IFN410, IFN411, IFN412

N-Channel Matched Dual Silicon Junction Field-Effect Transistor

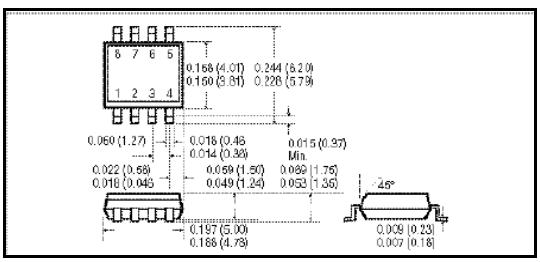
- **Improved Replacements for the U410, U411, & U412**
- **Low Noise Differential Amplifier**
- **Differential Amplifier**
- **Wide-Band Amplifier**

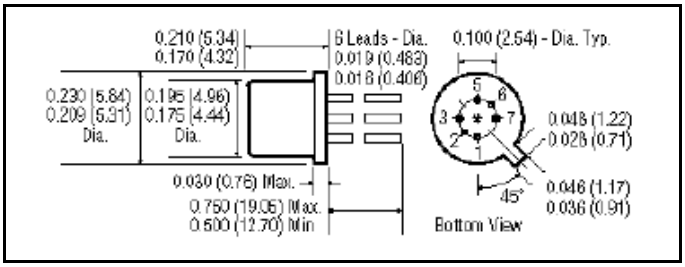
Absolute maximum ratings at $T_A = 25^oC$

Reverse Gate Source & Gate Drain Voltage	-40V
Continuous Forward Gate Current	50 mA
Continuous Device Power Dissipation	375 mW
Power Derating	3.0 mW/^{o}C
Operating Temperature Range	-55°C to +125°C
Storage Temperature Range	-65^{o}C to +150^{o}C

At 25°C free air temperature Static Electrical Characteristics		410, 411, 412 Min	Typ	Max	Unit	Process NJ16 Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	-40			V	I_G = -1uA, V_{DS} = 0 V	
Gate Reverse Current	I_{GSS}			-0.2	nA	V_{GS} = -30 V, V_{DS} = 0 V	
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	-0.5		-3.5	V	V_{DS} = 20 V, I_D = 1 nA	
Gate Source Voltage	V_{GS}	-0.2		-3	V	V_{DS} = 20 V, I_D = 200 uA	
Drain Saturation Current (pulsed)	I_{DSS}	0.5		5	mA	V_{DS} = 20 V, V_{GS} = 0 V	
Gate Current	I_G			-200	pA	V_{DS} = 10 V, I_D = 200 uA	
Dynamic Electrical Characteristics							
Common-Source Forward Transconductance	g_{fs}	1 0.6		4 1.2	mS	V_{DS} = 20 V, V_{GS} = 0 V V_{DS} = 20 V, I_D = 200 uA	f = 1 kHz
Common-Source Output Conductance	g_{os}			20 5	uS	V_{DS} = 20 V, V_{GS} = 0 V V_{DS} = 20 V, I_D = 200 uA	f = 1 kHz
Common-Source Input Capacitance	C_{iss}			4.5	pF	V_{DS} = 20V, V_{GS} = 0 V	f = 1 MHz
Common-Source Reverse Transfer Capacitance	C_{rss}			1.2	pF	V_{DS} = 20 V, V_{GS} = 0 V	f = 1 MHz
Equivalent Short Circuit Input Noise Voltage	~e_N			50	nV/√Hz	V_{DS} = 20 V, I_D = 200uA	f = 100 Hz

Matching Characteristics		410	411	412	Units	Test Conditions
Differential Gate-Source Voltage	$\lvert V_{GS1}-V_{GS2} \rvert$	10	20	40	mV	V_{DG} = 20 V, I_D = -200 uA
Differential Gate Source Voltage with Temperature	$\frac{\Delta \lvert V_{GS1}-V_{GS2} \rvert}{\Delta T}$	10	25	80	µV/°C	V_{DG} = 20 V, I_D = 200 µA 25°C to 85°C
Common Mode Rejection Rate	CMRR (typ)	80	80	70	dB	V_{DD} = 10 V to V_{DD} = 20 V I_D = 200 uA





SOIC-8 Package SMPU410, SMPU411, SMPU412

Pin Configuration 1-G1, 2-D1, 3-S1, 4-G2, 5-G2, 6-D2, 7-S2, 8-G1

TO-71: IFN410, IFN 411, IFN 412,

Pin Configuration 1-S1, 2-D1, 3-G1, 4-S2, 5-D2, 6-G2

Dimensions in Inches (mm)

InterFET

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