

N-channel junction FETs

PMBFJ108;
PMBFJ109; PMBFJ110

FEATURES

- High-speed switching
- Interchangeability of drain and source connections
- Low R_{DSon} at zero gate voltage ($< 8\ \Omega$ for PMBFJ108).

DESCRIPTION

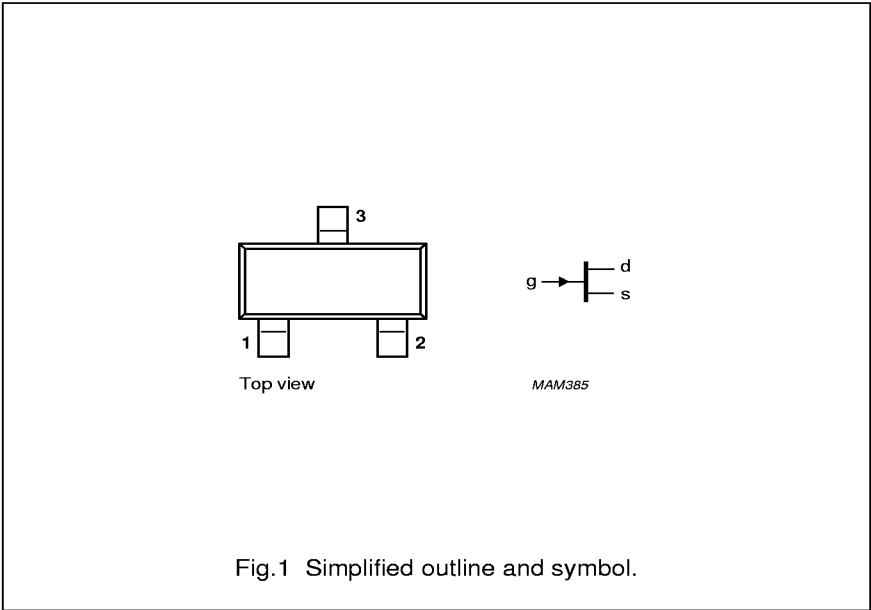
Symmetrical N-channel junction FETs in a SOT23 envelope. Intended for use in applications such as analog switches, choppers and commutators and in audio amplifiers.

PINNING - SOT23

PIN	DESCRIPTION
1	drain
2	source
3	gate

Note

1. Drain and source are interchangeable.



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{DS}	drain-source voltage		–	± 25	V
V_{GSO}	gate-source voltage		–	–25	V
V_{GDO}	drain-drain voltage		–	–25	V
I_G	forward gate current (DC)			50	mA
P_{tot}	total power dissipation	$T_{amb} = 25^{\circ}C$; note 1	–	250	mW
T_{stg}	storage temperature		–65	150	$^{\circ}C$
T_j	operating junction temperature		–	150	$^{\circ}C$

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THERMAL RESISTANCE

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-a}$	from junction to ambient (note 1)	500	K/W

Notes

1. Mounted on an FR-4 printboard.

STATIC CHARACTERISTICS

$T_j = 25\ ^\circ\text{C}$.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$-I_{GSS}$	reverse gate current	$-V_{GS} = 15\ \text{V}$ $V_{DS} = 0$	—	3	nA
I_{DSX}	drain-source cut-off current	$V_{GS} = -10\ \text{V}$ $V_{DS} = 5\ \text{V}$	—	3	nA
I_{DSS}	drain current PMBFJ108 PMBFJ109 PMBFJ110	$V_{GS} = 0$ $V_{DS} = 15\ \text{V}$	80 40 10	— — —	mA
$-V_{(BR)GSS}$	gate-source breakdown voltage	$-I_G = 1\ \mu\text{A}$ $V_{DS} = 0$	—	25	V
$-V_{GS(off)}$	gate-source cut-off voltage PMBFJ108 PMBFJ109 PMBFJ110	$I_D = 1\ \mu\text{A}$ $V_{DS} = 5\ \text{V}$	3 2 0.5	10 6 4	V
$R_{DS(on)}$	drain-source on-resistance PMBFJ108 PMBFJ109 PMBFJ110	$V_{GS} = 0\ \text{V}$ $V_{DS} = 0.1\ \text{V}$	— — —	8 12 18	Ω

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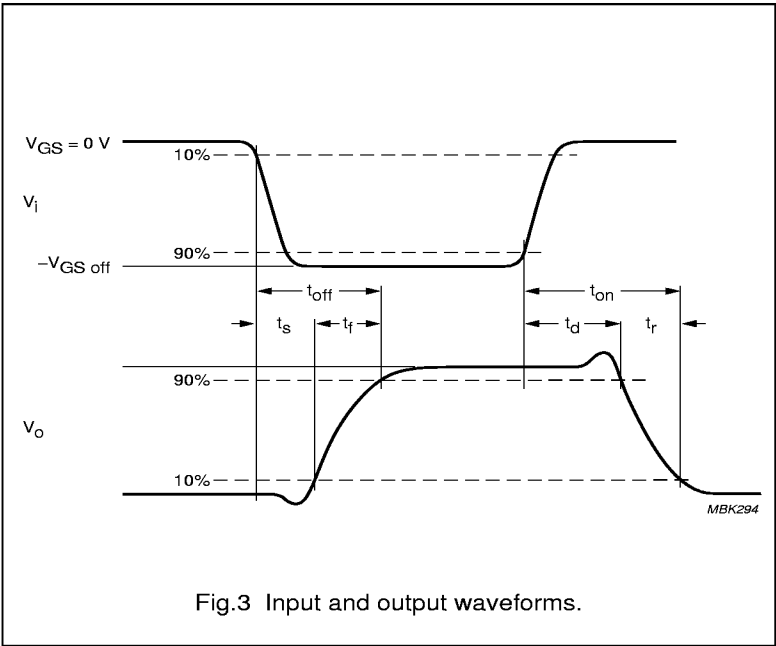
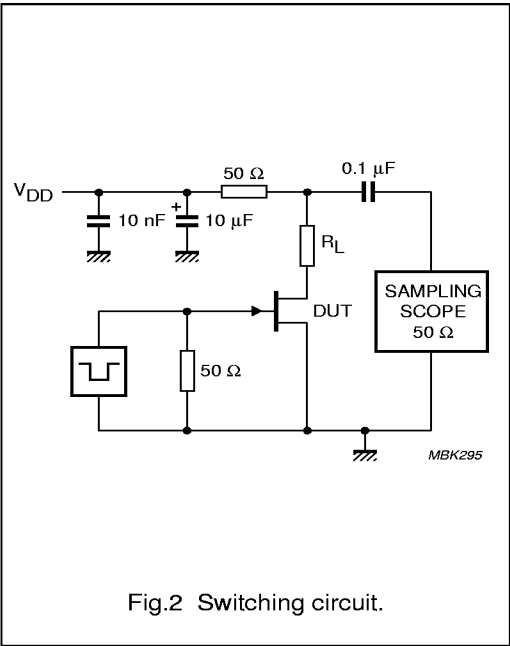
DYNAMIC CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
C _{is}	input capacitance	V _{DS} = 0 −V _{GS} = 10 V f = 1 MHz	15	30	pF
C _{is}	input capacitance	V _{DS} = 0 −V _{GS} = 0 f = 1 MHz T _{amb} = 25 °C	50	85	pF
C _{rs}	feedback capacitance	V _{DS} = 0 −V _{GS} = 10 V f = 1 MHz	8	15	pF
Switching times (see Fig.2)					
t _d	delay time	note 1	2	–	ns
t _{on}	turn-on time	note 1	4	–	ns
t _s	storage time	note 1	4	–	ns
t _{off}	turn-off time	note 1	6	–	ns

Notes

1. Test conditions for switching times are as follows:
V_{DD} = 1.5 V, V_{GS} = 0 to −V_{GS(off)} (all types);
−V_{GS(off)} = 12 V, R_L = 100 Ω (PMBFJ108);
−V_{GS(off)} = 7 V, R_L = 100 Ω (PMBFJ109);
−V_{GS(off)} = 5 V, R_L = 100 Ω (PMBFJ110).



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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23

