

J110, J110A

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	– 25 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

		J110		J110A		Process NJ450	
		Min	Max	Min	Max	Unit	Test Conditions
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	– 25		– 25		V	$I_G = -1\ \mu\text{A}$, $V_{DS} = 0\text{V}$
Gate Reverse Current	I_{GSS}		– 3		– 3	nA	$V_{GS} = -15\text{V}$, $V_{DS} = 0\text{V}$
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	– 0.5	– 4	– 0.5	– 4	V	$V_{DS} = 5\text{V}$, $I_D = 1\ \mu\text{A}$
Drain Saturation Current (Pulsed)	I_{DSS}	10		10		mA	$V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$
Drain Cutoff Current	$I_{D(OFF)}$		3		3	nA	$V_{DS} = 5\text{V}$, $V_{GS} = -10\text{V}$

Dynamic Electrical Characteristics

Drain Source ON Resistance	$r_{ds(on)}$		18		25	Ω	$V_{GS} = 0$, $V_{DS} \leq 0.1\text{V}$	$f = 1\text{ kHz}$
Drain Gate Capacitance	C_{gd}		15		15	pF	$V_{DS} = 0\text{V}$, $V_{GS} = -10\text{V}$	$f = 1\text{ MHz}$
Source Gate Capacitance	C_{gs}		15		15	pF	$V_{DS} = 0\text{V}$, $V_{GS} = -10\text{V}$	$f = 1\text{ MHz}$
Drain Gate + Source Gate Capacitance	$C_{gd} + C_{gs}$		85		85	pF	$V_{DS} = V_{GS} = 0\text{V}$	$f = 1\text{ MHz}$

Switching Characteristics

		Typ		Typ				
Turn ON Delay Time	$t_{d(on)}$	4		4		ns	J110	J110A
Rise Time	t_r	1		1		ns	V_{DD}	1.5 1.5 V
Turn OFF Delay Time	$t_{d(off)}$	6		6		ns	$V_{GS(OFF)}$	– 5 – 5 V
Fall Time	t_f	30		30		ns	R_L	150 150 Ω

TO-226AA Package

Dimensions in Inches (mm)

Pin Configuration

1 Drain, 2 Source, 3 Gate

Surface Mount

SMPJ110, SMPJ110A



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