

## J176, J177

## P-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	- 30 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

		J176		J177		Unit	Process PJ99	
		Min	Max	Min	Max		Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	30		30		V	$I_G = 1\ \mu\text{A}, V_{DS} = \emptyset\text{V}$	
Gate Reverse Current	$I_{GSS}$		1		1	nA	$V_{GS} = 20\text{V}, V_{DS} = \emptyset\text{V}$	
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	1	4	0.8	2.25	V	$V_{DS} = -15\text{V}, I_D = -10\ \text{nA}$	
Drain Saturation Current (Pulsed)	$I_{DSS}$	- 2	- 35	- 1.5	- 20	mA	$V_{DS} = -15\text{V}, V_{GS} = \emptyset\text{V}$	
Drain Cutoff Current	$I_{D(OFF)}$		- 1		- 1	nA	$V_{DS} = -15\text{V}, V_{GS} = 10\text{V}$	

## Dynamic Electrical Characteristics

		Max	Max			
Drain Source ON Resistance	$r_{ds(on)}$	250	300	$\Omega$	$V_{GS} = \emptyset, V_{DS} < = 0.1\text{V}$	$f = 1\ \text{kHz}$

## Dynamic Electrical Characteristics

		Typ	Typ			
Drain Gate Capacitance	$C_{gd}$	5.5	5.5	pF	$V_{DS} = \emptyset\text{V}, V_{GS} = 10\text{V}$	$f = 1\ \text{MHz}$
Source Gate Capacitance	$C_{gs}$	5.5	5.5	pF	$V_{DS} = \emptyset\text{V}, V_{GS} = 10\text{V}$	$f = 1\ \text{MHz}$
Drain Gate + Source Gate Capacitance	$C_{gd} + C_{gs}$	32	32	pF	$V_{DS} = V_{GS} = \emptyset\text{V}$	$f = 1\ \text{MHz}$

## Switching Characteristics

						J176	J177	
Turn ON Delay Time	$t_{d(on)}$	15	20	ns	$V_{DD}$	- 6	- 6	V
Rise Time	$t_r$	20	25	ns	$V_{GS(OFF)}$	6	3	V
Turn OFF Delay Time	$t_{d(off)}$	15	20	ns	$R_L$	5.6k	10k	$\Omega$
Fall Time	$t_f$	20	25	ns	$V_{GS(ON)}$	$\emptyset$	$\emptyset$	V

## TO-226AA Package

Dimensions in Inches (mm)

## Pin Configuration

1 Drain, 2 Gate, 3 Source

## Surface Mount

SMPJ176, SMPJ177



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