Monolithic Dual N-Channel JFET General Purpose Amplifier

calogic CORPORATION

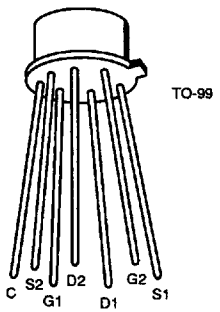
T-27-27

2N5902 – 2N5909

FEATURES

- Tight Tracking
- Good Matching

PIN CONFIGURATION



6015

ABSOLUTE MAXIMUM RATINGS

(T_A = 25°C unless otherwise specified)

Gate-Drain or Gate-Source Voltage (Note 1) ..... -40V
Gate Current (Note 1) 10mA
Storage Temperature Range ..... -65°C to +200°C
Operating Temperature Range ..... -55°C to +150°C
Lead Temperature (Soldering, 10sec) ..... +300°C

	One Side	Both Sides
Power Dissipation	367mW	500mW
Derate above 25°C	3mW/°C	4mW/°C

NOTE: Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ORDERING INFORMATION

Part	Package	Temperature Range
2N5902	Hermetic TO-99	-55°C to +150°C
2N5903	Hermetic TO-99	-55°C to +150°C
2N5904	Hermetic TO-99	-55°C to +150°C
X2N5904	Sorted Chips in Carriers	-55°C to +150°C
2N5905	Hermetic TO-99	-55°C to +150°C
X2N5905	Sorted Chips in Carriers	-55°C to +150°C
2N5906	Hermetic TO-99	-55°C to +150°C
2N5907	Hermetic TO-99	-55°C to +150°C
2N5908	Hermetic TO-99	-55°C to +150°C
X2N5908	Sorted Chips in Carriers	-55°C to +150°C
2N5909	Hermetic TO-99	-55°C to +150°C
X2N5909	Sorted Chips in Carriers	-55°C to +150°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

SYMBOL	PARAMETER	2N5902/6		2N5903/7		2N5904/8		2N5905/9		UNITS	TEST CONDITIONS	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX			
$\lvert I_{G1} - I_{G2} \rvert$	Differential Gate Current		2.0		2.0		2.0		2.0	nA	V_{DG} = 10V, I_D = 30µA, T_A = 125°C	2N5902-5
			0.2		0.2		0.2		0.2			2N5906-9
$\frac{I_{DSS1}}{I_{DSS2}}$	Saturation Drain Current Ratio	0.95	1	0.95	1	0.95	1	0 95	1		V_{DS} = 10V, V_{GS} = 0	
$\frac{g_{fs1}}{g_{fs2}}$	Transconductance Ratio	0 97	1	0.97	1	0.95	1	0.95	1		V_{DG} = 10V, I_D = 30µA	f = 1kHz
$\lvert V_{GS1} - V_{GS2} \rvert$	Differential Gate-Source Voltage		5		5		10		15	mV		
$\frac{\Delta \lvert V_{GS1} - V_{GS2} \rvert}{\Delta T}$	Gate-Source Voltage Differential Drift (Measured at end points T_A and T_B)		5		10		20		40	µV/°C		T_A = 25°C T_B = 125°C
			5		10		20		40			T_A = -55°C T_B = 25°C
$\lvert g_{os1} - g_{os2} \rvert$	Differential Output Conductance		0 2		0.2		0 2		0.2	µs		f = 1kHz

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ELECTRICAL CHARACTERISTICS (Continued) (T_A = 25°C unless otherwise specified)

SYMBOL	PARAMETER	2N5902-5		2N5906-9		UNITS	TEST CONDITIONS	
		MIN	MAX	MIN	MAX			
I_{GSS}	Gate Reverse Current		-5		-2	pA	V_{GS} = -20V, V_{DS} = 0	
			-10		-5	nA		T_A = 125°C
BV_{GSS}	Gate-Source Breakdown Voltage	-40		-40		V	I_G = -1μA, V_{DS} = 0	
$V_{GS(off)}$	Gate-Source Cutoff Voltage	-0.6	-4.5	-0.6	-4.5		V_{DS} = 10V, I_D = 1nA	
V_{GS}	Gate-Source Voltage		-4		-4		V_{DG} = 10V, I_D = 30μA	
I_G	Gate Operating Current		-3		-1	pA		
			-3		-1	nA		T_A = 125°C
I_{DSS}	Saturation Drain Current	30	500	30	500	μA	V_{DS} = 10V, V_{GS} = 0	f = 1kHz
g_{fs}	Common-Source Forward Transconductance	70	250	70	250	μS		
g_{os}	Common-Source Output Conductance		5		5			
C_{iss}	Common-Source Input Capacitance		3		3	pF	V_{DS} = 10V, V_{GS} = 0 (Note 1)	f = 1MHz
C_{rss}	Common-Source Reverse Transfer Capacitance		1.5		1.5			
g_{fs}	Common-Source Forward Transconductance	50	150	50	150	μS	V_{DG} = 10V, I_D = 30μA	f = 1kHz
g_{os}	Common-Source Output Conductance		1		1			
$\overline{e_n}$	Equivalent Short Circuit Input Noise Voltage (Note 1)		0.2		0.1	$\frac{\mu V}{\sqrt{Hz}}$	V_{DS} = 10V, V_{GS} = 0	
NF	Spot Noise Figure (Note 1)		3		1	dB		f = 100Hz RG = 10MΩ

NOTE 1: For design reference only, not 100% tested.