J108, J109

N-Channel Silicon Junction Field-Effect Transistor

- **Choppers**
- **Commutators**
- **Analog Switches**

Absolute maximum ratings at T_A = 25 ˚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 Min	J108 Max	J109 Min	J109 Max	Unit	Process NJ450 Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	– 25		– 25		V	I_G = – 1 µA, V_{DS} = ØV	
Gate Reverse Current	I_{GSS}		– 3		– 3	nA	V_{GS} = – 15 V, V_{DS} = ØV	
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	– 3	– 10	– 2	– 6	V	V_{DS} = 5 V, I_D = 1 µA	
Drain Saturation Current (Pulsed)	I_{DSS}	80		40		mA	V_{DS} = 15 V, V_{GS} = ØV	
Drain Cutoff Current	$I_{D(OFF)}$		3		3	nA	V_{DS} = 5 V, V_{GS} = – 10 V	

Dynamic Electrical Characteristics

		J108 Min	J108 Max	J109 Min	J109 Max	Unit	Test Conditions	
Drain Source ON Resistance	$r_{ds(on)}$		8		12	Ω	V_{GS} = Ø, V_{DS} < = 0.1 V	f = 1 kHz
Drain Gate Capacitance	C_{gd}		15		15	pF	V_{DS} = ØV, V_{GS} = – 10 V	f = 1 MHz
Source Gate Capacitance	C_{gs}		15		15	pF	V_{DS} = ØV, V_{GS} = – 10 V	f = 1 MHz
Drain Gate + Source Gate Capacitance	$C_{gd} + C_{gs}$		85		85	pF	V_{DS} = V_{GS} = ØV	f = 1 MHz

Switching Characteristics

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

TO-226AA Package
Dimensions in Inches (mm)

Pin Configuration
1 Drain, 2 Source, 3 Gate

Surface Mount
SMPJ108, SMPJ109

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