2N3956-58 N-Channel Monolithic Dual JFETs

General Description

The 2N3956 thru 2N3958 series of N-channel monolithic dual JFETs is designed for low to medium frequency differential amplifier applications requiring tight match, low noise and high common-mode rejection.

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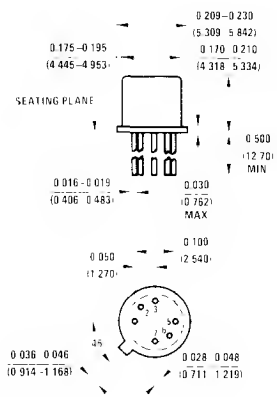

PIN	FET (12)
1	S1
2	D1
3	G1
5	S2
6	D2
7	G2

Absolute Maximum Ratings (25°C)

Gate-Drain or Gate-Source Voltage	−50V
Gate-to-Gate Voltage	±50V
Gate Current	50 mA
Total Device Dissipation 85°C (Each Side)	250 mW
Case Temperature (Both Sides)	500 mW
Power Derating (Each Side)	2.86 mW/°C
(Both Sides)	4.3 mW/°C
Storage Temperature Range	−65°C to +200°C
Lead Temperature (1/16" from case for 10 seconds)	300°C

Electrical Characteristics (25°C unless otherwise noted)

PARAMETER		CONDITIONS		2N3956		2N3957		2N3958		UNITS
				MIN	MAX	MIN	MAX	MIN	MAX	
I_{GSS}	Gate Reverse Current	V_{GS} = −30V, V_{DS} = 0			−100		−100		100	pA
			T_A = 150°C		−500		−500		500	nA
BV_{GSS}	Gate Source Breakdown Voltage	V_{DS} = 0V, I_G = −1 μA		50		−50		−50		V
$V_{GS(off)}$	Gate-Source Cutoff Voltage	V_{DS} = 20V, I_D = 1 nA		1.0	4.5	−1.0	−4.5	−1.0	−4.5	V
$V_{GS(f)}$	Gate Source Forward Voltage	V_{DS} = 0V, I_G = 1 mA			2.0		2.0		2.0	V
V_{GS}	Gate-Source Voltage	V_{DS} = 20V, I_D = 50 μA			−4.2		−4.2		−4.2	V
		V_{DS} = 20V, I_D = 200 μA		0.5	4.0	−0.5	−4.0	−0.5	−4.0	V
I_G	Gate Operating Current	V_{DS} = 20V, I_D = 200 μA			50		50		50	pA
			T_A = 125°C		250		250		250	nA
I_{DSS}	Saturation Drain Current	V_{DS} = 20V V_{GS} = 0		0.5	5.0	0.5	5.0	0.5	5.0	mA
$\lvert Y_{fs} \rvert$	Common Source Forward Transconductance	V_{DS} = 20V, V_{GS} = 0	f = 1 kHz	1000	3000	1000	3000	1000	3000	μmho
			f = 200 MHz	1000		1000		1000		μmho
g_{os}	Common Source Output Conductance		f = 1 kHz		35		35		35	μmho
C_{iss}	Common Source Input Capacitance		f = 1 MHz		4.0		4.0		4.0	pF
C_{rss}	Common Source Reverse Transfer Capacitance				1.2		1.2		1.2	pF
C_{dgo}	Drain Gate Capacitance	V_{DG} = 10V, I_S = 0			1.5		1.5		1.5	pF
NF	Common-Source Spot Noise Figure	V_{DS} = 20V, V_{GS} = 0, R_G = 10 MΩ	f = 100 Hz		0.5		0.5		0.5	dB
$\lvert I_{G1} - I_{G2} \rvert$	Differential Gate Reverse Current	V_{DS} = 20V, I_D = 200 μA	T = 125°C		10		10		10	nA
I_{DSS1}/I_{DSS2}	Saturation Drain Current Ratio	V_{DS} = 20V, V_{GS} = 0		0.95	1.0	0.90	1.0	0.85	1.0	
$\lvert V_{GS1} - V_{GS2} \rvert$	Differential Gate-Source Voltage	V_{DS} = 20V, I_D = 200 μA			15		20		25	mV
$\Delta\lvert V_{GS1} - V_{GS2} \rvert$	Gate-Source Voltage Differential Change With Temperature		T = 25°C to −55°C		40		60		80	mV
			T = 25°C to 125°C		50		75		100	mV
g_{fs1}/g_{fs2}	Transconductance Ratio		f = 1 kHz	0.95	1.0	0.90	1.0	0.85	1.0	