

IFN401, IFN402, IFN403, IFN404, IFN405, IFN406

N-Channel Matched Dual Silicon Junction Field-Effect Transistor

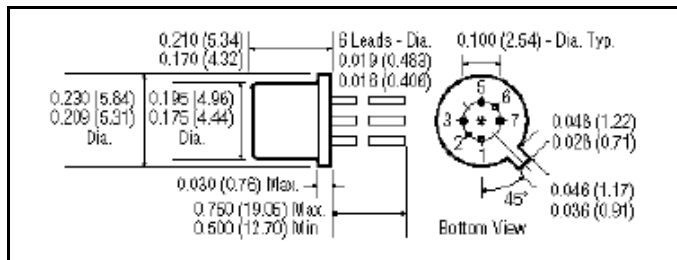
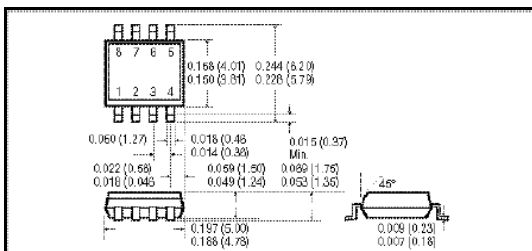
- Improved Replacements for the U401, U402, U403, U404, U405, U406
- Low Noise Differential Amplifier
- Wide-Band Amplifier
- Precision Instrumentation Amplifier

Absolute maximum ratings at $T_A = 25^\circ\text{C}$
 Reverse Gate Source & Gate Drain Voltage -50V
 Continuous Forward Gate Current 10 mA
 Continuous Device Power Dissipation 300 mW
 Power Derating 4.3 mW/ $^\circ\text{C}$
 Operating Temperature Range -55 $^\circ\text{C}$ to +125 $^\circ\text{C}$
 Storage Temperature Range -65 $^\circ\text{C}$ to +150 $^\circ\text{C}$

At 25 $^\circ\text{C}$ free air temperature Static Electrical Characteristics		401, 402, 403, 404, 405, 406				Process NJ16	
		Min	Typ	Max	Unit	Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	-50			V	$I_G = -1 \mu\text{A}$, $V_{DS} = 0 \text{ V}$	
Gate Reverse Current	I_{GSS}			-25	pA	$V_{GS} = -30 \text{ V}$, $V_{DS} = 0 \text{ V}$	
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	-0.5		-2.5	V	$V_{DS} = 15 \text{ V}$, $I_D = 1 \text{ nA}$	
Gate Source On Voltage	$V_{GS(ON)}$			-2.3	V	$V_{DG} = 15 \text{ V}$, $I_D = 200 \mu\text{A}$	
Drain Saturation Current (pulsed)	I_{DSS}	0.5		10	mA	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0 \text{ V}$	
Gate Current	I_G			-50 -10	pA nA	$V_{DG} = 10 \text{ V}$, $I_D = 200 \mu\text{A}$ 125 $^\circ\text{C}$	

Dynamic Electrical Characteristics							
Common-Source Forward Transconductance	g_{fs}	0.5		2	mS	$V_{DS} = 15 \text{ V}$, $I_D = 400 \mu\text{A}$	f = 1 kHz
Common-Source Output Transconductance	g_{os}			2	uS	$V_{DS} = 15 \text{ V}$, $I_D = 200 \mu\text{A}$	f = 1 kHz
Common-Source Input Capacitance	C_{iss}			8	pF	$V_{DS} = 15 \text{ V}$, $I_D = 200 \mu\text{A}$	f = 1 MHz
Common-Source Reverse Transfer Capacitance	C_{rss}			3	pF	$V_{DS} = 15 \text{ V}$, $I_D = 200 \mu\text{A}$	f = 1 MHz
Equivalent Short Circuit Input Noise Voltage	$\sim e_N$			20	nV/ $\sqrt{\text{Hz}}$	$V_{DS} = 15 \text{ V}$, $V_{GS} = 0 \text{ V}$	f = 10 Hz

Matching Characteristics (Max)		401	402	403	404	405	406	Units	Test Conditions
Differential Gate-Source Voltage	$ V_{GS1} - V_{GS2} $	5	10	10	15	20	40	mV	$V_{DG} = 10 \text{ V}$, $I_D = 200 \mu\text{A}$
Differential Gate Source Voltage w/ Temperature (-55 $^\circ\text{C}$, 25 $^\circ\text{C}$, 125 $^\circ\text{C}$)	$\frac{\Delta V_{GS1} - V_{GS2} }{\Delta T}$	10	10	25	25	40	80	$\mu\text{V}/^\circ\text{C}$	$V_{DG} = 10 \text{ V}$, $I_D = 200 \mu\text{A}$



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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