

2N5196-2N5199 Monolithic Dual N-Channel JFET

ABSOLUTE MAXIMUM RATINGS (Note 1) @ 25°C (unless otherwise noted)

Maximum Temperatures	
Storage Temperature	-65°C to +200°C
Operating Junction Temperature	+150°C
Lead Temperature (Soldering, 10 sec. time limit)	+300°C

Maximum Power Dissipation	
Device Dissipation @ 85°C Free Air Temperature	
One Side	250 mW
Both Sides	500 mW
Linear Derating	
One Side	2.56 mW/°C
Both Sides	4.3 mW/°C

Maximum Voltages & Currents	
V _{GS} Gate to Source Voltage	-50 V
V _{GD} Gate to Drain Voltage	-50 V
I _G Gate Current	50 mA

PIN CONFIGURATION

TO-71

CHIP TOPOGRAPHY

6017

ORDERING INFORMATION

TO-71	WAFER	DICE
2N5196	2N5196/W	2N5196/D
2N5197	2N5197/W	2N5197/D
2N5198	2N5198/W	2N5198/D
2N5199	2N5199/W	2N5199/D

ELECTRICAL CHARACTERISTICS (25°C unless otherwise specified)

PARAMETER		MIN	MAX	UNIT	TEST CONDITIONS							
I _{GSS}	Gate Reverse Current		-25	pA	V _{GS} = -30 V, V _{DS} = 0	150°C						
BV _{GSS}	Gate-Source Breakdown Voltage	-50		V	I _G = -1 μA, V _{DS} = 0							
V _{GS(off)}	Gate-Source Cutoff Voltage	-0.7	-4	V	V _{DS} = 20 V, I _D = 1 nA							
V _{GS}	Gate-Source Voltage	-0.2	-3.8	V								
I _G	Gate Operating Current		-15	pA	V _{DG} = 20 V, I _D = 200 μA	125°C						
			-15	nA								
I _{DSS}	Saturation Drain Current (Note 1)	0.7	7	mA	V _{DS} = 20 V, V _{GS} = 0							
g _{fs}	Common-Source Forward Transconductance (Note 1)	1000	4000	μmho	V _{DS} = 20 V, V _{GS} = 0	f = 1 kHz						
g _{fs}	Common-Source Forward Transconductance (Note 1)	700	1500	μmho	V _{DS} = 20 V, I _D = 200 μA							
g _{os}	Common-Source Output Conductance		50	μmho	V _{DS} = 20 V, V _{GS} = 0							
g _{os}	Common-Source Output Conductance		4	μmho	V _{DG} = 20 V, I _D = 200 μA							
C _{iss}	Common-Source Input Capacitance		6	pF		f = 1 MHz						
C _{rss}	Common-Source Reverse Transfer Capacitance		2	pF		f = 100 Hz, R _G = 10 MΩ						
NF	Spot Noise Figure		0.5	dB	V _{DS} = 20 V, V _{GS} = 0	f = 1 kHz						
e _n	Equivalent Input Noise Voltage		0.020	$\frac{\mu}{\sqrt{\text{Hz}}}$		f = 1 kHz						
			20									
PARAMETER		2N5196		2N5197		2N5198		2N5199		UNIT	TEST CONDITIONS	
I _{G1} -I _{G2}	Differential Gate Current	5		5		5		5		nA	V _{DG} = 20 V, I _D = 200 μA	125°C
I _{DSS1} /I _{DSS2}	Saturation Drain Current Ratio (Note 1)	0.95	1	0.95	1	0.95	1	0.95	1	-	V _{DS} = 20 V, V _{GS} = 0 V	
g _{fs1} /g _{fs2}	Transconductance Ratio (Note 1)	0.97	1	0.97	1	0.95	1	0.95	1	-		f = 1 kHz
V _{GS1} -V _{GS2}	Differential Gate-Source Voltage	5		5		10		15		mV	V _{DG} = 20 V, I _D = 200 μA	T _A = 25°C
Δ V _{GS1} -V _{GS2}	Gate-Source Differential Voltage Change with Temperature (Note 2)	5		10		20		40		μV/°C		T _B = 125°C
ΔT		5		10		20		40				T _A = -55°C
g _{os1} -g _{os2}	Differential Output Conductance	1		1		1		1		μmho		T _B = 25°C
		1		1		1		1				f = 1 kHz

NOTE: 1. Pulse test required, pulsewidth = 300 μs, duty cycle ≤ 3%.
2. Measured at end points, T_A and T_B.