2N5564-66/NPD5564-66 N-Channel Monolithic Dual JFETs

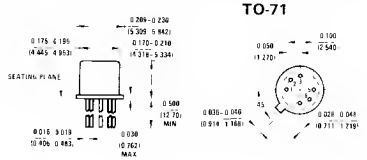
General Description

The 2N/NPD5564 thru 2N/NPD5566 series of N-channel monolithic dual JFETs is designed for broadband low noise differential amplifier or applications requiring dual matched moderate ON resistance analog switches.

Absolute Maximum Ratings (25°C)

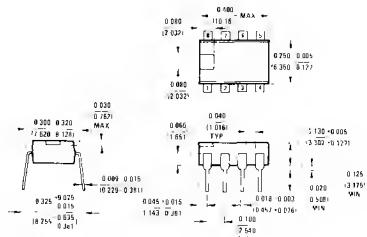
Gate-to-Gate Voltage	±40V
Gate-Drain or Gate-Source Voltage	−40V
Gate Current	50 mA
Device Dissipation (Each Side), T_A = 25°C (Derate 2.2 mW/°C)	325 mW
Total Device Dissipation, T_A = 25°C (Derate 3.3 mW/°C)	650 mW
Storage Temperature Range	−65°C to +200°C
Lead Temperature (1/16" from case for 10 seconds)	300°C

TO-71



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

Molded Dual-In-Line Package (N)



PIN	FET
1	S1
2	D1
3	NC
4	G1
5	S2
6	D2
7	NC
8	G2

Electrical Characteristics (25°C unless otherwise noted)

	PARAMETER	CONDITIONS		MIN	MAX	UNITS
I_{GSS}	Gate-Reverse Current	V_{GS} = −20V, V_{DS} = 0			−100	pA
			150°C		−200	nA
BV_{GSS}	Gate-Source Breakdown Voltage	I_G = −1μA, V_{DS} = 0		−40		V
$V_{GS(OFF)}$	Gate-Source Cutoff Voltage	V_{DS} = 15V, I_D = 1 nA		−0.5	3	
$V_{GS(f)}$	Gate-Source Voltage	V_{DS} = 0V, I_G = 2 mA			10	
I_{DSS}	Saturation Drain Current	V_{DS} = 15V, V_{GS} = 0, (Note 1)		5	30	mA
$r_{DS(ON)}$	Static Drain Source "ON" Resistance	I_D = 1 mA, V_{GS} = 0			100	Ω
g_{fs}	Common Source Forward Transconductance (Note 1)	V_{DG} = 15V, I_D = 2 mA	f = 1 kHz	7500	12,500	μmho
			f = 100 MHz	7000		
g_{os}	Common-Source Output Conductance		f = 1 kHz		45	
C_{rss}	Common-Source Reverse Transfer Capacitance		f = 1 MHz		3	pF
C_{iss}	Common-Source Input Capacitance				12	
NF	Spot Noise Figure		f = 10 Hz, R_g = 1M		1.0	dB
e_n	Equivalent Input Noise Voltage		f = 10 Hz		50	$\frac{nV}{\sqrt{Hz}}$

Matching Characteristics

PARAMETER		CONDITIONS		NPD/2N5564 MIN	NPD/2N5564 MAX	NPD/2N5565 MIN	NPD/2N5565 MAX	NPD/2N5566 MIN	NPD/2N5566 MAX	UNITS
$\frac{I_{DSS1}}{I_{DSS2}}$	Saturation Drain Current Ratio	V_{DS} = 15V, V_{GS} = 0, (Note 1)		0.95	1	0.95	1	0.95	1	
$\lvert V_{GS1}-V_{GS2}\rvert$	Differential Gate-Source Voltage	V_{DS} = 15V, I_D = 2 mA			5		10		20	mV
$\frac{\Delta\lvert V_{GS1}-V_{GS2}\rvert}{\Delta T}$	Gate Source Voltage Differential Drift (Note 2)		T_A = 25°C, T_B = 125°C		10		25		50	μV/°C
			T_A = −55°C, T_B = 25°C		10		25		50	
$\frac{g_{fs1}}{g_{fs2}}$	Transconductance Ratio		f = 1 kHz	0.95	1	0.90	1	0.90	1	

Note 1: Pulse test required, pulse width 300 μs, duty cycle ≤ 3%.

Note 2: Measured at end points, T_A and T_B.