

LS831 MONOLITHIC DUAL N-CHANNEL JFET



Linear Systems Ultra Low Leakage Low Drift Monolithic Dual JFET

The LS831 is a high-performance monolithic dual JFET featuring extremely low noise, tight offset voltage and low drift over temperature specifications, and is targeted for use in a wide range of precision instrumentation applications. The LS831 features a 25mV offset and 10-μV/°C drift.

The 6 Pin SOT-23 package provides ease of manufacturing, and a lower cost assembly option.

(See Packaging Information).

LS831 Applications:

- Wideband Differential Amps
- High-Speed, Temp-Compensated Single-**Ended Input Amps**
- **High-Speed Comparators**
- Impedance Converters and vibrations detectors.

FEATURES							
ULTRA LOW	DRIFT	V _{GS1-2} / T ≤10μV/°C					
ULTRA LOW	LEAKAGE	$I_G = 80fA TYP.$					
LOW NOISE		$e_n = 70 \text{nV/VHz TYP}.$					
LOW CAPAC	ITANCE	C _{ISS} = 3pF MAX.					
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	10μΑ					
Maximum Power Dissipation							
Device Dissipation @ Free Air – Total 400mW @ +125°C							

MATCHING CHARACTERISTICS @ 25°C UNLESS OTHERWISE NOTED								
SYMBOL	CHARACTERISTICS VALU		UNITS	TS CONDITIONS				
V _{GS1-2} / T max.	DRIFT VS.	10	μV/°C	V_{DG} =10V, I_{D} =30 μ A				
	TEMPERATURE			T _A =-55°C to +125°C				
V _{GS1-2} max.	OFFSET VOLTAGE	25	mV	$V_{DG} = 10V, I_{D=} 30 \mu A$				

ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

ELECTRICAL CH	ARACTERISTICS @ 25 C (unless o	therwise noted	<u>) </u>			
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	$I_G = 1$ nA $I_D = 0$ $I_S = 0$
	TRANSCONDUCTANCE					
Y _{fSS}	Full Conduction	70	3 00	500	μmho	V_{DG} = 10V V_{GS} = 0V f = 1kHz
Y _{fS}	Typica <mark>l Operat</mark> ion	50	100	200	μmho	$V_{DG} = 10V$ $I_{D} = 30\mu A$ $f = 1kHz$
Y _{FS1-2} / Y _{FS}	M <mark>is</mark> matc <mark>h</mark>	4	0.6	3	%	
	DRAIN CURRENT					
I _{DSS}	Full-Conduction	0.5		10	mA	$V_{DG} = 10V$ $V_{GS} = 0V$
$ I_{DSS1-2}/I_{DSS} $	Mismatch at Full Conduction		1	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} =30 μ A
	GATE CURRENT					
-I _G max.	Operating			0.1	pA	$V_{DG} = 10V I_D = 30\mu A$
-I _G max.	High Temperature			0.1	nA	T _A = +125°C
-I _{GSS} max.	At Full Conduction			0.2	pA	V _{DS} =0
-I _{GSS} max.	High Temperature	5	5	0.5	nA	V_{GS} = 0V, V_{GS} = -20V, 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			0.5	μmho	V_{DG} = 10V I_D = 30 μ A
	COMMON MODE REJECTION					
CMR	-20 log V _{GS1-2} / V _{DS}		90		dB	$\Delta V_{DS} = 10 \text{ to } 20V \qquad I_D = 30 \mu A$
	-20 log V _{GS1-2} / V _{DS}		90			$\Delta V_{DS} = 5 \text{ to } 10V \qquad I_D = 30 \mu A$
	<u>NOISE</u>					V_{DS} = 10V V_{GS} = 0V R_{G} = 10M Ω
NF	Figure			1	dB	f= 100Hz NBW= 6Hz
e _n	Voltage		20	70	nV/√Hz	V _{DS} =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	pF	V_{DS} = 10V, V_{GS} = 0V, f= 1MHz
C_{DD}	Drain-to-Drain			0.1	pF	V _{DS} = 10V, I _D =30μA

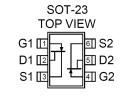
Note 1 – These ratings are limiting values above which the serviceability of any semiconductor may be impaired

Available Packages:

LS831 / LS831 in SOT-23

LS831 / LS831 available as bare die

Please contact Micross for full package and die dimensions





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