

N-CHANNEL IG-MOS-FET

Symmetrical depletion type field-effect transistor in a TO-72 metal envelope with the substrate connected to the case. It is intended for chopper and other special switching applications, e.g. timing circuits, multiplex circuits, etc. The features are a very low drain-source 'on' resistance, a very high drain-source 'off' resistance and low feedback capacitances.

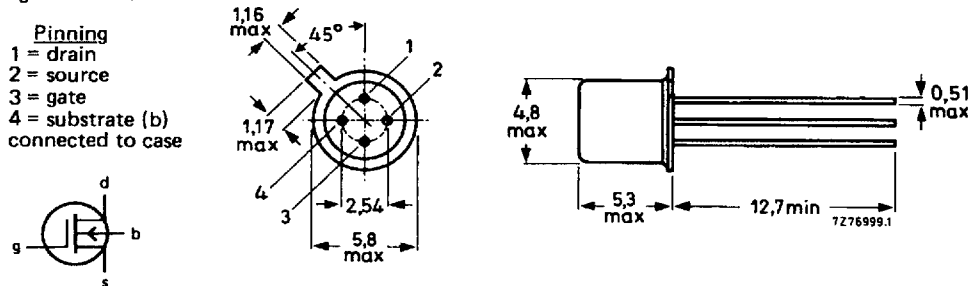
QUICK REFERENCE DATA

Drain-source resistance (on) at $f = 1 \text{ kHz}$ $V_{DS} = 0; V_{GS} = 5 \text{ V}; V_{BS} = 0$	$R_{ds \text{ on}}$	max.	50 Ω
Drain-source resistance (off) $V_{DS} = 10 \text{ V}; -V_{GS} = 5 \text{ V}; V_{BS} = 0$	$R_{DS \text{ off}}$	min.	10 $G\Omega$
Feedback capacitance at $f = 1 \text{ MHz}$ $-V_{GS} = 5 \text{ V}; V_{DS} = 0; I_B = 0$	C_{rs}	typ.	0.5 pF
$-V_{GD} = 5 \text{ V}; V_{SD} = 0; I_B = 0$	C_{rd}	typ.	0.5 pF

MECHANICAL DATA

Dimensions in mm

Fig. 1 TO-72.



Accessories: 56246 (distance disc).

Note

To safeguard the gates against damage due to accumulation of static charge during transport or handling, the leads are encircled by a ring of conductive rubber which should be removed just after the transistor is soldered into the circuit.

RATINGS

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

Drain-substrate voltage	V_{DB}	max.	30 V
Source-substrate voltage	V_{SB}	max.	30 V
Gate-substrate voltage (continuous)	V_{GB}	max. min.	10 V -10 V
Repetitive peak gate to all other terminals voltage $V_{SB} = V_{DB} = 0$; $f > 100$ Hz	V_{G-N}	max. min.	15 V -15 V
Non-repetitive peak gate to all other terminals voltage $V_{SB} = V_{DB} = 0$; $t < 10$ ms	V_{G-N}	max. min.	50 V -50 V
Drain current (DC)	I_D	max.	25 mA
Drain current (peak value) $t_p = 20$ ms; $\delta = 0.1$	I_{DM}	max.	50 mA
Source current (peak value) $t_p = 20$ ms; $\delta = 0.1$	I_{SM}	max.	50 mA
Total power dissipation up to $T_{amb} = 25$ °C	P_{tot}	max.	200 mW
Storage temperature range	T_{stg}		-65 to + 125 °C
Junction temperature	T_j	max.	125 °C

THERMAL RESISTANCE

From junction to ambient in free air	R_{thj-a}	=	500 K/W
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CHARACTERISTICS

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

Drain cut-off currents; $V_{BS} = 0$

$V_{DS} = 10\text{ V}; -V_{GS} = 5\text{ V}$	I_{DSX}	<	1	nA
$V_{DS} = 10\text{ V}; -V_{GS} = 5\text{ V}; T_j = 125\text{ }^\circ\text{C}$	I_{DSX}	<	1	μA

Source cut-off currents; $V_{BD} = 0$

$V_{SD} = 10\text{ V}; -V_{GD} = 5\text{ V}$	I_{SDX}	<	1	nA
$V_{SD} = 10\text{ V}; -V_{GD} = 5\text{ V}; T_j = 125\text{ }^\circ\text{C}$	I_{SDX}	<	1	μA

Gate currents; $V_{BS} = 0$

$-V_{GS} = 10\text{ V}; V_{DS} = 0$	$-I_{GSS}$	<	10	pA
$V_{GS} = 10\text{ V}; V_{DS} = 0$	I_{GSS}	<	10	pA
$-V_{GS} = 10\text{ V}; V_{DS} = 0; T_j = 125\text{ }^\circ\text{C}$	$-I_{GSS}$	<	200	pA
$V_{GS} = 10\text{ V}; V_{DS} = 0; T_j = 125\text{ }^\circ\text{C}$	I_{GSS}	<	200	pA

Bulk currents; $V_{GB} = 0$

$-V_{BD} = 30\text{ V}; I_S = 0$	$-I_{BDO}$	<	10	μA
$-V_{BS} = 30\text{ V}; I_D = 0$	$-I_{BSO}$	<	10	μA

Drain-source resistance (on) at $f = 1\text{ kHz}; V_{BS} = 0$

$V_{GS} = 0; V_{DS} = 0$	$R_{ds\text{ on}}$	<	100	Ω
$V_{GS} = 0; V_{DS} = 0; T_j = 125\text{ }^\circ\text{C}$	$R_{ds\text{ on}}$	<	150	Ω
$+V_{GS} = 5\text{ V}; V_{DS} = 0$	$R_{ds\text{ on}}$	<	50	Ω

Drain-source resistance (off)

$-V_{GS} = 5\text{ V}; V_{DS} = 10\text{ V}; V_{BS} = 0$	$R_{DS\text{ off}}$	>	10	$\text{G}\Omega$
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Feedback capacitances at $f = 1\text{ MHz}$

$-V_{GS} = 5\text{ V}; V_{DS} = 0; I_B = 0$	C_{rs}	typ.	0.5	pF
$-V_{GD} = 5\text{ V}; V_{SD} = 0; I_B = 0$	C_{rd}	typ.	0.5	pF

Gate to all other terminals capacitance at $f = 1\text{ MHz}$

$-V_{GB} = 5\text{ V}; V_{SB} = V_{DB} = 0$	C_{g-n}	<	6	pF
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