

# IFN401, IFN402, IFN403, IFN404, IFN405, IFN406

## N-Channel Matched Dual Silicon Junction Field-Effect Transistor

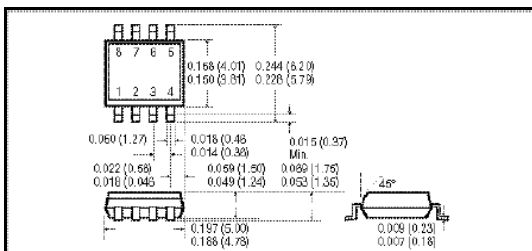
- Improved Replacements for the U401, U402, U403, U404, U405, U406
- Low Noise Differential Amplifier
- Wide-Band Amplifier
- Precision Instrumentation Amplifier

**Absolute maximum ratings at T<sub>A</sub> = 25°C**  
 Reverse Gate Source & Gate Drain Voltage -50V  
 Continuous Forward Gate Current 10 mA  
 Continuous Device Power Dissipation 300 mW  
 Power Derating 4.3 mW/°C  
 Operating Temperature Range -55°C to +125°C  
 Storage Temperature Range -65°C to +150°C

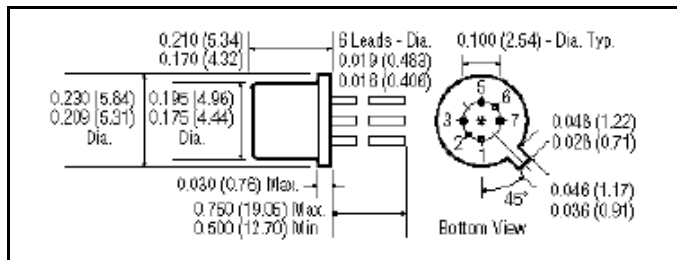
At 25°C free air temperature Static Electrical Characteristics		401, 402, 403, 404, 405, 406				Process NJ16	
		Min	Typ	Max	Unit	Test Conditions	
Gate Source Breakdown Voltage	V <sub>(BR)GSS</sub>	-50			V	I <sub>G</sub> = -1 uA, V <sub>DS</sub> = 0 V	
Gate Reverse Current	I <sub>GSS</sub>			-25	pA	V <sub>GS</sub> = -30 V, V <sub>DS</sub> = 0 V	
Gate Source Cutoff Voltage	V <sub>GS(OFF)</sub>	-0.5		-2.5	V	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 1 nA	
Gate Source On Voltage	V <sub>GS(ON)</sub>			-2.3	V	V <sub>DG</sub> = 15 V, I <sub>D</sub> = 200uA	
Drain Saturation Current (pulsed)	I <sub>DSS</sub>	0.5		10	mA	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0 V	
Gate Current	I <sub>G</sub>			-50 -10	pA nA	V <sub>DG</sub> = 10 V, I <sub>D</sub> = 200 uA  125°C	

Dynamic Electrical Characteristics							
Common-Source Forward Transconductance	g <sub>fs</sub>	0.5		2	mS	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 400 uA	f = 1 kHz
Common-Source Output Transconductance	g <sub>os</sub>			2	uS	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 200 uA	f = 1 kHz
Common-Source Input Capacitance	C <sub>iss</sub>			8	pF	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 200 uA	f = 1 MHz
Common-Source Reverse Transfer Capacitance	C <sub>rss</sub>			3	pF	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 200 uA	f = 1 MHz
Equivalent Short Circuit Input Noise Voltage	~e <sub>N</sub>			20	nV/√Hz	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V	f = 10 Hz

Matching Characteristics (Max)		401	402	403	404	405	406	Units	Test Conditions
Differential Gate-Source Voltage	V <sub>GS1</sub> - V <sub>GS2</sub>	5	10	10	15	20	40	mV	V <sub>DG</sub> = 10 V, I <sub>D</sub> = 200 uA
Differential Gate Source Voltage w/ Temperature (-55°C, 25°C, 125°C)	Δ  V <sub>GS1</sub> - V <sub>GS2</sub>   / ΔT	10	10	25	25	40	80	μV/°C	V <sub>DG</sub> = 10 V, I <sub>D</sub> = 200 μA



**SOIC-8 Package Pin Configuration**  
 SMPU401, SMPU402, 1-G1, 2-D1, 3-S1, 4-G2,  
 SMPU403, SMPU404 5-G2, 6-D2, 7-S2, 8-G1  
 SMPU405, SMPU406



**TO-71: Pin Configuration**  
 IFN401, IFN 402, IFN 403,, 1-S1, 2-D1, 3-G1,  
 IFN 404, IFN 405, IFN 406 4-S2, 5-D2, 6-G2  
 Dimensions in Inches (mm)



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