

## FEATURES

- Low Capacitance
- Up to 6500  $\mu\text{mho}$  Transconductance

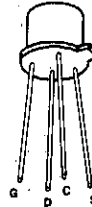
## ABSOLUTE MAXIMUM RATINGS

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Gate-Source Voltage	.....	-50V
Gate-Drain Voltage	.....	-50V
Gate Current	.....	10 mA
Storage Temperature Range	.....	$-65^\circ\text{C}$ to $+200^\circ\text{C}$
Operating Temperature Range	.....	$-55^\circ\text{C}$ to $+150^\circ\text{C}$
Lead Temperature (Soldering, 10 sec.)	.....	$+300^\circ\text{C}$
Power Dissipation	.....	300 mW
Derate above $25^\circ\text{C}$	.....	1.7 mW/ $^\circ\text{C}$

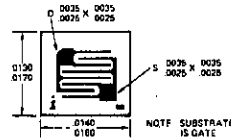
## PIN CONFIGURATION

TO-72



## CHIP TOPOGRAPHY

5003



## ORDERING INFORMATION\*

TO-72	WAFER	DICE
2N3821	2N3821/W	2N3821/D
2N3822	2N3822/W	2N3822/D

\*When ordering wafer/dice refer to Appendix B-23.

## ELECTRICAL CHARACTERISTICS ( $25^\circ\text{C}$ unless otherwise noted)

PARAMETER		2N3821		2N3822		UNIT	TEST CONDITIONS
		MIN	MAX	MIN	MAX		
$I_{GSS}$	Gate Reverse Current		-0.1	-0.1	-0.1	nA	$V_{GS} = -30\text{ V}, V_{DS} = 0$
			-0.1	-0.1	-0.1	$\mu\text{A}$	
$BV_{GSS}$	Gate-Source Breakdown Voltage	-50		-50			$I_G = -1\ \mu\text{A}, V_{DS} = 0$ $V_{DS} = 15\text{ V}, I_D = 0.5\ \text{nA}$ $V_{DS} = 15\text{ V}, I_D = 50\ \mu\text{A}$ $V_{DS} = 15\text{ V}, I_D = 200\ \mu\text{A}$ $V_{DS} = 15\text{ V}, V_{GS} = 0$
$V_{GS(off)}$	Gate-Source Cutoff Voltage		-4		-6	V	
$V_{GS}$	Gate-Source Voltage	-0.5	-2				
$I_{DSS}$	Saturation Drain Current	0.5	2.5	2	10	mA	
$g_{fs}$	Common-Source Forward Transconductance (Note 1)	1500	4500	3000	6500	$\mu\text{mho}$	$f = 1\ \text{kHz}$
$ y_{fs} $	Common-Source Forward Transadmittance	1500		3000			$f = 100\ \text{MHz}$
$g_{os}$	Common-Source Output Conductance (Note 1)		10		20	pF	$V_{DS} = 15\text{ V}, V_{GS} = 0$ $f = 1\ \text{kHz}$
$C_{iss}$	Common-Source Input Capacitance		6		6		$f = 1\ \text{MHz}$
$C_{rss}$	Common-Source Reverse Transfer Capacitance		3		3		
NF	Noise Figure		5		5	dB	$V_{DS} = 15\text{ V}, V_{GS} = 0,$ $R_{gen} = 1\ \text{meg}, BW = 5\ \text{Hz}$ $f = 10\ \text{Hz}$
$\bar{e}_n$	Equivalent Input Noise Voltage		200		200	$\frac{\text{nV}}{\sqrt{\text{Hz}}}$	$V_{DS} = 15\text{ V}, V_{GS} = 0, BW = 5\ \text{Hz}$

Note 1: These parameters are measured during a 2 msec interval 100 msec after DC power is applied.