PJ99 Process

Silicon Junction Field-Effect Transistor

- General Purpose Amplifier
- Analog Switch

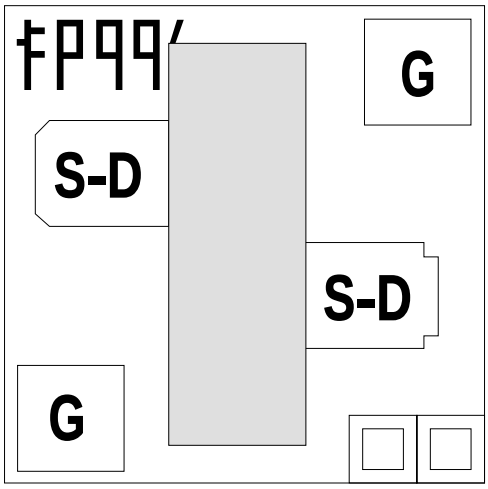
Absolute maximum ratings at TA = 25°C

Gate Current, Ig	10 mA
Operating Junction Temperature, Tj	+150°C
Storage Temperature, Ts	– 65°C to +175°C

Devices in this Databook based on the PJ99 Process.

Datasheet
2N3993, 2N3993A
2N3994, 2N3994A
2N5114, 2N5115
2N5116
2SJ44
IFN5114, IFN5115
IFN5116

Datasheet
IFP44
J174, J175
J176, J177
P1086, P1087
VCR3P



Die Size = 0.021" X 0.021"
All Bond Pads = 0.004" Sq.
Substrate is also Gate.

At 25°C free air temperature:		PJ99 Process					
Static Electrical Characteristics		**Min**	**Typ**	**Max**	**Unit**	**Test Conditions**	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	30	40		V	I_G = 1 µA, V_{DS} = ØV	
Reverse Gate Leakage Current	I_{GSS}		0.5	1	nA	V_{GS} = 20V, V_{DS} = ØV	
Drain Saturation Current (Pulsed)	I_{DSS}	– 5		– 60	mA	V_{DS} = – 15V, V_{GS} = ØV	
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	1		8	V	V_{DS} = – 15V, I_D = 1 nA	
Dynamic Electrical Characteristics							
Drain Source ON Resistance	$r_{ds(on)}$		75		Ω	I_D = 1 mA, V_{GS} = ØV	f = 1 kHz
Forward Transconductance	g_{fs}		15		mS	V_{DS} = – 15V, V_{GS} = ØV	f = 1 kHz
Input Capacitance	C_{iss}		18		pF	V_{DS} = 15V, V_{GS} = ØV	f = 1 MHz
Feedback Capacitance	C_{iss}		4.5		pF	V_{DS} = ØV, V_{GS} = 10V	f = 1 MHz
Equivalent Noise Voltage	$\bar{e}_N$		8		nV/√HZ	V_{DS} = – 10V, V_{GS} = ØV	f = 1 kHz
Turn On Delay Time	$t_{d(on)}$		5		ns	V_{DD} = – 10V, $I_{D(ON)}$ = – 15 mA R_L = 580Ω, $V_{GS(ON)}$ = ØV $V_{GS(OFF)}$ = 12V	
Rise Time	t_r		10		ns		
Turn Off Delay Time	$t_{d(off)}$		6		ns		
Fall Time	t_f		5		ns		

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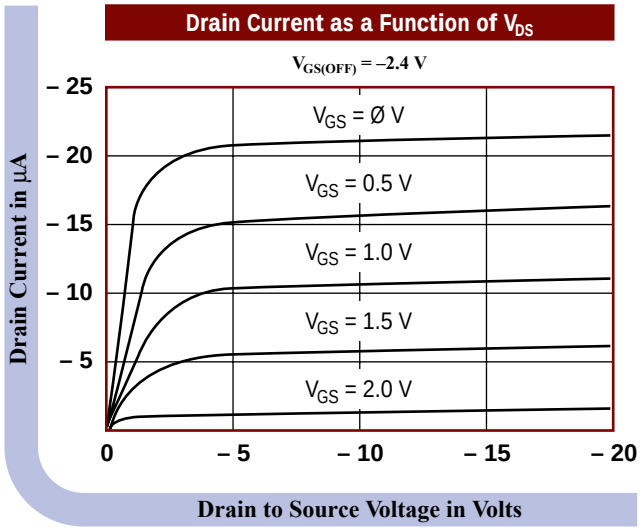
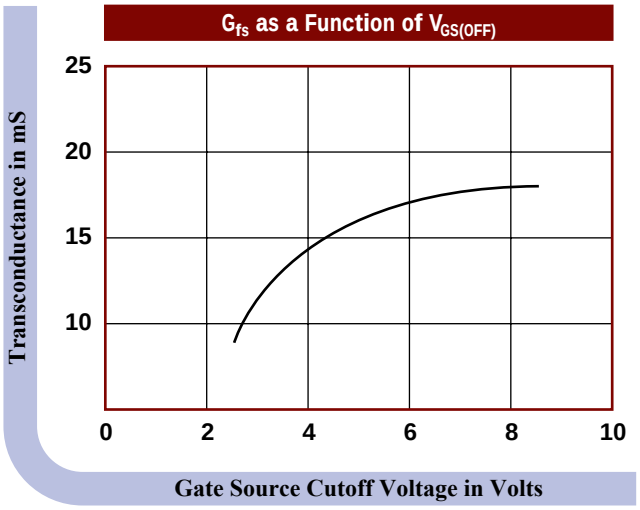
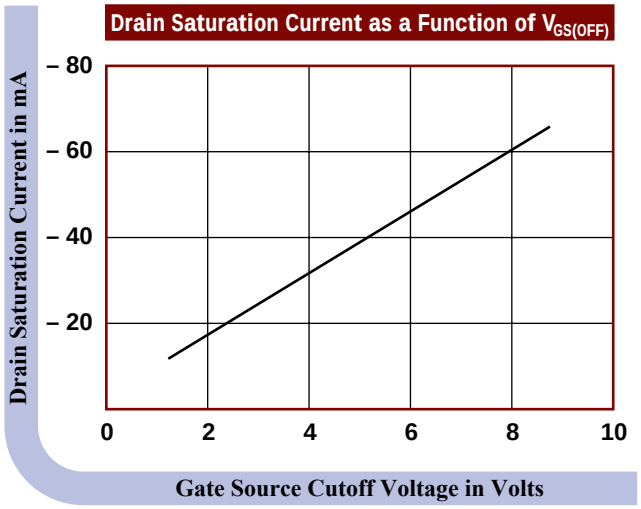
Drain Current as a Function of V_{DS}



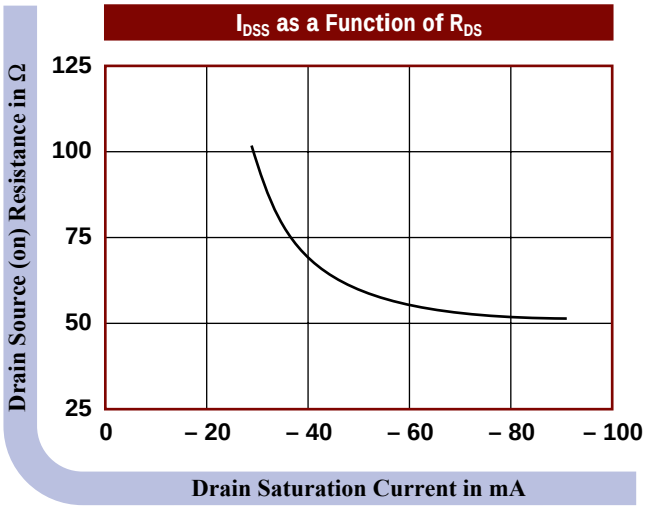
G_{fs} as a Function of $V_{GS(OFF)}$



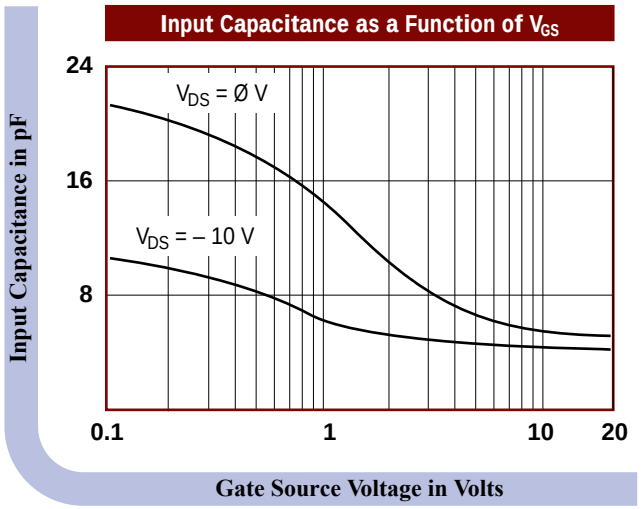
Drain Saturation Current as a Function of $V_{GS(OFF)}$



I_{DSS} as a Function of R_{DS}



Input Capacitance as a Function of V_{GS}



Feedback Capacitance as a Function of V_{GS}