

J111, J112, J113

N-Channel Silicon Junction Field-Effect Transistor

- Choppers
- Commutators
- Analog Switches

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

Reverse Gate Source & Reverse Gate Drain Voltage	- 35 V
Continuous Forward Gate Current	50 mA
Continuous Device Power Dissipation	360 mW
Power Derating	3.27 mW/°C

At 25°C free air temperature
Static Electrical Characteristics

		J111		J112		J113		Process NJ132	
		Min	Max	Min	Max	Min	Max	Unit	Test Conditions
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	- 35		- 35		- 35		V	$I_G = -1\mu\text{A}, V_{DS} = \emptyset\text{V}$
Gate Reverse Current	I_{GSS}		- 1		- 1		- 1	nA	$V_{GS} = -15\text{V}, V_{DS} = \emptyset\text{V}$
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	- 3	- 10	- 1	- 5		- 3	V	$V_{DS} = 5\text{V}, I_D = 1\mu\text{A}$
Drain Saturation Current (Pulsed)	I_{DSS}	20		5		2		mA	$V_{DS} = 15\text{V}, V_{GS} = \emptyset\text{V}$
Drain Cutoff Current	$I_{D(OFF)}$		- 1		- 1		- 1	nA	$V_{DS} = 15\text{V}, V_{GS} = -10\text{V}$

Dynamic Electrical Characteristics

Drain Source ON Resistance	$r_{ds(on)}$		30		50		100	Ω	$V_{GS} = \emptyset\text{V}, V_{DS} = 0.1\text{V}$	$f = 1\text{ kHz}$
Drain Gate Capacitance	C_{dg}		5		5		5	pF	$V_{DS} = \emptyset\text{V}, V_{GS} = -10\text{V}$	$f = 1\text{ MHz}$
Source Gate Capacitance	C_{gs}		5		5		5	pF	$V_{DS} = \emptyset\text{V}, V_{GS} = -10\text{V}$	$f = 1\text{ MHz}$
Drain Gate + Source Gate Capacitance	$C_{gd} + C_{gs}$		28		28		28	pF	$V_{DS} = V_{GS} = \emptyset\text{V}$	$f = 1\text{ MHz}$

Switching Characteristics

		Typ			ns		J111			J112			J113		
		Typ	Typ	Typ			Typ	Typ	Typ	Typ	Typ	Typ	Typ	Typ	Typ
Turn ON Delay Time	$t_{d(on)}$	7	7	7	ns		J111	J112	J113						
Rise Time	t_r	6	6	2	ns	V_{DD}	10	10	10	V					
Turn OFF Delay Time	$t_{d(off)}$	20	20	20	ns	$V_{GS(OFF)}$	- 12	- 7	- 5	V					
Fall Time	t_f	15	15	15	ns	R_L	800	1600	3200	Ω					

TO-226AA Package

Dimensions in Inches (mm)

Pin Configuration

1 Drain, 2 Source, 3 Gate

Surface Mount

SMPJ111, SMPJ112, SMPJ113