

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/ $^\circ\text{C}$
Storage Temperature Range	- 65 $^\circ\text{C}$ to 200 $^\circ\text{C}$

At 25 $^\circ\text{C}$ 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 kHz
Common Source Input Capacitance	C_{iss}		25		25		27	pF	$V_{DS} = -15\text{ V}, V_{GS} = \emptyset\text{ V}$	f = 1 MHz
Common Source Reverse Transfer Capacitance	C_{rss}		7					pF	$V_{DS} = -10\text{ V}, V_{GS} = 12\text{ V}$	f = 1 MHz
					7			pF	$V_{DS} = -10\text{ V}, V_{GS} = 7\text{ V}$	f = 1 MHz
							7	pF	$V_{DS} = -10\text{ V}, V_{GS} = 5\text{ V}$	f = 1 MHz

Switching Characteristics

									IFN5114 IFN5115 IFN5116			
									V_{DD}	V_{GG}	R_L	R_G
Turn ON Delay Time	$t_{d(on)}$		6		10		25	ns	- 10	- 6	- 6	V
Rise Time	t_r		10		20		35	ns	20	12	8	V
Turn OFF Delay Time	$t_{d(off)}$		6		8		20	ns	130	910	2000	Ω
Fall Time	t_f		15		30		60	ns	100	220	390	Ω
									- 15	- 7	- 3	mA

TO-18 Package

See Section G for Outline Dimensions

Pin Configuration

1 Source 1, 2 Gate & Case, 3 Drain

Surface Mount

SMP5114, SMP5115, SMP5116



1000 N. Shiloh Road, Garland, TX 75042
(972) 487-1287 FAX (972) 276-3375

www.interfet.com