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J174; J175; J176; J177

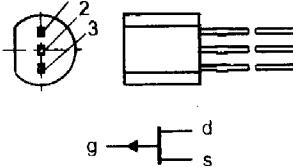
P-channel silicon field-effect transistors

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	°C
Junction temperature	T_j	max.	150	°C

Simplified outline
and symbol, TO-92.



THERMAL RESISTANCE

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

STATIC CHARACTERISTICS

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

Gate cut-off current

$V_{GS} = 20 \text{ V}; V_{DS} = 0$

		J174	J175	J176	J177
Gate cut-off current	I_{GS}	max.	1	1	1 nA
Drain cut-off current	$-I_{DSX}$	max.	1	1	1 nA
Drain current	$-I_{DSS}$	min. 20 max. 135	7 70	2 35	1.5 mA 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 max. 10	3 6	1 4	0.8 V 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
Switching times (see Fig.2 + 3)			J174 J175 J176 J177	

Delay time

Delay time	t_d	typ.	2	5	15	20	ns
Rise time	t_r	typ.	5	10	20	25	ns

Rise time

Rise time	t_r	typ.	7	15	35	45	ns
Turn-on time	t_{on}	typ.	5	10	15	20	ns

Turn-on time

Turn-on time	t_s	typ.	5	10	15	20	ns
Fall time	t_f	typ.	10	20	20	25	ns

Fall time

Fall time	t_f	typ.	10	20	20	25	ns
Turn-off time	t_{off}	typ.	15	30	35	45	ns

Turn-off time

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



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