

J108, J109

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

		J108		J109		Process NJ450		
		Min	Max	Min	Max	Unit	Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	– 25		– 25		V	$I_G = -1\ \mu\text{A}$, $V_{DS} = \emptyset\text{V}$	
Gate Reverse Current	I_{GSS}		– 3		– 3	nA	$V_{GS} = -15\text{V}$, $V_{DS} = \emptyset\text{V}$	
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	– 3	– 10	– 2	– 6	V	$V_{DS} = 5\text{V}$, $I_D = 1\ \mu\text{A}$	
Drain Saturation Current (Pulsed)	I_{DSS}	80		40		mA	$V_{DS} = 15\text{V}$, $V_{GS} = \emptyset\text{V}$	
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	$r_{ds(on)}$		8		12	Ω	$V_{GS} = \emptyset$, $V_{DS} \leq 0.1\text{V}$	$f = 1\text{ kHz}$
Drain Gate Capacitance	C_{gd}		15		15	pF	$V_{DS} = \emptyset\text{V}$, $V_{GS} = -10\text{V}$	$f = 1\text{ MHz}$
Source Gate Capacitance	C_{gs}		15		15	pF	$V_{DS} = \emptyset\text{V}$, $V_{GS} = -10\text{V}$	$f = 1\text{ MHz}$
Drain Gate + Source Gate Capacitance	$C_{gd} + C_{gs}$		85		85	pF	$V_{DS} = V_{GS} = \emptyset\text{V}$	$f = 1\text{ MHz}$

Switching Characteristics

		Typ		Typ				
Turn ON Delay Time	$t_{d(on)}$	3	3	ns		J108 J109		
Rise Time	t_r	1	1	ns			V_{DD}	1.5
Turn OFF Delay Time	$t_{d(off)}$	4	4	ns			$V_{GS(OFF)}$	– 12
Fall Time	t_f	18	18	ns			R_L	150
								1.5
								– 7
								150
								Ω

TO-226AA Package

Dimensions in Inches (mm)

Pin Configuration

1 Drain, 2 Source, 3 Gate

Surface Mount

SMPJ108, SMPJ109

