2N5905
LOW NOISE, LOW DRIFT MONOLITHIC DUAL N-CHANNEL JFET

LINEAR SYSTEMS

micross

The 2N5905 is a high-performance monolithic dual JFET featuring tight matching and low drift over temperature specifications, and is targeted for use in a wide range of precision instrumentation applications where tight tracking is required.

The hermetically sealed TO-78 package is well suited for hi-reliability and harsh environment applications.

(See Packaging Information).

2N5905 Benefits:

- Tight Tracking
- Good matching
- Ultra Low Leakage
- Low Drift

FEATURES	
LOW DRIFT	$\lvert V_{GS1-2}/T \rvert$ = 5µV/°C TYP.
ULTRA LOW LEAKAGE	I_G = 150fA TYP.
LOW PINCHOFF	V_p = 2V TYP.

ABSOLUTE MAXIMUM RATINGS
@ 25°C (unless otherwise noted)

Maximum Temperatures	
Storage Temperature	-65°C to +150°C
Operating Junction Temperature	+150°C

Maximum Voltage and Current for Each Transistor – Note 1		
$-V_{GSS}$	Gate Voltage to Drain or Source	40V
$-V_{DSO}$	Drain to Source Voltage	40V
$-I_{G(f)}$	Gate Forward Current	10mA
$-I_G$	Gate Reverse Current	10µA

Maximum Power Dissipation	
Device Dissipation @ Free Air – Total	40mW @ +125°C

MATCHING CHARACTERISTICS @ 25°C UNLESS OTHERWISE NOTED

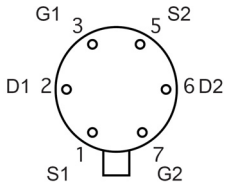
SYMBOL	CHARACTERISTICS	VALUE	UNITS	CONDITIONS
$\lvert V_{GS1-2}/T \rvert$ max.	DRIFT VS. TEMPERATURE	40	µV/°C	V_{DG}=10V, I_D=30µA T_A=-55°C to +125°C
$\lvert V_{GS1-2} \rvert$ max.	OFFSET VOLTAGE	15	mV	V_{DG}=10V, I_D=30µA

ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
BV_{GSS}	Breakdown Voltage	40	60	--	V	V_{DS} = 0 I_D=1nA
BV_{GGO}	Gate-To-Gate Breakdown	40	--	--	V	I_G= 1nA I_D= 0 I_S= 0
	TRANSCONDUCTANCE					
Y_{fss}	Full Conduction	70	300	500	µmho	V_{DG}= 10V V_{GS}= 0V f = 1kHz
Y_{fs}	Typical Operation	50	100	200	µmho	V_{DG}= 10V I_D= 30µA f = 1kHz
$\lvert Y_{FS1-2}/Y_{FS} \rvert$	Mismatch	--	1	5	%	
	DRAIN CURRENT					
I_{DSS}	Full Conduction	60	400	1000	µA	V_{DG}= 10V V_{GS}= 0V
$\lvert I_{DSS1-2}/I_{DSS} \rvert$	Mismatch at Full Conduction	--	2	5	%	
	GATE VOLTAGE					
V_{GS}(off) or V_p	Pinchoff voltage	0.6	2	4.5	V	V_{DS}= 10V I_D= 1nA
V_{GS}(on)	Operating Range	--	--	4	V	V_{DS}=10V I_D=30µA
	GATE CURRENT					
$-I_G$max.	Operating	--	--	3	pA	V_{DG}= 10V I_D= 30µA
$-I_G$max.	High Temperature	--	--	3	nA	T_A= +125°C
$-I_{GSS}$max.	At Full Conduction	--	--	5	pA	V_{DS} =0V V_{GS}= 20V
$-I_{GSS}$max.	High Temperature	--	--	10	nA	T_A= +125°C
I_{GGO}	Gate-to-Gate Leakage	--	1	--	pA	V_{GG}= 20V
	OUTPUT CONDUCTANCE					
Y_{OSS}	Full Conduction	--	--	5	µmho	V_{DG}= 10V V_{GS}= 0V
Y_{OS}	Operating	--	0.1	0.1		V_{DG}= 10V I_D=30µA
$\lvert Y_{OS1-2} \rvert$	Differential	--	0.01	0.1		
	COMMON MODE REJECTION					
CMR	-20 log $\lvert \Delta V_{GS1-2}/\Delta V_{DS} \rvert$	--	90	--	dB	ΔV_{DS} = 10 to 20V I_D=30µA
CMR	-20 log $\lvert \Delta V_{GS1-2}/\Delta V_{DS} \rvert$	--	90	--		ΔV_{DS} = 5 to 10V I_D=30µA
	NOISE					V_{DS}= 10V V_{GS}= 0V R_G= 10MΩ
NF	Figure	--	--	1	dB	f= 100Hz NBW= 6Hz
e_n	Voltage	--	20	70	nV/√Hz	V_{DG}=10V I_D=30µA f=10Hz NBW=1Hz
	CAPACITANCE					
C_{ISS}	Input	--	--	3	pF	V_{DS}= 10V V_{GS}= 0V f= 1MHz
C_{RSS}	Reverse Transfer	--	--	1.5		
C_{DD}	Drain-to-Drain	--	--	0.1		V_{DG} = 20V I_D=30µA

Note 1 – These ratings are limiting values above which the serviceability of any semiconductor may be impaired

TO-78 (Bottom View)



Available Packages:

2N5905 in TO-78
2N5905 available as bare die
Please contact Micross for full package and die dimensions

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