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BUZ24

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	100	V
I_D	Drain current (d.c.)	32	A
P_{tot}	Total power dissipation	125	W
$R_{DS(ON)}$	Drain-source on-state resistance	0,06	Ω

MECHANICAL DATA

Dimensions in mm

Net mass: 12 g

Pinning:
1 = Gate
2 = Drain
3 = Source

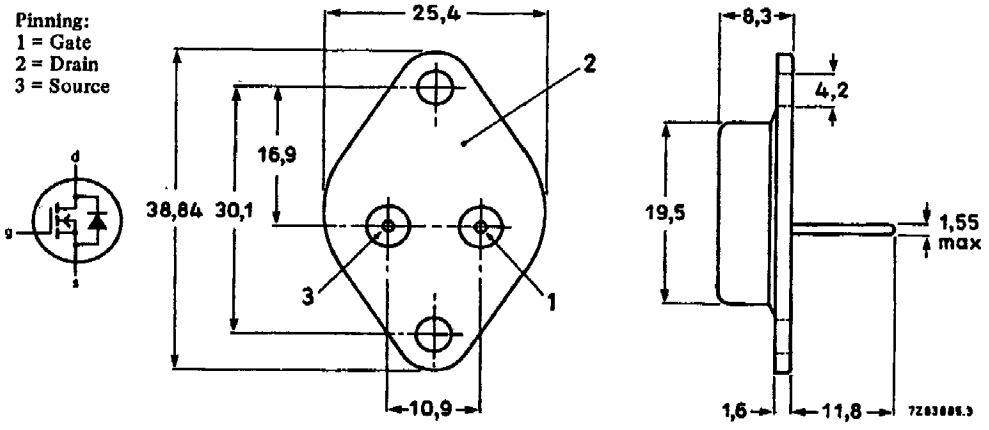

Fig.1 TO3; drain connected to mounting base.

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.**

RATINGS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{DS}	Drain-source voltage	–	–	100	V
V_{DGR}	Drain-gate voltage	R_{GS} = 20 kΩ	–	100	V
±V_{GS}	Gate-source voltage	–	–	20	V
I_D	Drain-current (d.c.)	T_{mb} = 25 °C	–	32	A
I_D	Drain current (d.c.)	T_{mb} = 100 °C	–	20,2	A
I_{DM}	Drain current (pulse peak value)	T_{mb} = 25 °C	–	125	A
P_{tot}	Total power dissipation	T_{mb} = 25 °C	–	125	W
T_{stg}	Storage temperature	–	−55	150	°C
T_j	Junction temperature	–	–	150	°C

THERMAL RESISTANCES

From junction to mounting base	$R_{th\,j\text{-}mb}$ = 1,0 K/W
From junction to ambient	$R_{th\,j\text{-}a}$ = 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	100	–	–	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} = 100 V; V_{GS} = 0 V; T_j = 25 °C	–	20	250	μA
I_{DSS}	Zero gate voltage drain current	V_{DS} = 100 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 = 16 A	–	0,045	0,06	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 = 16 A	6,0	10,0	–	S
C_{iss}	Input capacitance	V_{GS} = 0 V; V_{DS} = 25 V; f = 1 MHz	–	1500	2000	pF
C_{oss}	Output capacitance		–	800	1200	pF
C_{rss}	Feedback capacitance		–	300	500	pF
$t_{d\,on}$	Turn-on delay time	V_{DD} = 30 V; I_D = 3 A; V_{GS} = 10 V; R_{GS} = 50 Ω; R_{gen} = 50 Ω	–	30	45	ns
t_r	Turn-on rise time		–	80	120	ns
$t_{d\,off}$	Turn-off delay time		–	330	430	ns
t_f	Turn-off fall time		–	170	220	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 °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{DR}	Continuous reverse drain current	T_{mb} = 25 °C	–	–	32	A
I_{DRM}	Pulsed reverse drain current	T_{mb} = 25 °C	–	–	125	A
V_{SD}	Diode forward on-voltage	I_F = 64 A; V_{GS} = 0 V; T_j = 25 °C	–	1,5	2,0	V
t_{rr}	Reverse recovery time	I_F = 32 A; T_j = 25 °C $-dI_F/dt$ = 100 A/μs;	–	200	–	ns
Q_{rr}	Reverse recovery charge	T_j = 25 °C; V_{GS} = 0 V; V_R = 30 V	–	1,6	–	μC