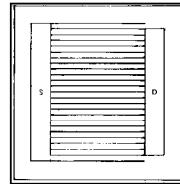


| | |
|---|--|
| BROADBAND RF FET N-CHANNEL FIELD EFFECT TRANSISTOR | CP640 CRY640UA CP664 CRY664UA CP665 CRY665UA CP666 CRY666UA |
|---|--|

**HIGH DYNAMIC RANGE HF AND VHF AMPLIFIER
FOR USE IN COMMON GATE CONFIGURATION**

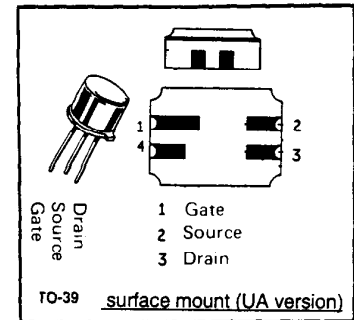
- USABLE TO OVER 300 MHz
- 50 Ohm VSWR < 1.5:1 0.5-50 MHz (FIG. 1)
- LOW NOISE FIGURE — 2.2 dB TYPICAL @ 50 MHz
- INPUT Z CONSTANT 0.5-50 MHz
- HIGH IM INTERCEPT POINT — > + 40 dBm
- HIGH TRANSCONDUCTANCE — 100,000 μ mhos (TYP.)
- 1 dB COMPRESSION POINT > + 20 dBm
- DYNAMIC RANGE > 140 dB (TO 1 dB COMPRESSION)
- HIGH VOLTAGE—TO 50 V.

GEOMETRY 424



.033" X .035"

PACKAGE STYLES



ELECTRICAL DATA ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | CP 640 | CP 664 | CP 665 | CP 666 | UNITS |
|-------------------------------|--------|-----------------|--------|--------|--------|-------|
| Drain to Source Voltage | BVDSO | 20 | 30 | 40 | 50 | Volts |
| Drain to Gate Voltage | BVDGO | 20 | 30 | 40 | 50 | Volts |
| Gate to Source Voltage | BVGSO | -15 | -20 | -20 | -20 | Volts |
| Peak Drain Current | ID | 1.2 | 1.2 | 1.2 | 1.2 | Amps |
| Power Dissipation 25°C CASE | PD | 8.0 | 8.0 | 8.0 | 8.0 | Watts |
| Derating Factor (slope) | DF | 22 | 22 | 22 | 22 | °C/W |
| Junction Temp.(Oper. & Store) | TJ | -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_{CASE} = 25 °C (UNLESS OTHERWISE STATED)

| PARAMETERS | CONDITIONS | SYMBOL | Min. | Typ. | Max. | UNITS |
|--------------------------------|---|---------------|------|------|-------|---------|
| | | | | | | |
| Gate Leakage Current | $V_{GS} = 15V, V_{DS} = 0$ | I_{GSS} | | 5 | 100 | nA |
| | | I_{GSS} | | | 10 | μ A |
| Operating Transconductance | $V_{DS} = 15V, I_{DS} = 40mA$ | g_{fo} | 40 | 60 | 80 | mmho |
| Zero Bias Transconductance | $V_{DS} = 15V, V_{GS} = 0(1)$ | g_{fo} | 75 | 100 | 200 | mmho |
| Gate-Source Cut-Off Voltage | $V_{DS} = 5V, I_{DS} = 1.0mA$ | $V_{GS(off)}$ | 2 | 5 | 10 | Volts |
| Zero Bias Drain Current | $V_{DS} = 15V, V_{GS} = 0(1)$ | I_{DSS} | 100 | 200 | 800 | mA |
| Gate to Source Cap. | $V_{GS} = -20V$ | C_{GS} | | 15 | 20 | pf |
| Gate to Drain Cap. | $V_{GD} = -20V$ | C_{GD} | | 15 | 20 | pf |
| Power Gain | $I_{DS} = 40mA, f = 50MHz, Fig. 1$ | G_{pg} | 8 | 8.5 | 9.5 | dB |
| Noise Figure | $I_{DS} = 40mA, f = 30MHz, Fig. 1$ | 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 | $f = 0.5-50MHz, V_{DS} = 15, I_D = 40mA$ | g_{igs} | | 60 | | mmho |
| Common Gate Output Conductance | $f = 0.5-50MHz, V_{DS} = 15, I_D = 40mA$ | g_{ogs} | | 0.4 | | mmho |

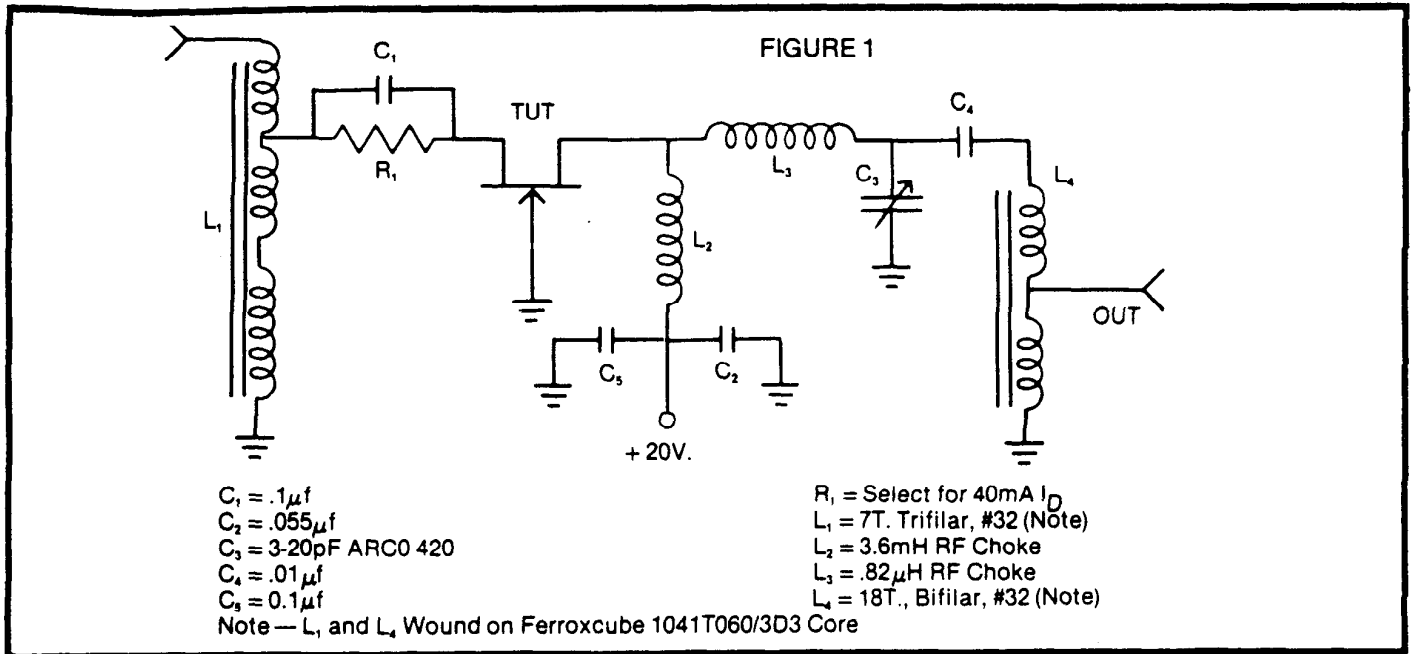
¹Pulse Measurement 1% Duty Cycle 10 mS Max.

CRYSTALONICS

Web site: WWW.Crystalonics.com Phone: (781) 270-5522 Fax: (781) 270-3130

BROADBAND RF FET N-CHANNEL FIELD EFFECT TRANSISTOR

| | |
|-------|----------|
| CP640 | CRY640UA |
| CP664 | CRY664UA |
| CP665 | CRY665UA |
| CP666 | CRY666UA |



CALIBRATED INTERCEPT AND COMPRESSION POINT

