# MICROWAVE POWER GaAs FET
# TIM6472-16UL

## FEATURES

·**BROAD BAND INTERNALLY MATCHED FET**

·**HIGH POWER**

P1dB= 42.5dBm at 6.4GHz to 7.2GHz

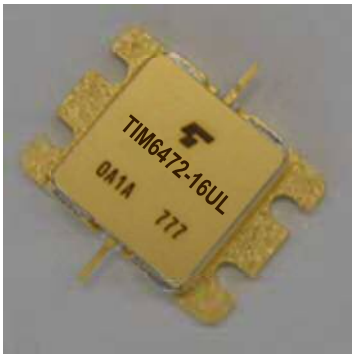
·**HIGH GAIN**

G1dB= 9.5dB at 6.4GHz to 7.2GHz

·**LOW INTERMODULATION DISTORTION**

IM3 = -44dBc(Min.) at Pout= 31.5dBm (Single Carrier Level)

·**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<br>IDSset= 3.6A<br>f= 6.4 to 7.2GHz | dBm | 41.5 | 42.5 | — |
| Power Gain at 1dB Gain Compression Point | G1dB | | dB | 8.5 | 9.5 | — |
| 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<br>Po= 31.5dBm, Δf= 5MHz<br>(Single Carrier Level) | dBc | -44 | -47 | — |
| Drain Current | IDS2 | | A | — | 4.4 | 5.0 |
| Channel Temperature Rise | ΔTch | (VDS × IDS + Pin −P1dB) × Rth(c-c) | °C | — | — | 80 |

**Recommended Gate Resistance(Rg): 68 Ω**

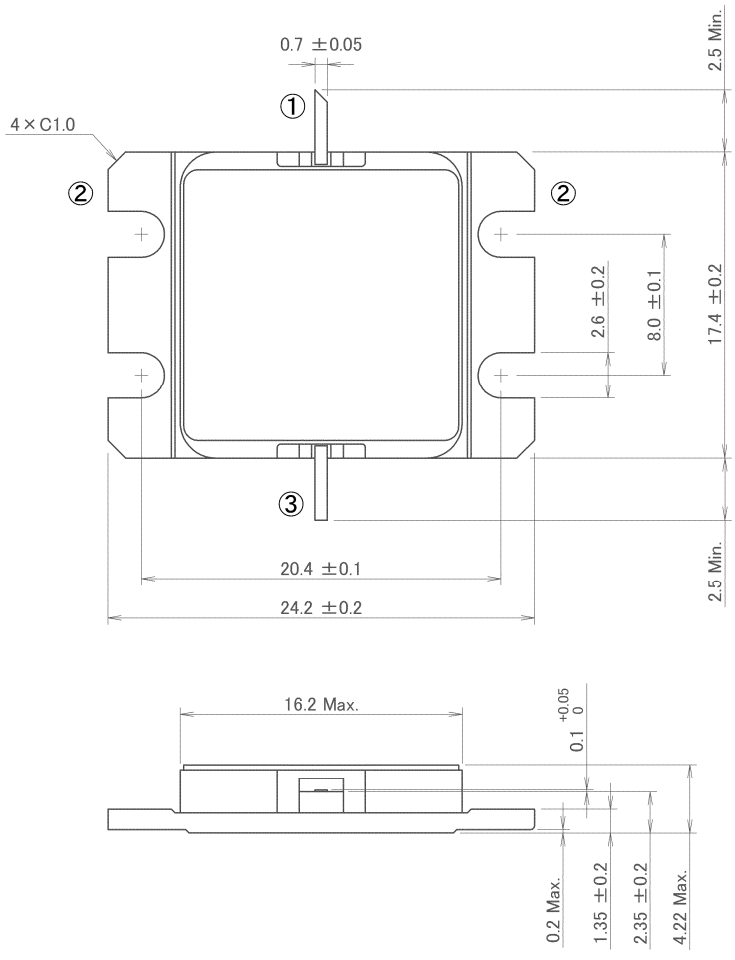
## ELECTRICAL CHARACTERISTICS ( Ta= 25°C )

| CHARACTERISTICS | SYMBOL | CONDITIONS | UNIT | MIN. | TYP. | MAX. |
|---|---|---|---|---|---|---|
| Transconductance | gm | VDS= 3V<br>IDS= 6.0A | S | — | 3.6 | — |
| Pinch-off Voltage | VGSoff | VDS= 3V<br>IDS= 60mA | V | -1.0 | -2.5 | -4.0 |
| Saturated Drain Current | IDSS | VDS= 3V<br>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 |

## 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 | 83.3 |
| Channel Temperature | Tch | °C | 175 |
| Storage Temperature | Tstg | °C | -65 to +175 |

## PACKAGE OUTLINE ( 2-16G1B )




Unit in mm

① Gate
② Source
③ Drain

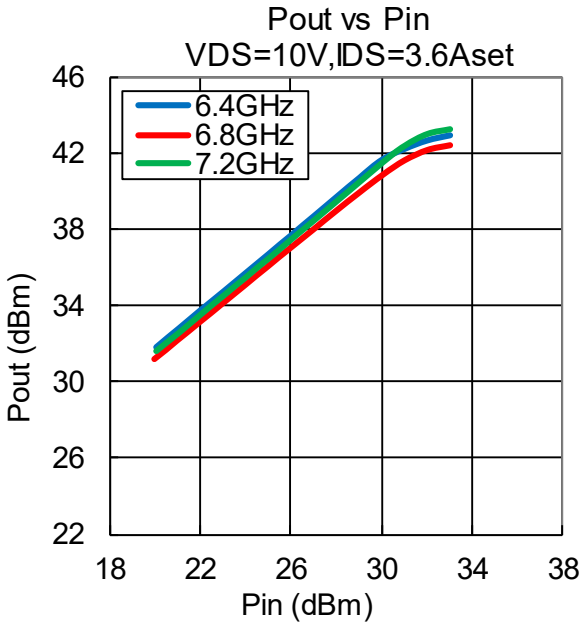
## HANDLING PRECAUTIONS FOR PACKAGE MODEL

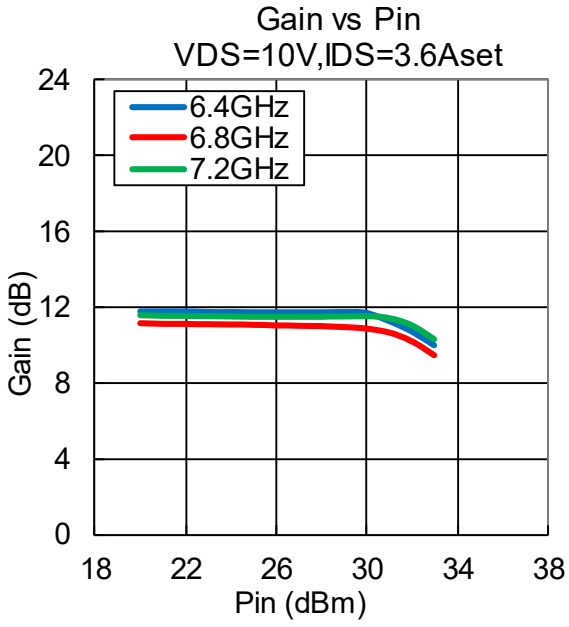
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C or 3 seconds at 350°C.

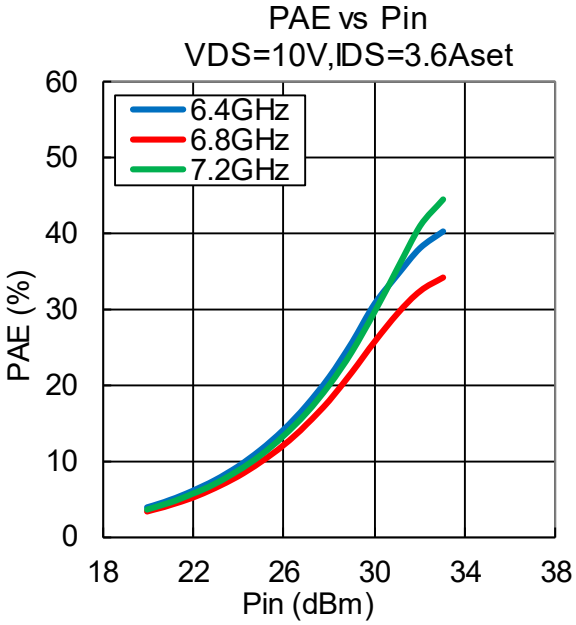
## TYPICAL RF PERFORMANCE

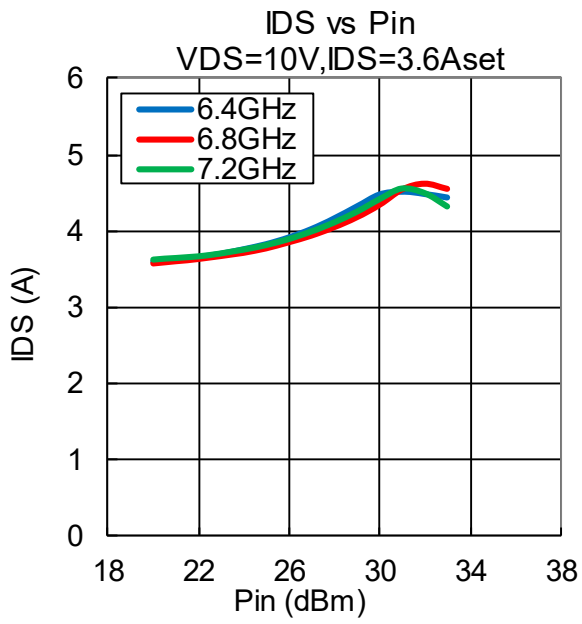
**·Pout , Gain , PAE , IDS vs. Pin**

VDS= 10 V, IDSset= 3.6 A, f= 6.4, 6.8, 7.2 GHz, Ta= +25 ℃



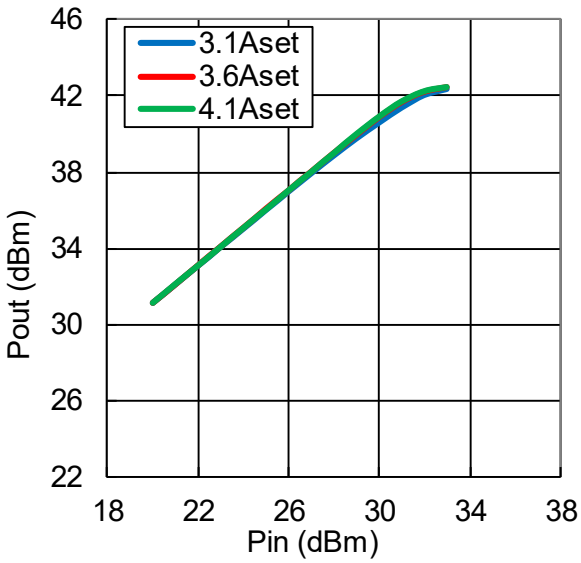



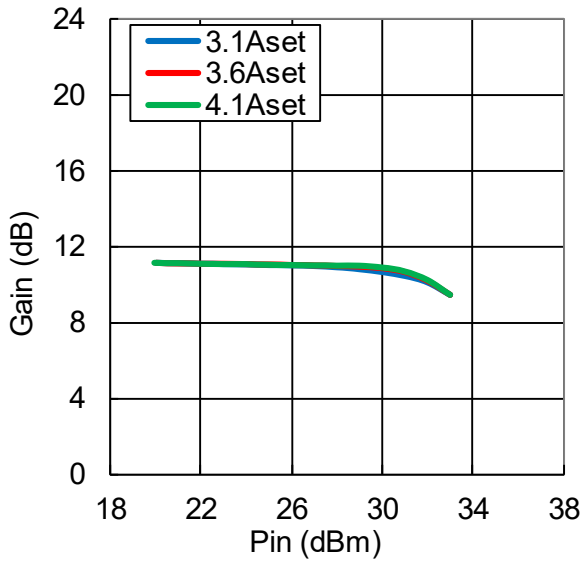
**·Pout , Gain , PAE , IDS vs. Pin vs. IDSset**

VDS= 10 V, IDSset= 3.1, 3.6, 4.1 A, f= 6.8 GHz, Ta= +25 ℃

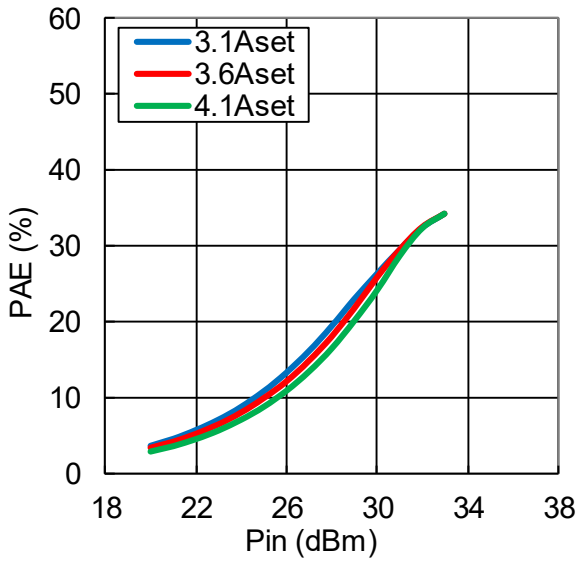
Pout vs Pin
VDS=10V,f=6.8GHz



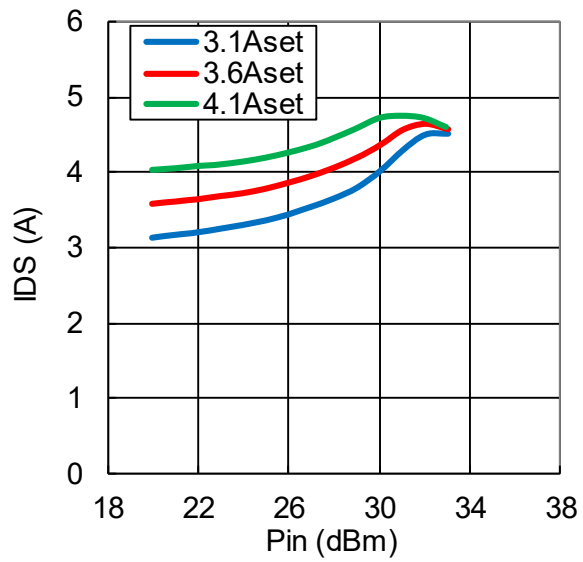

Gain vs Pin
VDS=10V,f=6.8GHz




PAE vs Pin
VDS=10V,f=6.8GHz

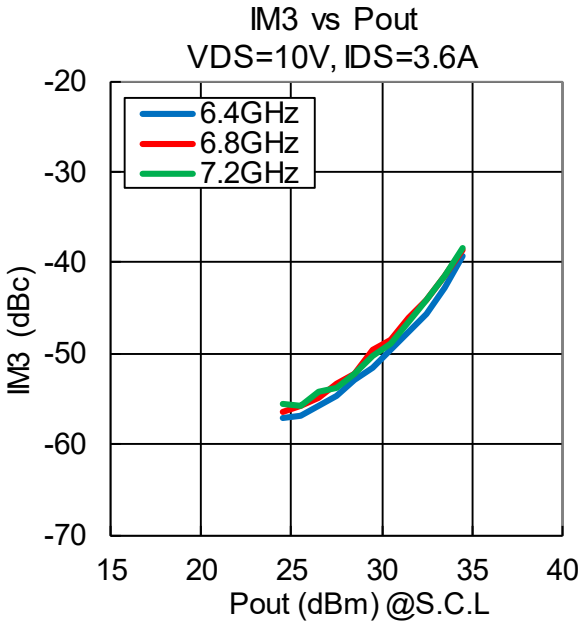


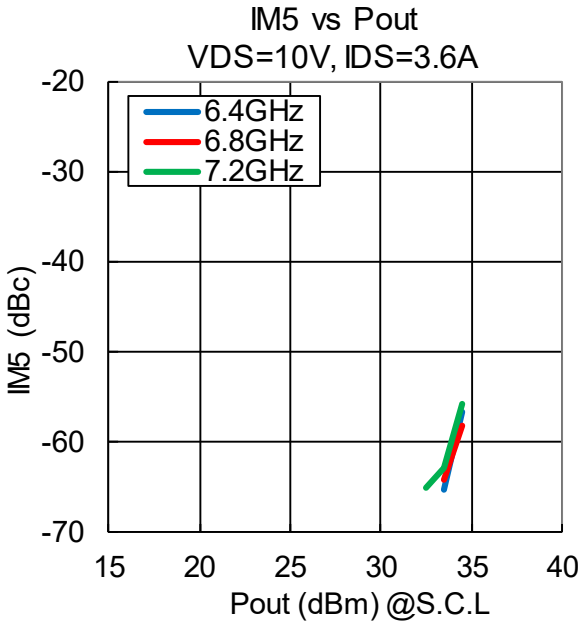

IDS vs Pin
VDS=10V,f=6.8GHz



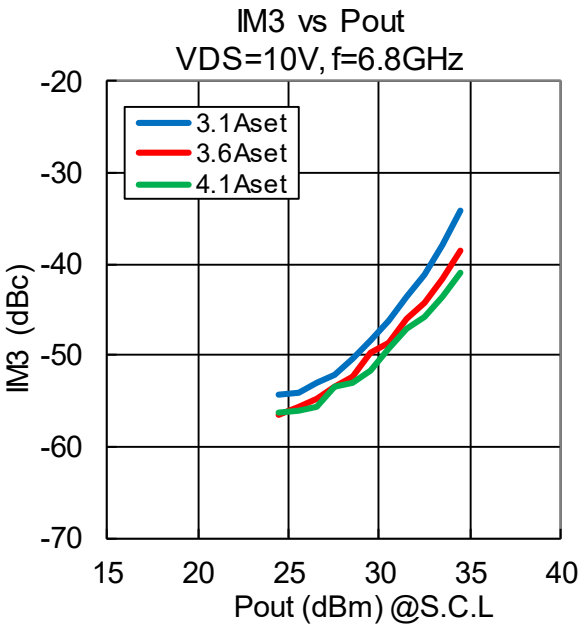
**·IM3, IM5 vs. Pout**

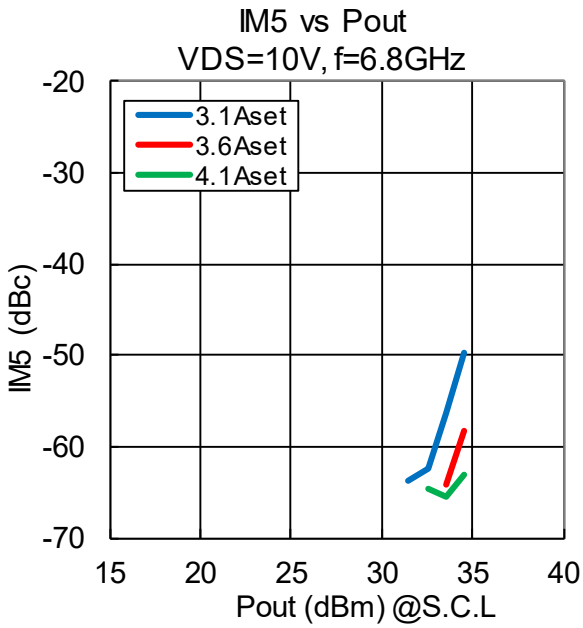
VDS= 10 V, IDSset= 3.6 A, f= 6.4, 6.8, 7.2 GHz, Δf= 5 MHz , Ta= +25 ℃



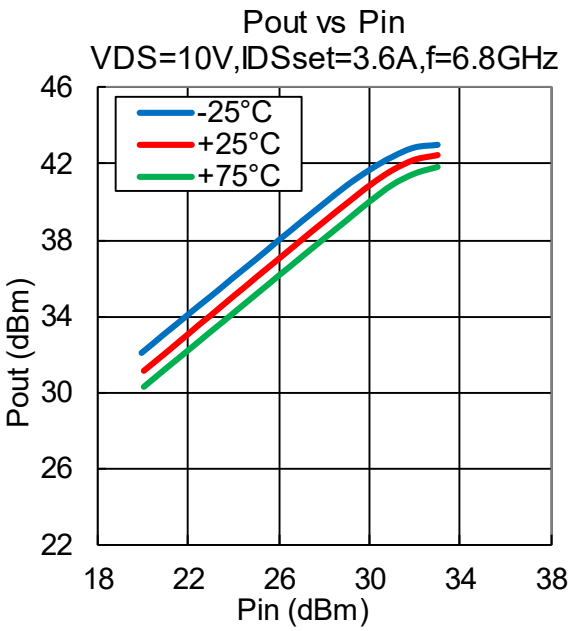

VDS= 10 V, IDSset= 3.1, 3.6, 4.1 A, f= 6.8 GHz, Δf= 5 MHz , Ta= +25 ℃

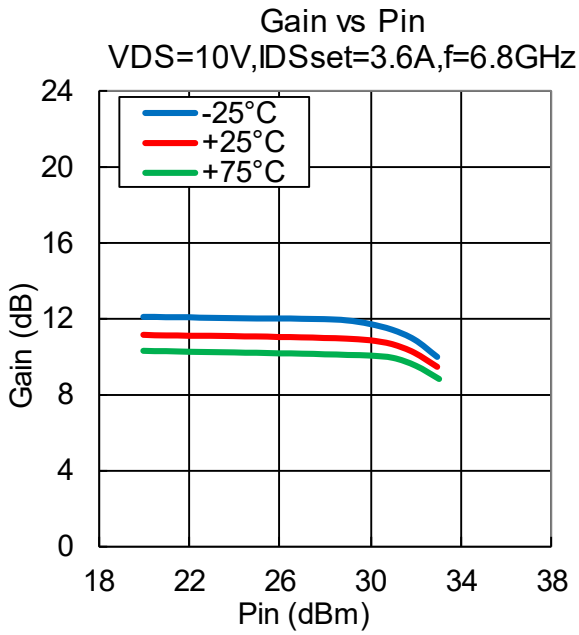


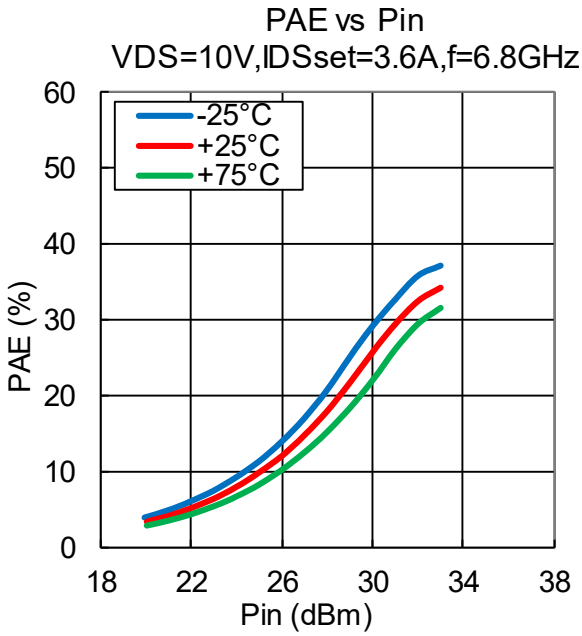



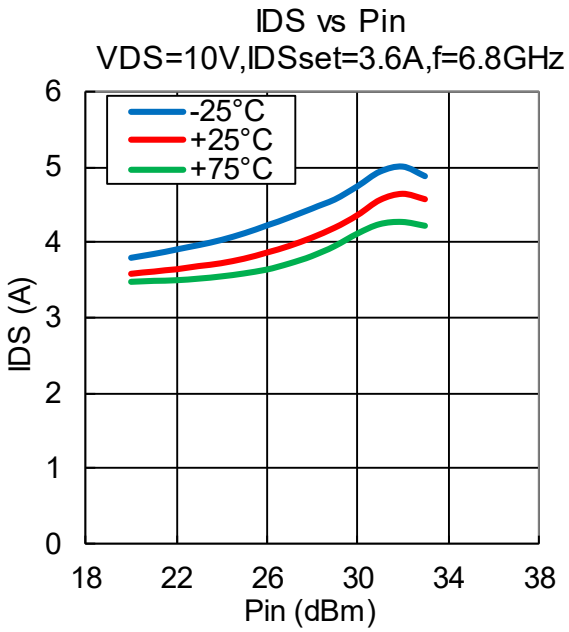
**·Pout , Gain , PAE , IDS vs. Pin vs. Temperature**

VDS= 10 V, IDSset= 3.6 A, f= 6.8 GHz, Ta= -25, +25, +75 ℃



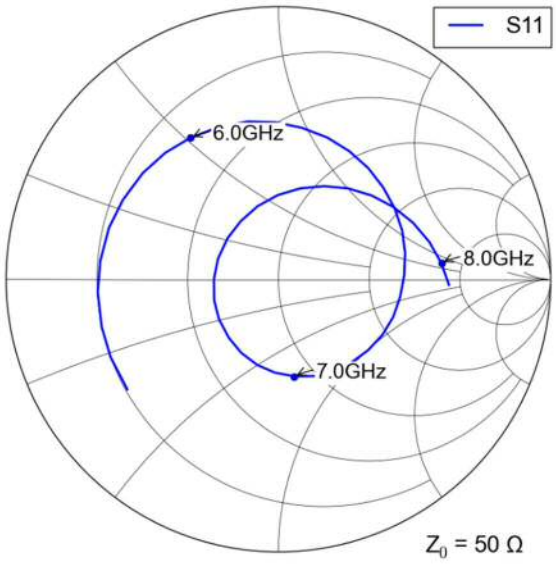



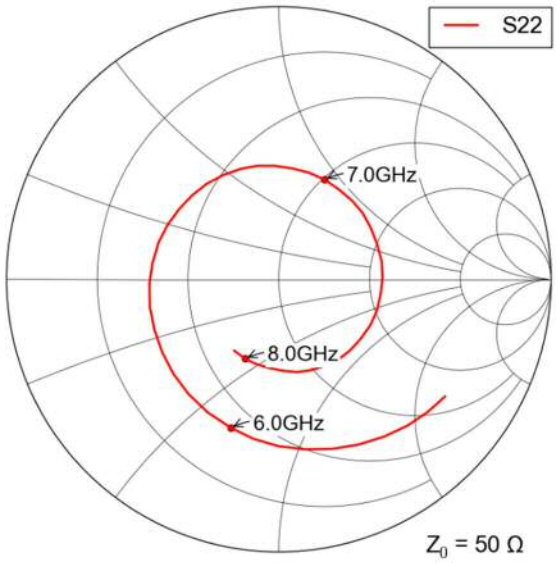



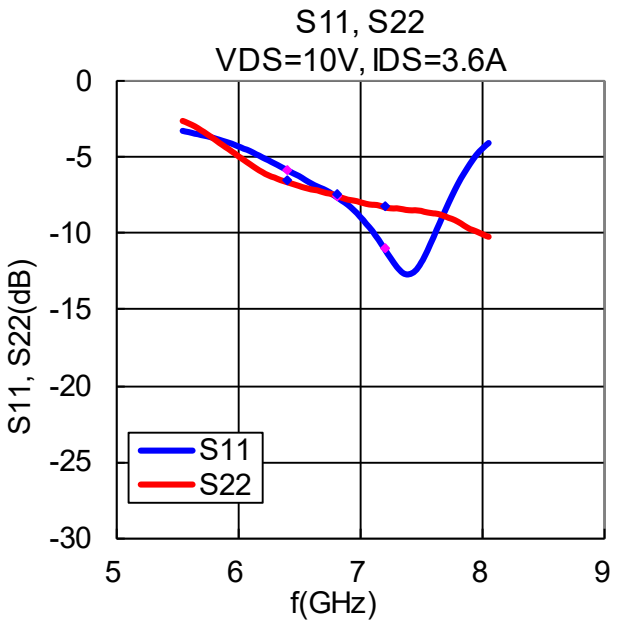



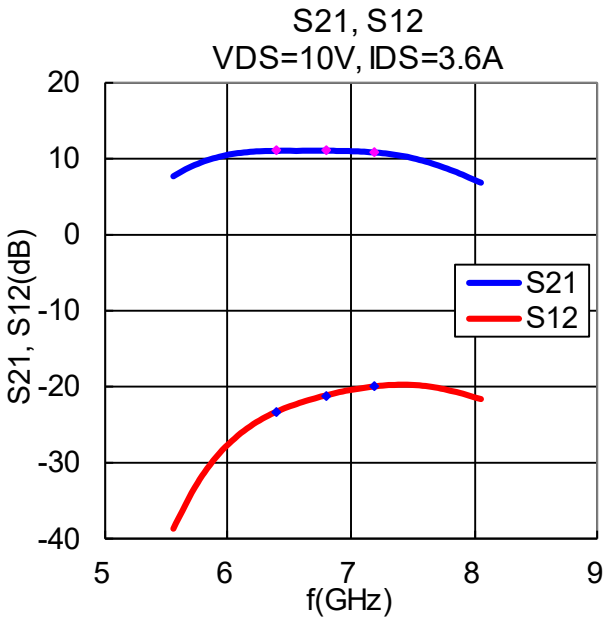
**·S-Parameters**

VDS= 10 V, IDSset= 3.6 A, f= 5.55 to 8.05 GHz, Ta= +25 ℃



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