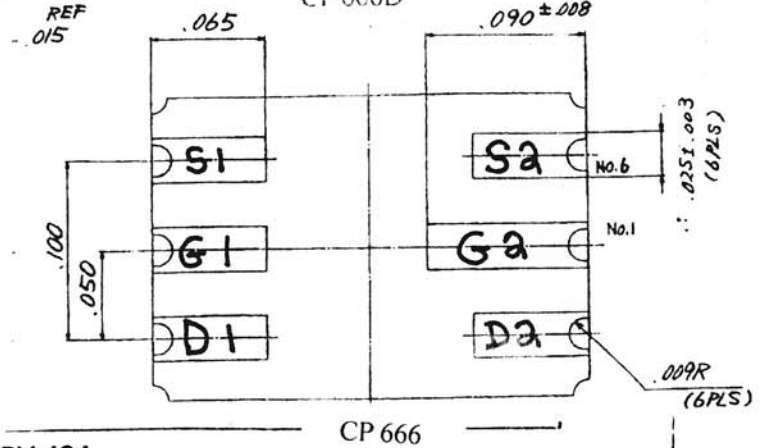
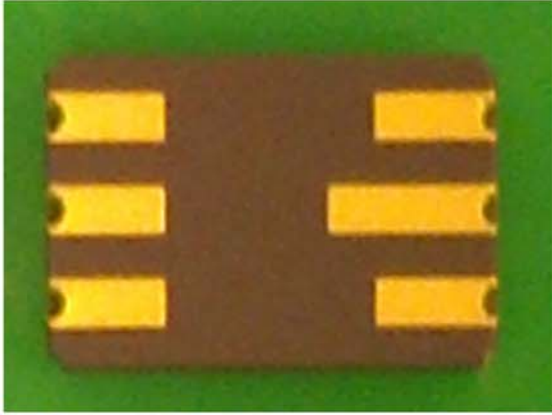




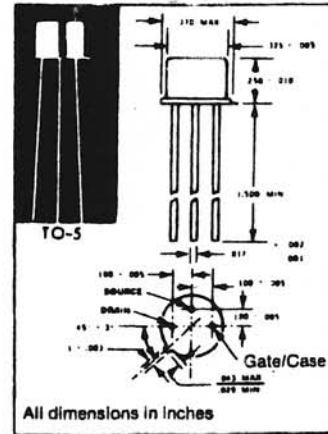
**BROADBAND RF FET**  
**SILICON EPITAXIAL JUNCTION**  
**N-CHANNEL FIELD EFFECT TRANSISTOR**

CP 666  
 CP 666D



**GEOMETRY 424**

- HIGH DYNAMIC RANGE HF AND VHF AMPLIFIER FOR USE IN COMMON GATE CONFIGURATION**
- USABLE TO OVER 300 MHz
  - 50 Ohm VSWR < 1.5:1 0.5-50 MHz (FIG. 1)
  - LOW NOISE FIGURE—2.2 dB TYPICAL @ 50 MHz
  - INPUT Z CONSTANT 0.5-50 MHz
  - HIGH IM INTERCEPT POINT — > + 40 dBm
  - HIGH TRANSCONDUCTANCE — 100,000  $\mu$ mhos (TYP.)
  - 1 dB COMPRESSION POINT > + 20 dBm
  - DYNAMIC RANGE > 140 dB (TO 1 dB COMPRESSION)
  - HIGH VOLTAGE—TO 50 V.



**ELECTRICAL DATA**      **ABSOLUTE MAXIMUM RATINGS**

PARAMETER	SYMBOL	CP	UNITS
Drain to Source Voltage	BVD <sub>SO</sub>	50	Volts
Drain to Gate Voltage	BVD <sub>GO</sub>	50	Volts
Gate to Source Voltage	BVG <sub>SO</sub>	-20	Volts
Peak Drain Current	I <sub>D</sub>	1.2	Amps
Power Dissipation 25°C CASE	PD	8.0	Watts
Derating Factor (slope)	DF	22	°C/W
Junction Temp. (Oper. & Store)	T <sub>J</sub>	-55°C to +200°C	

**TYPICAL TWO TONE 3rd ORDER IM PRODUCTS—CIRCUIT FIGURE 1**

Tones at 3MHz/5MHz

Signal Level EMF	3rd Order Product
1 Volt	-44 dB
0.3 Volt	-75 dB
0.25 Volt (0dBm)	-80 dB

**ELECTRICAL CHARACTERISTICS: T<sub>case</sub> = 25°C (UNLESS OTHERWISE STATED) FOR EACH TRANSISTOR**

PARAMETERS	CONDITIONS	SYMBOL	Min.	Typ.	Max.	UNITS
Gate Leakage Current	V <sub>GS</sub> = 15V, V <sub>DS</sub> = 0	25°C	I <sub>GSS</sub>	5	100	nA
		150°C	I <sub>GSS</sub>		10	$\mu$ A
Operating Transconductance	V <sub>DS</sub> = 15V, I <sub>DS</sub> = 40 mA	g <sub>o</sub>	40	60	80	mmho
Zero Bias Transconductance	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0(1)	g <sub>o</sub>	75	100	200	mmho
Gate-Source Cut-Off Voltage	V <sub>DS</sub> = 5V, I <sub>DS</sub> = 1.0 mA	V <sub>GS(off)</sub>	2	5	10	Volts
Zero Bias Drain Current	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0(1)	I <sub>DSS</sub>	100	200	800	mA
Gate to Source Cap.	V <sub>GS</sub> = -20V	C <sub>GS</sub>		15	20	pf
Gate to Drain Cap.	V <sub>GD</sub> = -20V	C <sub>GD</sub>		15	20	pf
Power Gain	I <sub>DS</sub> = 40mA, f = 50MHz, Fig 1	G <sub>pg</sub>	8	8.5	9.5	dB
Noise Figure	I <sub>DS</sub> = 40mA, f = 30MHz, Fig 1	N.F.		2.2	3.0	dB
Voltage Standing Wave Ratio	f = 0.5-50MHz, 50 $\Omega$ Source, Fig 1	VSWR			1.5:1	
Common Gate Input Conductance	f = 0.5-50MHz, V <sub>DS</sub> = 15, I <sub>D</sub> = 40mA	G <sub>igs</sub>		60		mmho
Common Gate Output Conductance	f = -50MHz, V <sub>DS</sub> = 15, I <sub>D</sub> = 40mA	G <sub>ogs</sub>		0.4		mmho

<sup>1</sup>Pulse Measurement 1% Duty Cycle 10 mS Max.

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