

IFN5114, IFN5115, IFN5116

P-Channel Silicon Junction Field-Effect Transistor

• Analog Switches

Absolute maximum ratings at $T_A = 25^\circ\text{C}$

Reverse Gate Source & Reverse Gate Drain Voltage	– 50 V
Continuous Forward Gate Current	50 mA
Continuous Device Power Dissipation	500 mW
Power Derating	4 mW/°C
Storage Temperature Range	– 65°C to 200°C

At 25°C free air temperature:
Static Electrical Characteristics

		IFN5114		IFN5115		IFN5116		Process PJ99	
		Min	Max	Min	Max	Min	Max	Unit	Test Conditions
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	30		30		30		V	$I_G = -1\text{ mA}$, $V_{DS} = \emptyset\text{ V}$
Gate Reverse Current	I_{GSS}		2		2		2	nA	$V_{GS} = 20\text{ V}$, $V_{DS} = \emptyset\text{ V}$
			10		10		10	μA	$V_{GS} = 20\text{ V}$, $V_{DS} = \emptyset\text{ V}$, $T_A = 150^\circ\text{C}$
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	5	10	3	6	1	4	V	$V_{DS} = -15\text{ V}$, $I_G = -1\text{ nA}$
Gate Source Forward Voltage	$V_{GS(F)}$		– 1		– 1		– 1	V	$V_{DS} = \emptyset\text{ V}$, $I_G = -1\text{ mA}$
Drain Saturation Current (Pulsed)	I_{DSS}	– 30	– 90					mA	$V_{DS} = -15\text{ V}$, $V_{GS} = 18\text{ V}$
				– 15	– 60	– 5	– 25	mA	$V_{DS} = -15\text{ V}$, $V_{GS} = 15\text{ V}$
Drain Cutoff Current	$I_{D(OFF)}$		– 2		– 2		– 2	nA	$V_{DS} = -15\text{ V}$, $V_{GS} = 12\text{ V}$
			– 10		– 10		– 10	μA	$V_{DS} = -15\text{ V}$, $V_{GS} = 7\text{ V}$, $T_A = 150^\circ\text{C}$
Drain Source ON Voltage	$V_{DS(ON)}$		– 1.3					V	$V_{GS} = \emptyset\text{ V}$, $I_D = -15\text{ mA}$
					– 0.8			V	$V_{GS} = \emptyset\text{ V}$, $I_D = -7\text{ mA}$
						– 0.6		V	$V_{GS} = \emptyset\text{ V}$, $I_D = -3\text{ mA}$
Static Drain Source ON Resistance	$r_{DS(ON)}$		75		100		150	Ω	$V_{GS} = \emptyset\text{ V}$, $I_D = -1\text{ mA}$

Dynamic Electrical Characteristics

Drain Source ON Resistance	$r_{ds(on)}$		75		100		150	Ω	$V_{GS} = \emptyset\text{ V}$, $I_D = \emptyset\text{ A}$	$f = 1\text{ kHz}$
Common Source Input Capacitance	C_{iss}		25		25		27	pF	$V_{DS} = -15\text{ V}$, $V_{GS} = \emptyset\text{ V}$	$f = 1\text{ MHz}$
Common Source Reverse Transfer Capacitance	C_{rss}		7					pF	$V_{DS} = -10\text{ V}$, $V_{GS} = 12\text{ V}$	$f = 1\text{ MHz}$
					7			pF	$V_{DS} = -10\text{ V}$, $V_{GS} = 7\text{ V}$	$f = 1\text{ MHz}$
							7	pF	$V_{DS} = -10\text{ V}$, $V_{GS} = 5\text{ V}$	$f = 1\text{ MHz}$

Switching Characteristics

		IFN5114		IFN5115		IFN5116			
Turn ON Delay Time	$t_{d(on)}$		6		10		25	ns	$V_{DD} = -10$, $V_{GG} = 20$, $R_L = 130$, $R_G = 100$, $I_{D(ON)} = -15$
Rise Time	t_r		10		20		35	ns	$V_{GG} = 20$, $R_L = 130$, $R_G = 100$, $I_{D(ON)} = -15$
Turn OFF Delay Time	$t_{d(off)}$		6		8		20	ns	$V_{GG} = 20$, $R_L = 130$, $R_G = 100$, $I_{D(ON)} = -15$
Fall Time	t_f		15		30		60	ns	$V_{GG} = 20$, $R_L = 130$, $R_G = 100$, $I_{D(ON)} = -15$

TO-18 Package

See Section G for Outline Dimensions

Pin Configuration

1 Source 1, 2 Gate & Case, 3 Drain

Surface Mount

SMP5114, SMP5115, SMP5116



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