

J174; J175; J176; J177

P-channel silicon field-effect transistors

RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

Drain-source voltage	$\pm V_{DS}$	max.	30	V
Gate-source voltage	V_{GSO}	max.	30	V
Gate-drain voltage	V_{GDO}	max.	30	V
Gate current (DC)	$-I_G$	max.	50	mA
Total power dissipation up to $T_{amb} = 50^\circ\text{C}$	P_{tot}	max.	400	mW
Storage temperature range	T_{stg}		-65 to +150	$^\circ\text{C}$
Junction temperature	T_j	max.	150	$^\circ\text{C}$

THERMAL RESISTANCE

From junction to ambient in free air	$R_{th\ j-a}$	=	250	K/W
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STATIC CHARACTERISTICS

$T_j = 25^\circ\text{C}$ unless otherwise specified

		J174	J175	J176	J177	
Gate cut-off current $V_{GS} = 20\text{ V}; V_{DS} = 0$	I_{GSS} max.	1	1	1	1 nA	
Drain cut-off current $-V_{DS} = 15\text{ V}; V_{GS} = 10\text{ V}$	$-I_{DSX}$ max.	1	1	1	1 nA	
Drain current $-V_{DS} = 15\text{ V}; V_{GS} = 10\text{ V}$	$-I_{DSS}$ min.	20	7	2	1.5 mA	
		max.	135	70	35	20 mA
Gate-source breakdown voltage $I_G = 1\ \mu\text{A}; V_{DS} = 0$	$V_{(BR)GSS}$ min.	30	30	30	30 V	
Gate-source cut-off voltage $-I_D = 10\text{ nA}; V_{DS} = -15\text{ V}$	$V_{GS\ off}$ min.	5	3	1	0.8 V	
		max.	10	6	4	2.25 V
Drain-source ON-resistance $-V_{DS} = 0.1\text{ V}; V_{GS} = 0$	R_{DSon} max.	85	125	250	300 Ω	

DYNAMIC CHARACTERISTICS

$T_j = 25^\circ\text{C}$ unless otherwise specified

Input capacitance, $f = 1\text{ MHz}$

$V_{GS} = 10\text{ V}; V_{DS} = 0\text{ V}$	C_{is}	typ.	8	pF
$V_{GS} = V_{DS} = 0$	C_{is}	typ.	30	pF

Feedback capacitance, $f = 1\text{ MHz}$

$V_{GS} = 10\text{ V}; V_{DS} = 0\text{ V}$	C_{rs}	typ.	4	pF
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Switching times (see Fig.2 + 3)

		J174	J175	J176	J177
Delay time	t_d typ.	2	5	15	20 ns
Rise time	t_r typ.	5	10	20	25 ns
Turn-on time	t_{on} typ.	7	15	35	45 ns
Storage time	t_s typ.	5	10	15	20 ns
Fall time	t_f typ.	10	20	20	25 ns
Turn-off time	t_{off} typ.	15	30	35	45 ns

Test conditions:

$-V_{DD}$	10	6	6	6 V
$V_{GS\ off}$	12	8	6	3 V
R_L	560	1200	2000	2900 Ω
$V_{GS\ on}$	0	0	0	0 V

