

J174, J175

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

		J174		J175		Process PJ99		
		Min	Max	Min	Max	Unit	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	$V_{GS(OFF)}$	5	10	3	6	V	$V_{DS} = -15\text{V}$, $I_D = -10\text{ nA}$	
Drain Saturation Current (Pulsed)	I_{DSS}	– 20	– 125	– 7	– 70	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	$r_{ds(on)}$	85		85		Ω	$V_{GS} = \emptyset$, $V_{DS} \leq 0.1\text{V}$	$f = 1\text{ kHz}$

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

Turn ON Delay Time	$t_{d(on)}$	2	5	ns	V_{DD} $V_{GS(OFF)}$ R_L $V_{GS(ON)}$	J174	J175	
Rise Time	t_r	5	10	ns		– 10	– 6	V
Turn OFF Delay Time	$t_{d(off)}$	5	10	ns		12	8	V
Fall Time	t_f	10	20	ns		560	1.2k	Ω
						$\emptyset$	$\emptyset$	V

TO-226AA Package

Dimensions in Inches (mm)

Pin Configuration

1 Drain, 2 Gate, 3 Source

Surface Mount

SMPJ174, SMPJ175



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