



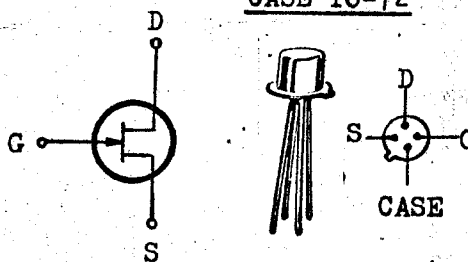
# 2N3823

N-CHANNEL JUNCTION FIELD EFFECT TRANSISTOR



THE 2N3823 IS AN N-CHANNEL JFET DESIGNED FOR RF AMPLIFIER AND MIXER APPLICATIONS. IT FEATURES LOW CROSS-MODULATION, LOW NOISE FIGURE AND GOOD POWER GAIN AT FREQUENCY UP TO 450MHz. THE DEVICE IS ALSO SUITABLE FOR ANALOG SWITCHING WHERE LOW JUNCTION CAPACITANCE IS ESSENTIAL.

CASE TO-72



THE S, D, G TERMINALS ARE ELECTRICALLY ISOLATED FROM CASE.

### ABSOLUTE MAXIMUM RATINGS

Drain-Gate Voltage	V <sub>DG</sub>	30V
Drain-Source Voltage	V <sub>DS</sub>	30V
Gate-Source Voltage	V <sub>GS</sub>	-30V
Gate Current	I <sub>G</sub>	10mA
Total Power Dissipation (T <sub>A</sub> ≤ 25°C)	P <sub>tot</sub>	300mW
		derate 2mW/°C above 25°C
Operating Junction & Storage Temperature	T <sub>j</sub> , T <sub>stg</sub>	-65 to 175°C

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)

\* Common Source

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Gate-Source Breakdown Voltage	-BV <sub>GS</sub>	30			V	-I <sub>G</sub> =1μA V <sub>DS</sub> =0
Gate Cutoff Current	-I <sub>GSS</sub>			0.5	nA	-V <sub>GS</sub> =20V V <sub>DS</sub> =0
				0.5	μA	-V <sub>GS</sub> =20V V <sub>DS</sub> =0 T <sub>A</sub> =150°C
Zero-Gate-Voltage Drain Current	I <sub>DSS</sub>	4	10	20	mA	V <sub>DS</sub> =15V V <sub>GS</sub> =0
Gate Source Voltage	-V <sub>GS</sub>	1	3.2	7.5	V	V <sub>DS</sub> =15V I <sub>D</sub> =0.4mA
Gate Source Cutoff Voltage	-V <sub>GS(off)</sub>		3.5	8	V	V <sub>DS</sub> =15V I <sub>D</sub> =0.5nA
Forward Transfer Admittance	Y <sub>fs</sub>   *	3.5	5	6.5	mS	V <sub>DS</sub> =15V V <sub>GS</sub> =0 f=1kHz
Output Admittance	Y <sub>os</sub>   *		20	35	μS	V <sub>DS</sub> =15V V <sub>GS</sub> =0 f=1kHz
Input Capacitance	C <sub>iss</sub> *		3.5	6	pF	V <sub>DS</sub> =15V V <sub>GS</sub> =0 f=1MHz
Feedback Capacitance	C <sub>rss</sub> *		0.7	2	pF	V <sub>DS</sub> =15V V <sub>GS</sub> =0 f=1MHz

**MICRO ELECTRONICS LTD.**

38 HUNG TO ROAD, KWUN TONG, HONG KONG. TELEX 43510  
 KWUN TONG P. O. BOX 69477 CABLE ADDRESS "MICROTRON"  
 TELEPHONE: 3-430181-6 3-893363, 3-892423  
 FAX: 3-410321

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Forward Transfer Admittance	$ y_{fs} $ *	3.2	5.5		mU	$V_{DS}=15V$ $V_{GS}=0$ $f=200MHz$
Input Conductance	$\epsilon_{is}$ *		250	800	$\mu U$	$V_{DS}=15V$ $V_{GS}=0$ $f=200MHz$
Output Conductance	$\epsilon_{os}$ *		60	200	$\mu U$	$V_{DS}=15V$ $V_{GS}=0$ $f=200MHz$
Spot Noise Figure	NF *		1	2.5	dB	$V_{DS}=15V$ $V_{GS}=0$ $f=100MHz$ $R_G=1K\Omega$
Power Gain	$G_{ps}$ *		12		dB	$V_{DS}=15V$ $I_D=5mA$ $f=400MHz$
Equivalent Noise Input Voltage	$\bar{E}_n$ *		8		nV/ $\sqrt{Hz}$	$V_{DS}=15V$ $I_D=1mA$ $f=100Hz$
"On" Resistance	$r_{ds(on)}$		170		$\Omega$	$V_{DS}=100mV$ $V_{GS}=0$

TYPICAL COMMON SOURCE y-PARAMETER AT  $V_{DS}=15V$   $V_{GS}=0$   $T_A=25^\circ C$

