

IFN5196, IFN5197, IFN5198, IFN5199

N-Channel Matched Dual Silicon Junction Field-Effect Transistor

- Improved Replacement for the 2N5196, 2N5197, 2N5198, 2N5199
- Differential Inputs

Absolute maximum ratings at T_A = 25°C
 Reverse Gate Source & Gate Drain Voltage -50V
 Continuous Forward Gate Current 50 mA
 Continuous Device Power Dissipation 250 mW
 Power Derating 2.6 mW/°C
 Operating Temperature Range -55°C to +125°C
 Storage Temperature Range -65°C to +150°C

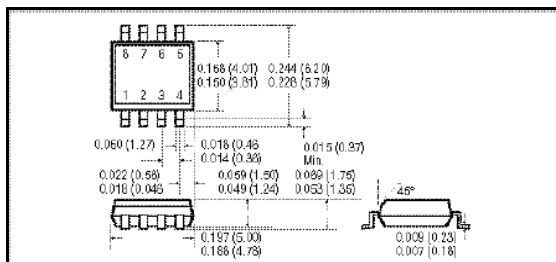
At 25°C free air temperature

Static Electrical Characteristics	IFN5196, IFN5197, IFN5198, IFN5199				Process NJ16	
	Min	Typ	Max	Unit	Test Conditions	
Gate Source Breakdown Voltage	V _{(BR)GSS}	-50		V	I _G = -1 uA, V _{DS} = 0 V	
Gate Reverse Current	I _{GSS}		-25 -50	pA nA	V _{GS} = -30 V, V _{DS} = 0 V 150°C	
Gate Current	I _G		-50 -15	pA nA	V _{DG} = 10 V, I _D = -200 uA 125°C	
Gate Source Cutoff Voltage	V _{GS(OFF)}	-0.7	-4	V	V _{DS} = 20 V, I _D = 1 nA	
Drain Saturation Current (pulsed)	I _{DSS}	0.7	7	mA	V _{DS} = 20 V, V _{GS} = 0 V	
Gate Source Voltage	V _{GS}	-0.2	-3.8	V	V _{DG} = 20 V, I _D = -200 uA	

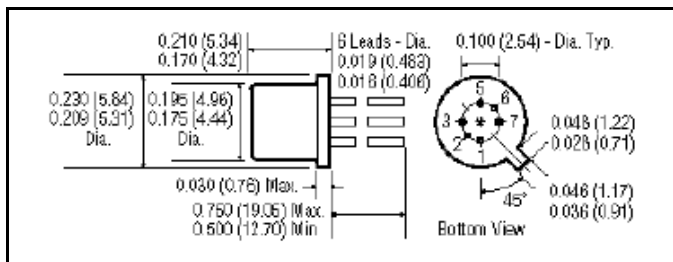
Dynamic Electrical Characteristics

Common-Source Forward Transconductance	g _{fs}	1		4	mS	V _{DS} = 20 V, V _{GS} = 0 V	f = 1 kHz
Common-Source Output Conductance	g _{os}			50	μS	V _{DS} = 20 V, V _{GS} = 0 V	f = 1 kHz
Common-Source Input Capacitance	C _{iss}			6	pF	V _{DS} = 20 V, V _{GS} = 0 V	f = 1 MHz
Common-Source Reverse Transfer Capacitance	C _{rss}			2	pF	V _{DS} = 20 V, V _{GS} = 0 V	f = 1 MHz
Noise Factor R _G = 10 MΩ	NF			0.5	dB	V _{DS} = 20 V, V _{GS} = 0 V	f = 100 Hz
Equivalent Short Circuit Input Noise Voltage	~e _N			20	nV/√Hz	V _{DS} = 20 V, V _{GS} = 0 V	f = 1 kHz

		IFN5196		IFN5197		IFN5198		IFN5199		Units	Test Conditions
		Min	Max	Min	Max	Min	Max	Min	Max		
Differential Gate-Source Voltage	V _{GS1} -V _{GS2}		5		5		10		15	mV	V _{DG} = 20 V, I _D = -200 uA
Differential Gate Source Voltage with Temperature ¹	$\frac{\Delta V_{GS1}-V_{GS2} }{\Delta T}$		5		10		20		40	μV/°C	V _{DG} = 20 V, I _D = -200 uA
Differential Gate Current @125°	I _{G1} -I _{G2}		5		5		5		5	nA	V _{DG} = 20 V, I _D = -200 uA
Saturation Drain Current Ratio	$\frac{I_{DSS1}}{I_{DSS2}}$	0.95	1	0.95	1	0.95	1	0.95	1		V _{DS} = 20 V, V _{GS} = 0 V
Transconductance Ratio @ f = 1 kHz	$\frac{g_{fs1}}{g_{fs2}}$	0.97	1	0.97	1	0.95	1	0.95	1		V _{DG} = 20 V, I _D = -200 uA
Differential Output Conductance @ f = 1 kHz	g _{os1} -g _{os2}		1		1		1		1	uS	V _{DG} = 20 V, I _D = -200 uA



SOIC-8 Package Pin Configuration
 SMP5196, SMP5197, 1-G1, 2-D1, 3-S1, 4-G2,
 SMP5198, SMP5199 5-G2, 6-D2, 7-S2, 8-G1



TO-71: Pin Configuration
 IFN5196, IFN5197, 1-S1, 2-D1, 3-G1,
 IFN5198, IFN5199 4-S2, 5-D2, 6-G2

Note 1: T = -55°C, 25°C, 125°C
 Note 2: Dimensions in Inches (mm)



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