2N5545-47 N-Channel Monolithic Dual JFETs

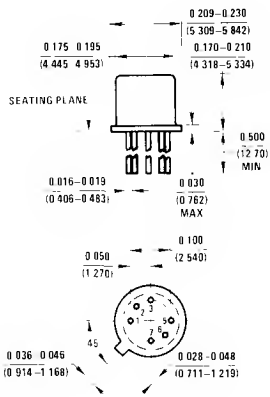
General Description

The 2N5545 thru 2N5547 series of monolithic dual JFETs is designed for low to medium frequency differential amplifiers requiring matched gate-source voltage, high common-mode rejection, and low output conductance.

Absolute Maximum Ratings (25°C)

Gate-Drain or Gate-Source Voltage	−50V
Gate Current	30 mA
Device Dissipation (Each Side), T_A = 25°C (Derate 1.67 mW/°C)	250 mW
Total Device Dissipation, T_A = 25°C (Derate 2.67 mW/°C)	400 mW
Storage Temperature Range	−65°C to +200°C
Lead Temperature (1/16" from case for 10 seconds)	300°C

TO-71



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

Electrical Characteristics (25°C unless otherwise noted)

PARAMETER		CONDITIONS		MIN	MAX	UNITS
I_{GSS}	Gate Reverse Current	V_{GS} = −30V, V_{DS} = 0			−100	pA
			150°C		−150	nA
BV_{GSS}	Gate-Source Breakdown Voltage	I_G = −1 μA, V_{DS} = 0		−50		V
$V_{GS(off)}$	Gate-Source Cutoff Voltage	V_{DS} = 15V, I_D = 0.5 nA		−0.5	−4.5	
I_G	Gate Operating Current	V_{DG} = 15V, I_D = 200 μA			−50	pA
I_{DSS}	Saturation Drain Current	V_{DS} = 15V, V_{GS} = 0		0.5	8	mA
g_{fs}	Common-Source Forward Transconductance	V_{DS} = 15V, V_{GS} = 0	f = 1 kHz	1500	6000	μmho
g_{os}	Common-Source Output Conductance				25	
C_{iss}	Common-Source Input Capacitance		f = 1 MHz		6	pF
C_{rss}	Common-Source Reverse Transfer Capacitance				2	
NF	Spot Noise Figure	V_{DG} = 15V, I_D = 200 μA	f = 10 Hz, R_G = 1 MΩ		3.5	dB
	2N5545				5	
	2N5546					
e_n	Equivalent Input Noise Voltage		f = 10 Hz		180	$\frac{nV}{\sqrt{Hz}}$
	2N5545				200	
	2N5546					

Matching Characteristics

PARAMETER		CONDITIONS		2N5545 MIN	2N5545 MAX	2N5546 MIN	2N5546 MAX	2N5547 MIN	2N5547 MAX	UNITS
$\lvert I_{G1}-I_{G2}\rvert$	Differential Gate Current	V_{DG} = 15V, I_D = 200 μA	125°C		5		5		5	nA
$\frac{I_{DSS1}}{I_{DSS2}}$	Drain Current Ratio at Zero Gate Voltage	V_{DS} = 15V, V_{GS} = 0		0.95	1	0.90	1	0.90	1	
$\lvert V_{GS1}-V_{GS2}\rvert$	Differential Gate Source Voltage	V_{DG} = 15V	I_D = 50 μA		5		10		15	mV
			I_D = 200 μA		5		10		15	
$\frac{\Delta\lvert V_{GS1}-V_{GS2}\rvert}{\Delta T}$	Gate Source Voltage Differential Drift, (Note 1)	V_{DG} = 15V, I_D = 200 μA	T_A = 25°C, T_B = 125°C		10		20		40	μV/°C
			T_A = −55°C, T_B = 25°C		10		20		40	
$\frac{g_{fs1}}{g_{fs2}}$	Transconductance Ratio		f = 1 kHz	0.97	1	0.95	1	0.90	1	
$\lvert g_{os1}-g_{os2}\rvert$	Differential Output Conductance				1		2		3	μmho

Note 1: Measured at end points, T_A and T_B.