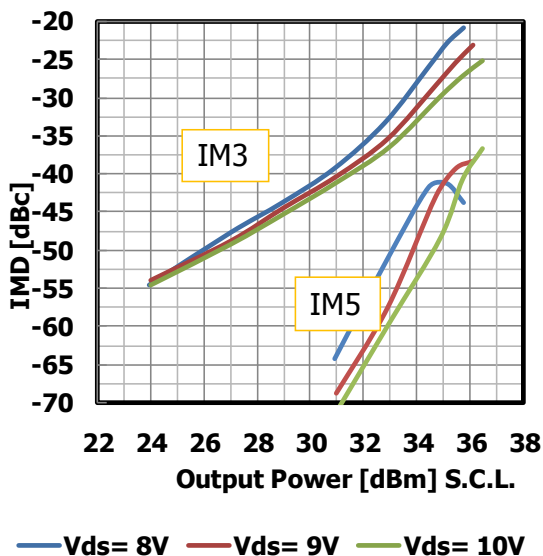
### IMD Performance vs. Output Power by Drain Voltage

$I_{DS(DC)} = 2800\text{mA}$  @6.8GHz



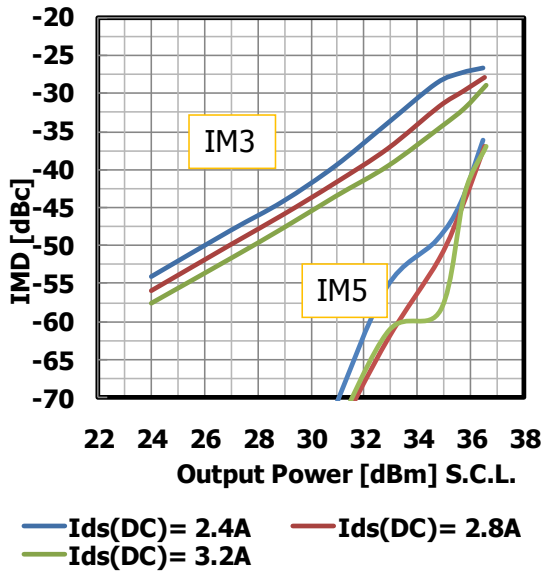
### IMD Performance vs. Output Power by Drain Voltage

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



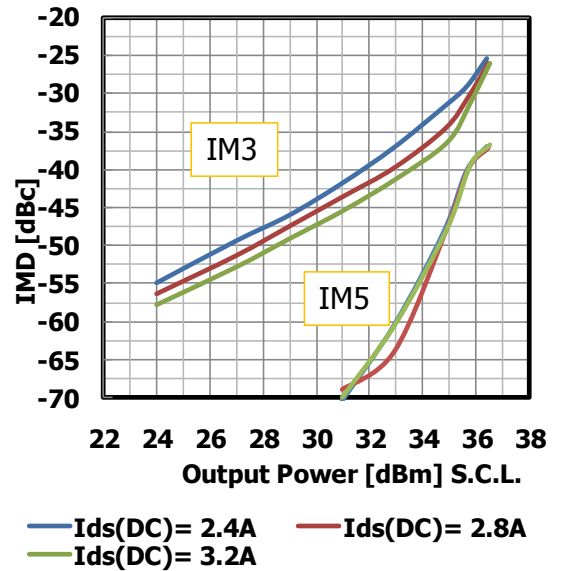
### IMD Performance vs. Output Power by Quiescent Drain Current

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



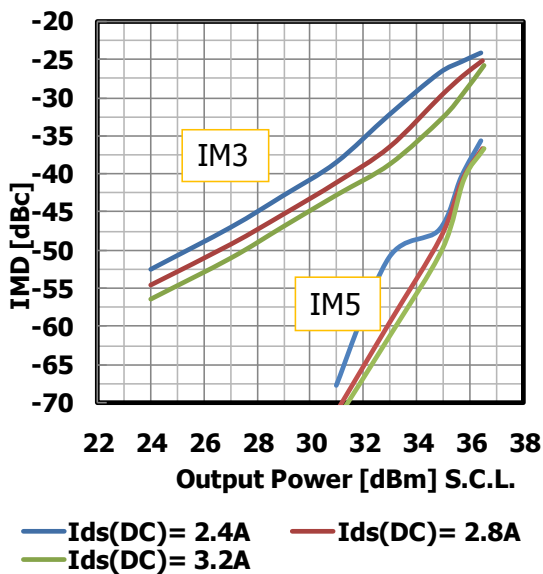
### IMD Performance vs. Output Power by Quiescent Drain Current

$V_{DS}=10V$  @6.8GHz



### IMD Performance vs. Output Power by Quiescent Drain Current

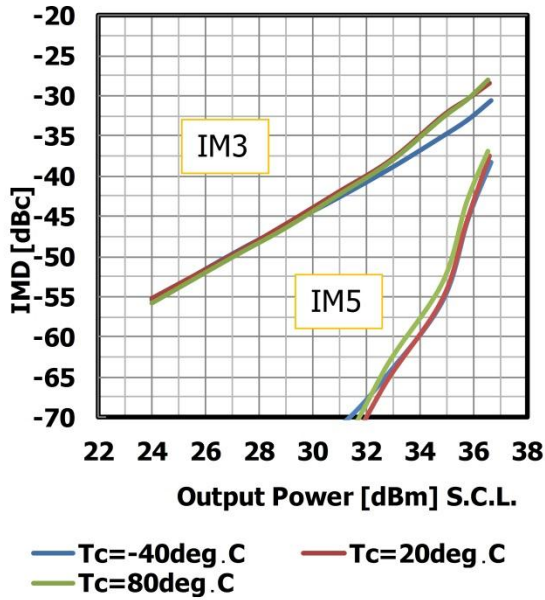
$V_{DS}=10V$  @7.2GHz





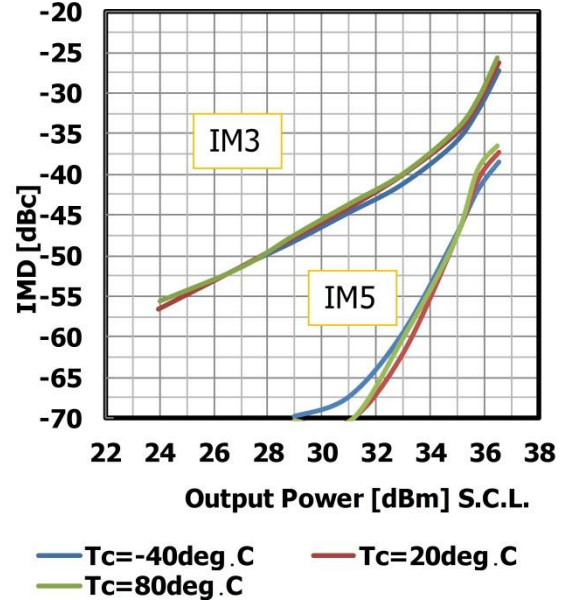
### IMD Performance vs. Output Power by Temperature

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



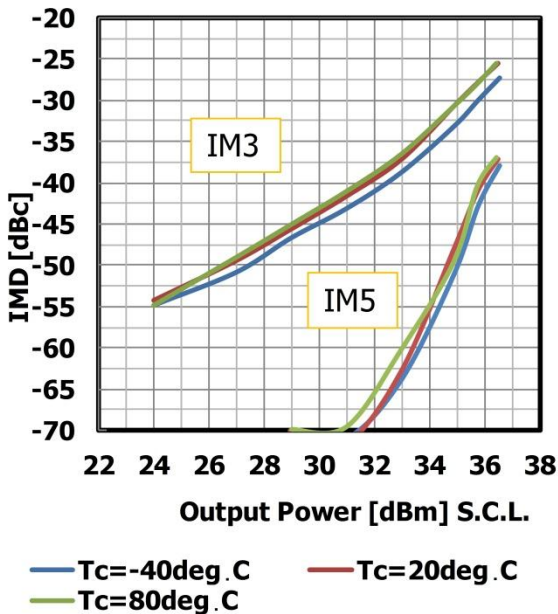
### IMD Performance vs. Output Power by Temperature

$V_{DS}=10V$   $I_{DS(DC)}=2800mA$  @6.8GHz



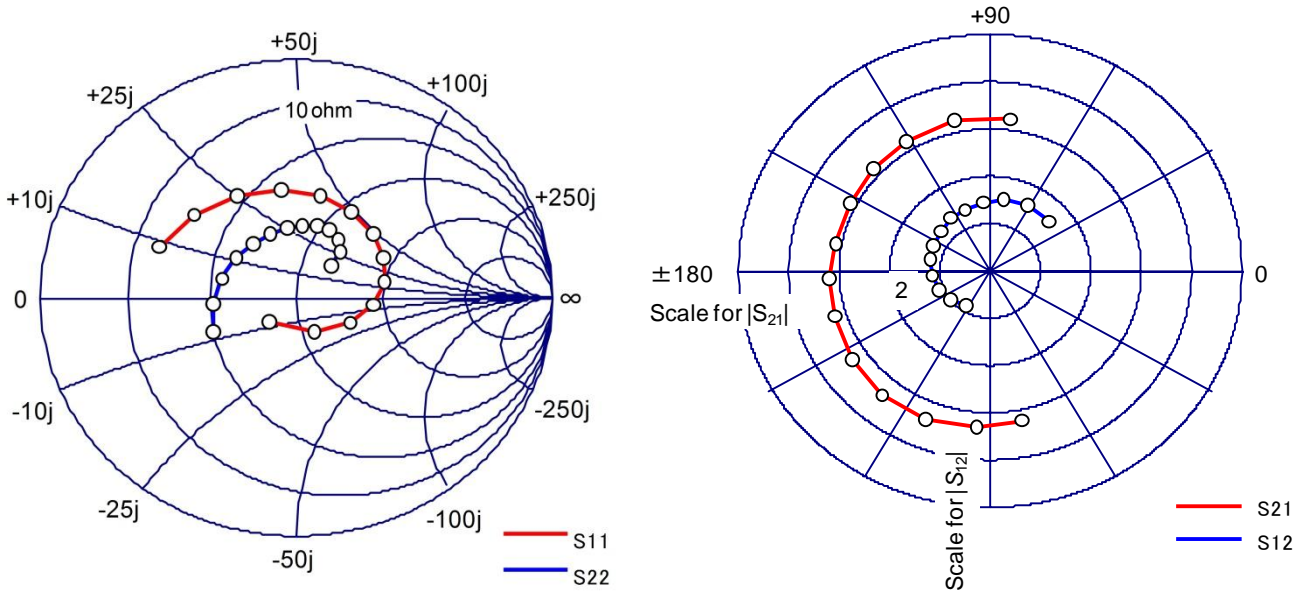
### IMD Performance vs. Output Power by Temperature

$V_{DS}=10V$   $I_{DS(DC)}=2800mA$  @7.2GHz





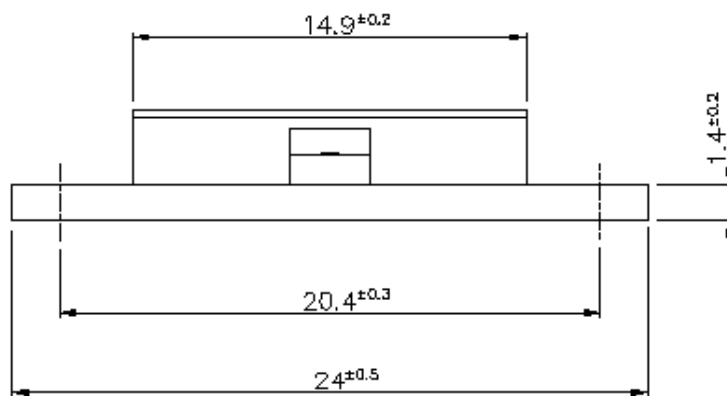
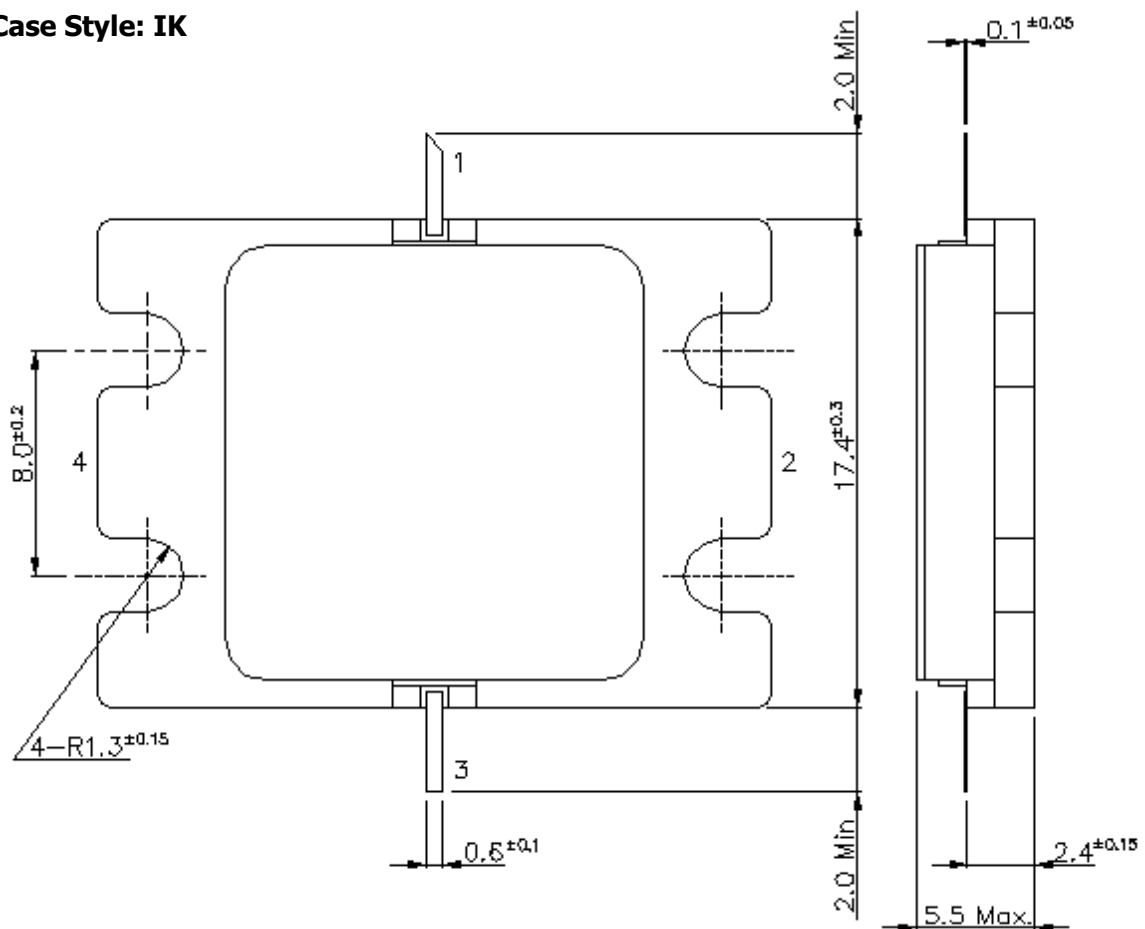
### ● S-Parameter



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

### ■ Package Out Line

Case Style: IK



#### PIN ASSIGNMENT

- 1 : GATE
- 2 : SOURCE
- 3 : DRAIN
- 4 : SOURCE

Unit : mm



**ELM6472-16F**

***C-Band Internally Matched FET***

**For further information please contact:**

<http://global-sei.com/Electro-optic/about/office.html>

**CAUTION**

This product contains gallium arsenide (GaAs) which can be hazardous to the human body and the environment. For safety, observe the following procedures:

- Do not put these products into the mouth.
- Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.
- Observe government laws and company regulations when discarding this product. This product must be discarded in accordance with methods specified by applicable hazardous waste procedures.