

BUZ53A

GENERAL DESCRIPTION

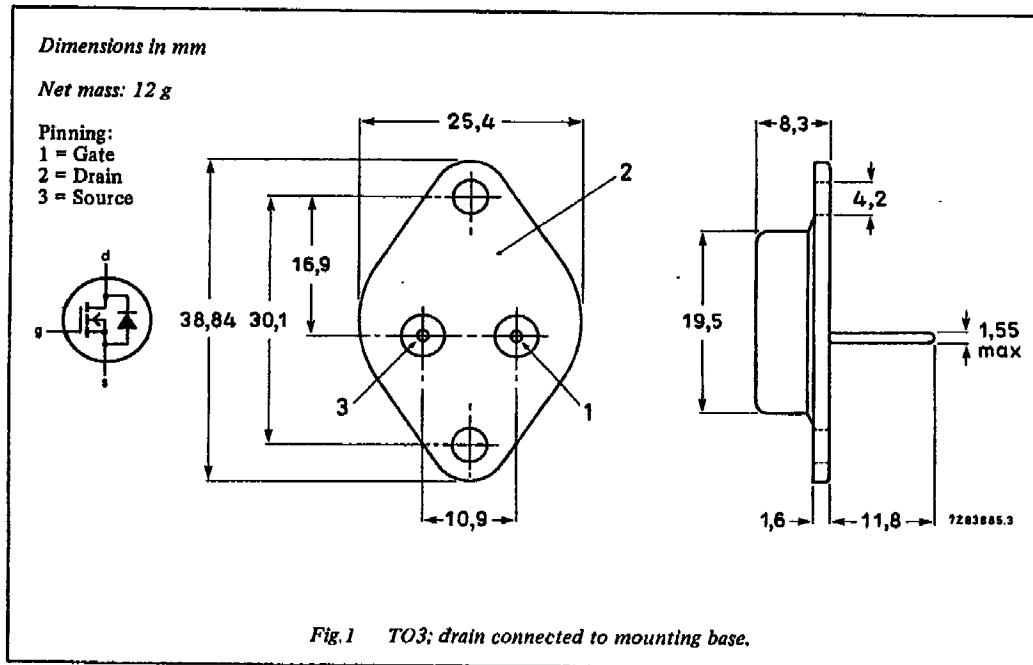
N-channel enhancement mode field-effect power transistor in a metal envelope.

This device is intended for use in Switched Mode Power Supplies (SMPS), motor control, welding, DC/DC and DC/AC converters, and in general purpose switching applications.

QUICK REFERENCE DATA

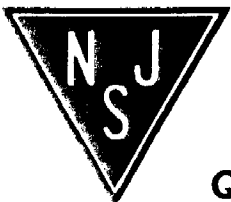
SYMBOL	PARAMETER	MAX.	UNIT
V _{DS}	Drain-source voltage	1000	V
I _D	Drain current (d.c.)	2,6	A
P _{tot}	Total power dissipation	78	W
R _{DS(ON)}	Drain-source on-state resistance	5,0	Ω

MECHANICAL DATA



Notes

1. Observe the general handling precautions for electrostatic-discharge sensitive devices (ESDs) to prevent damage to MOS gate oxide.
2. Accessories supplied on request; refer to Mounting instructions for TO3 envelopes.



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RATINGS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{DS}	Drain-source voltage	—	—	1000	V
V _{DGR}	Drain-gate voltage	R _{GS} = 20 kΩ	—	1000	V
±V _{GS}	Gate-source voltage	—	—	20	V
I _D	Drain current (d.c.)	T _{mb} = 30 °C	—	2,6	A
I _D	Drain current (d.c.)	T _{mb} = 100 °C	—	1,7	A
I _{DM}	Drain current (pulse peak value)	T _{mb} = 25 °C	—	10	A
P _{tot}	Total power dissipation	T _{mb} = 25 °C	—	78	W
T _{stg}	Storage temperature	—	—55	150	°C
T _J	Junction temperature	—	—	150	°C

THERMAL RESISTANCES

From junction to mounting base	R _{th j-mb} = 1,6 K/W
From junction to ambient	R _{th j-a} = 35 K/W

STATIC CHARACTERISTICS

T_{mb} = 25 °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V _{(BR)DSS}	Drain-source breakdown voltage	V _{GS} = 0 V; I _D = 0,25 mA	1000	—	—	V
V _{GS(TO)}	Gate threshold voltage	V _{DS} = V _{GS} ; I _D = 1 mA	2,1	3,0	4,0	V
I _{DSS}	Zero gate voltage drain current	V _{DS} = 1000 V; V _{GS} = 0 V; T _J = 25 °C	—	20	250	μA
I _{DSS}	Zero gate voltage drain current	V _{DS} = 1000 V; V _{GS} = 0 V; T _J = 125 °C	—	0,1	1,0	mA
I _{GSS}	Gate source leakage current	V _{GS} = ±20 V; V _{DS} = 0 V	—	10	100	nA
R _{DS(ON)}	Drain-source on-state resistance	V _{GS} = 10 V; I _D = 1,5 A	—	4,5	5,0	Ω

DYNAMIC CHARACTERISTICS

T_{mb} = 25 °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
g _{fs}	Forward transconductance	V _{DS} = 25 V; I _D = 1,5 A	0,7	1,5	—	S
C _{iss}	Input capacitance	V _{GS} = 0 V; V _{DS} = 25 V; f = 1 MHz	—	1600	2100	pF
C _{oss}	Output capacitance		—	70	120	pF
C _{rss}	Feedback capacitance		—	30	55	pF
t _{d on}	Turn-on delay time	V _{DD} = 30 V; I _D = 2 A;	—	30	45	ns
t _r	Turn-on rise time	V _{GS} = 10 V; R _{GS} = 50 Ω;	—	40	60	ns
t _{d off}	Turn-off delay time	R _{gen} = 50 Ω	—	110	140	ns
t _f	Turn-off fall time		—	60	80	ns
L _d	Internal drain inductance	Measured from contact screw on header closer to source pin and centre of die	—	5,0	—	nH
L _s	Internal source inductance	Measured from source lead 6 mm from package to source bond pad	—	12,5	—	nH

REVERSE DIODE RATINGS AND CHARACTERISTICS $T_{mb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{DR}	Continuous reverse drain current	$T_{mb} = 25\text{ }^{\circ}\text{C}$	–	–	2,6	A
I_{DRM}	Pulsed reverse drain current	$T_{mb} = 25\text{ }^{\circ}\text{C}$	–	–	10	A
VSD	Diode forward on-voltage	$I_F = 5,2\text{ A}; V_{GS} = 0\text{ V};$ $T_j = 25\text{ }^{\circ}\text{C}$	–	1,05	1,3	V
t_{rr}	Reverse recovery time	$I_F = 2,6\text{ A}; T_j = 25\text{ }^{\circ}\text{C}$	–	2000	–	ns
Q_{rr}	Reverse recovery charge	$-dI_F/dt = 100\text{ A}/\mu\text{s};$ $T_j = 25\text{ }^{\circ}\text{C};$ $V_{GS} = 0\text{ V}; V_R = 100\text{ V}$	–	15	–	μC