2N5114, 2N5115, 2N5116

P-Channel Silicon Junction Field-Effect Transistor

- Analog Switches

Absolute maximum ratings at T_A = 25°C

Reverse Gate Source & Reverse Gate Drain Voltage	– 40 V
Gate Current	50 mA
Continuous Device Power Dissipation	500mW
Power Derating	3 mW/°C
Storage Temperature Range	– 65°C to + 200°C

At 25°C free air temperature: Static Electrical Characteristics		2N5114		2N5115		2N5116		Process PJ99		
		Min	Max	Min	Max	Min	Max	Unit	Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	30		30		30		V	I_G = – 1µA, V_{DS} = ØV	
Gate Reverse Current	I_{GSS}		500		500		500	pA	V_{GS} = 20V, V_{DS} = ØV	
			1		1		1	µA	V_{GS} = 20V, V_{DS} = ØV	T_A = 150°C
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	5	10	3	6	1	4	V	V_{DS} = – 15V, I_G = – 1 nA	
Gate Source Forward Voltage	$V_{GS(F)}$		– 1		– 1		– 1	V	V_{DS} = ØV, I_G = – 1 mA	
Drain Saturation Current (Pulsed)	I_{DSS}	– 30	– 90					mA	V_{GS} = ØV, V_{DS} = – 18V	
				– 15	– 60	– 5	– 25	mA	V_{GS} = ØV, V_{DS} = – 15V	
Drain Cutoff Current	$I_{D(OFF)}$		– 500					pA	V_{DS} = – 15V, V_{GS} = 12V	
			– 1					µA	V_{DS} = – 15V, V_{GS} = 12V	T_A = 150°C
					– 500			pA	V_{DS} = – 15V, V_{GS} = 7V	
					– 1			µA	V_{DS} = – 15V, V_{GS} = 7V	T_A = 150°C
							– 500	pA	V_{DS} = – 15V, V_{GS} = 5V	
							– 1	µA	V_{DS} = – 15V, V_{GS} = 5V	T_A = 150°C
Drain Source ON Voltage	$V_{DS(ON)}$		– 1.3					V	V_{GS} = ØV, I_D = – 15 mA	
					– 0.8			V	V_{GS} = ØV, I_D = – 7 mA	
							– 0.6	V	V_{GS} = ØV, I_D = – 3 mA	
Static Drain Source ON Resistance	$r_{DS(ON)}$		75		100		150	Ω	V_{GS} = ØV, I_D = – 1 mA	
Dynamic Electrical Characteristics										
Drain Source ON Resistance	$r_{ds(on)}$		75		100		150	Ω	V_{GS} = ØV, I_D = ØA	f = 1 kHz
Common Source Input Capacitance	C_{iss}		25		25		27	pF	V_{DS} =– 15V, V_{GS} = ØV	f = 1 MHz
Common Source Reverse Transfer Capacitance	C_{rss}		7					pF	V_{DS} = ØV, V_{GS} = 12V	f = 1 MHz
					7			pF	V_{DS} = ØV, V_{GS} = 7 V	f = 1 MHz
							7	pF	V_{DS} = ØV, V_{GS} = 5V	f = 1 MHz

Switching Characteristics									2N5114	2N5115	2N5116	
Turn ON Delay Time	$t_{d(on)}$		6		10		25	ns	V_{DD}	– 10	– 6	– 6 V
Rise Time	t_r		10		20		35	ns	V_{GG}	20	12	8 V
Turn OFF Delay Time	$t_{d(off)}$		6		8		20	ns	R_L	130	910	2000 Ω
Fall Time	t_f		15		30		60	ns	R_G	100	220	390 Ω
									$I_{D(ON)}$	– 15	– 7	– 3 mA

TO-18 Package

See Section G for Outline Dimensions

Pin Configuration

1 Source 1, 2 Gate & Case, 3 Drain

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