

The 2N5909 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).

2N5909 Benefits:

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

FEATURES

LOW DRIFT	$ V_{GS1-2}/T = 5\mu V/^{\circ}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
$ V_{GS1-2}/T $ max.	DRIFT VS. TEMPERATURE	40	μV/°C	$V_{DG}=10V, I_D=30\mu A$ $T_A=-55^{\circ}C$ to $+125^{\circ}C$
$ V_{GS1-2} $ max.	OFFSET VOLTAGE	15	mV	$V_{DG}=10V, I_D=30\mu A$

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

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

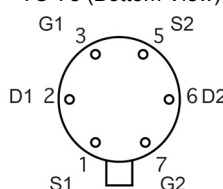
Available Packages:

2N5909 in TO-78

2N5909 available as bare die

Please contact [Micross](http://www.micross.com) for full package and die dimensions

TO-78 (Bottom View)



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