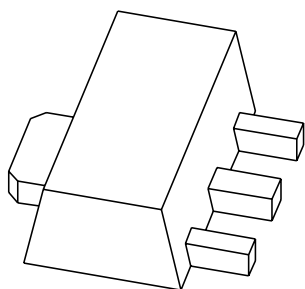


DATA SHEET



BSS192

P-channel enhancement mode
vertical D-MOS transistor

Product specification
Supersedes data of 1997 Jun 20

2002 May 22

P-channel enhancement mode
vertical D-MOS transistor

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FEATURES

- Direct interface to C-MOS, TTL, etc.
- High-speed switching
- No secondary breakdown.

APPLICATIONS

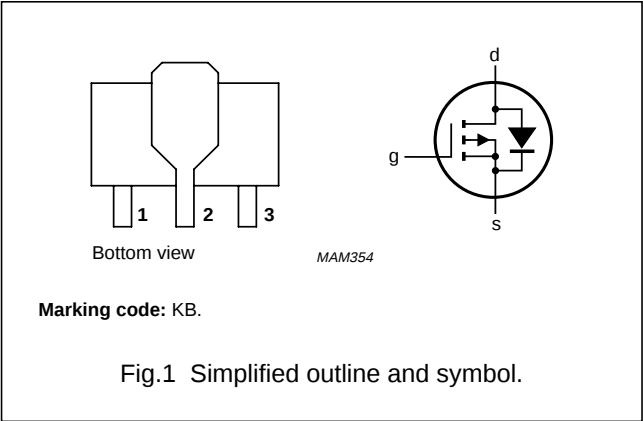
- Line current interrupter in telephone sets
- Relay, high-speed and line transformer drivers.

DESCRIPTION

P-channel enhancement mode vertical D-MOS transistor in a SOT89 package.

PINNING - SOT89

PIN	SYMBOL	DESCRIPTION
1	s	source
2	d	drain
3	g	gate



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V_{DS}	drain-source voltage (DC)		-240	V
V_{GSth}	gate-source threshold voltage	$I_D = -1\text{ mA}$; $V_{GS} = V_{DS}$	-2.8	V
I_D	drain current (DC)		-200	mA
R_{DSon}	drain-source on-state resistance	$I_D = -200\text{ mA}$; $V_{GS} = -10\text{ V}$	12	Ω

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LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{DS}	drain-source voltage (DC)		–	–240	V
V_{GSO}	gate-source voltage (DC)	open drain	–	± 20	V
I_D	drain current (DC)		–	–200	mA
I_{DM}	peak drain current		–	–600	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	1	W
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C

Note

- Device mounted on a ceramic substrate; area 2.5 cm²; thickness 0.7 mm.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	125	K/W

Note

- Device mounted on a ceramic substrate; area 2.5 cm²; thickness 0.7 mm.

CHARACTERISTICS

$T_j = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)DSS}$	drain-source breakdown voltage	$V_{GS} = 0$; $I_D = -10\text{ }\mu\text{A}$	–240	–	–	V
V_{GSth}	gate-source threshold voltage	$V_{GS} = V_{DS}$; $I_D = -1\text{ mA}$	–0.8	–	–2.8	V
I_{DSS}	drain-source leakage current	$V_{GS} = 0$; $V_{DS} = -60\text{ V}$	–	–	–200	nA
		$V_{GS} = -0.2\text{ V}$; $V_{DS} = -200\text{ V}$	–	–0.1	–60	μA
I_{GSS}	gate leakage current	$V_{DS} = 0$; $V_{GS} = \pm 20\text{ V}$	–	–	± 100	nA
R_{DSon}	drain-source on-state resistance	$V_{GS} = -10\text{ V}$; $I_D = -200\text{ mA}$	–	10	12	Ω
$ y_{fs} $	forward transfer admittance	$V_{DS} = -25\text{ V}$; $I_D = -200\text{ mA}$	60	200	–	mS
C_{iss}	input capacitance	$V_{GS} = 0$; $V_{DS} = -25\text{ V}$; $f = 1\text{ MHz}$	–	55	90	pF
C_{oss}	output capacitance	$V_{GS} = 0$; $V_{DS} = -25\text{ V}$; $f = 1\text{ MHz}$	–	20	30	pF
C_{rss}	reverse transfer capacitance	$V_{GS} = 0$; $V_{DS} = -25\text{ V}$; $f = 1\text{ MHz}$	–	5	15	pF
Switching times (see Figs 2 and 3)						
t_{on}	turn-on time	$V_{GS} = 0\text{ to }-10\text{ V}$; $V_{DD} = -50\text{ V}$; $I_D = -250\text{ mA}$	–	5	10	ns
t_{off}	turn-off time	$V_{GS} = -10\text{ to }0\text{ V}$; $V_{DD} = -50\text{ V}$; $I_D = -250\text{ mA}$	–	20	30	ns

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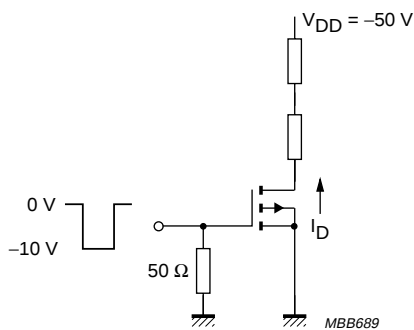


Fig.2 Switching times test circuit.

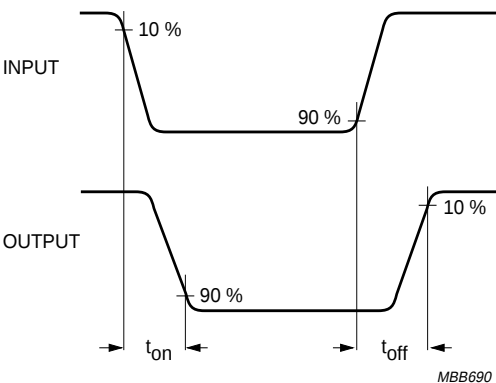


Fig.3 Input and output waveforms.

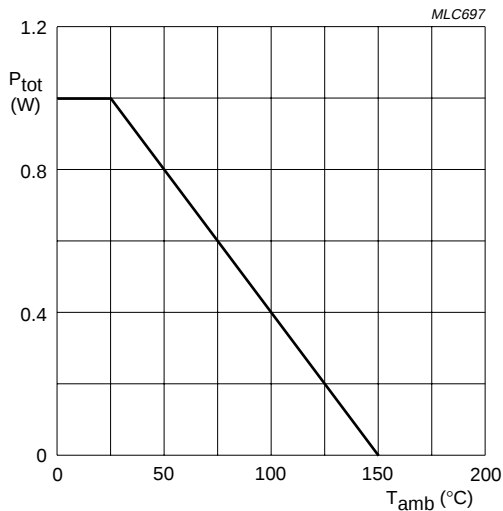
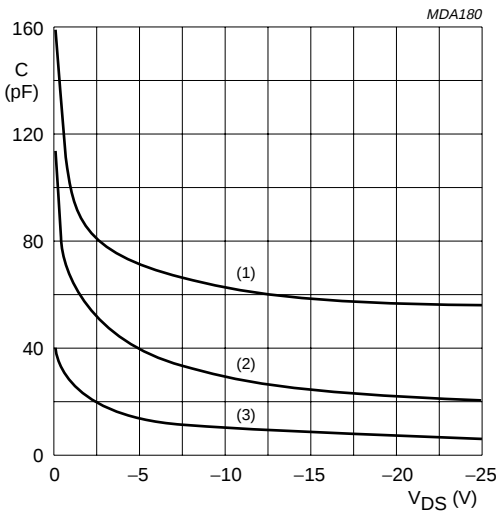


Fig.4 Power derating curve.

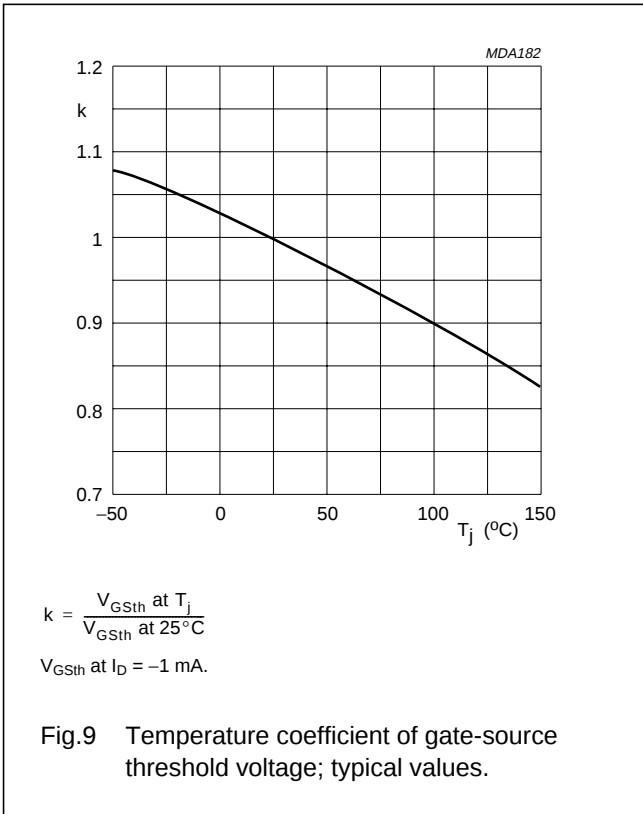
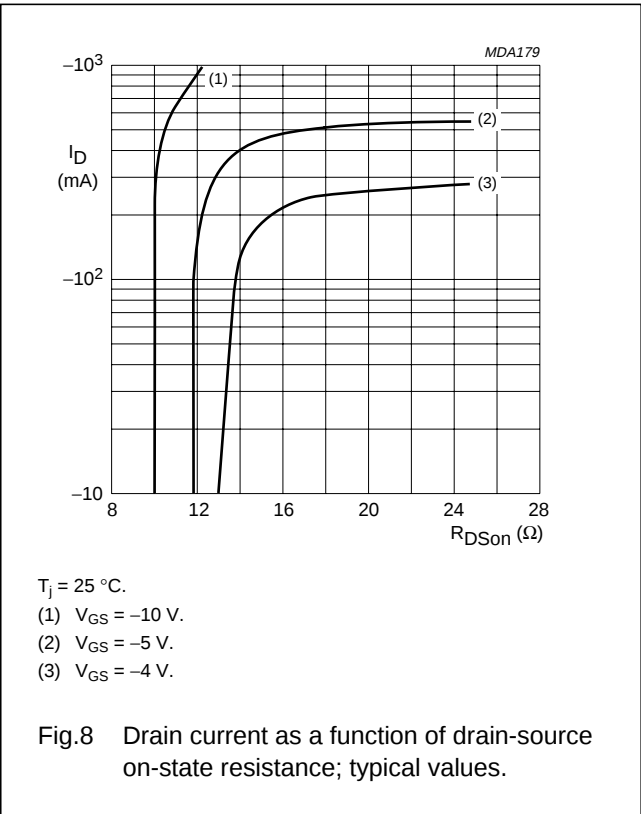
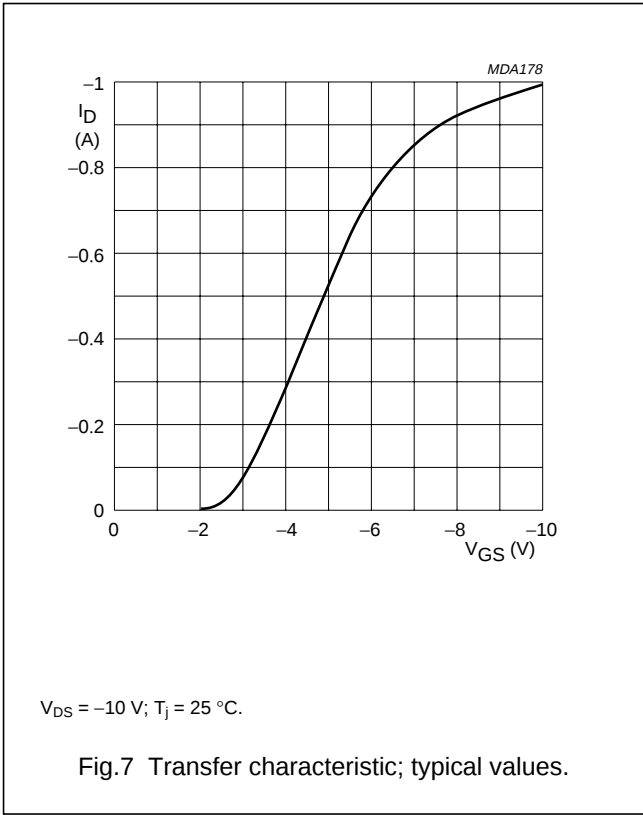
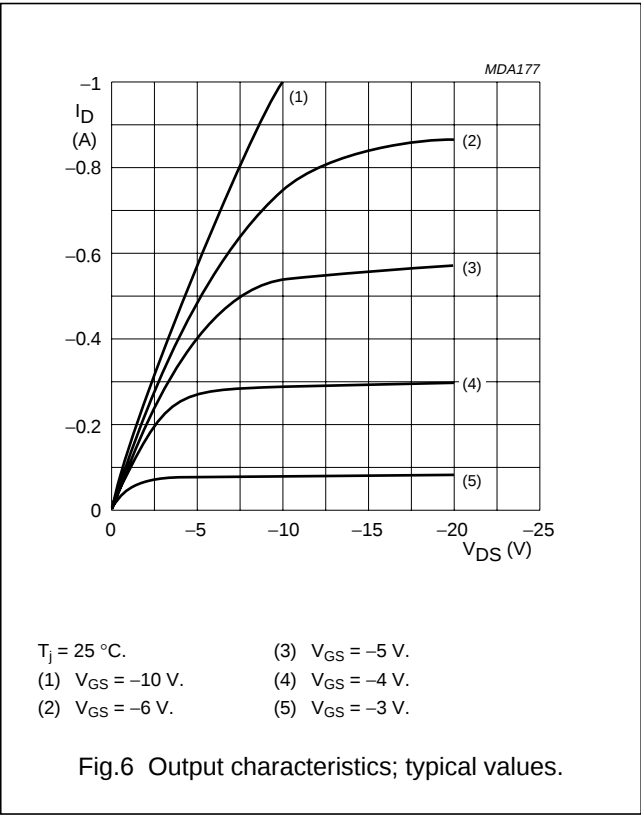


$V_{GS} = 0$; $T_j = 25\text{ °C}$; $f = 1\text{ MHz}$.
(1) C_{iss}
(2) C_{oss}
(3) C_{rss}

Fig.5 Capacitance as a function of drain-source voltage; typical values.

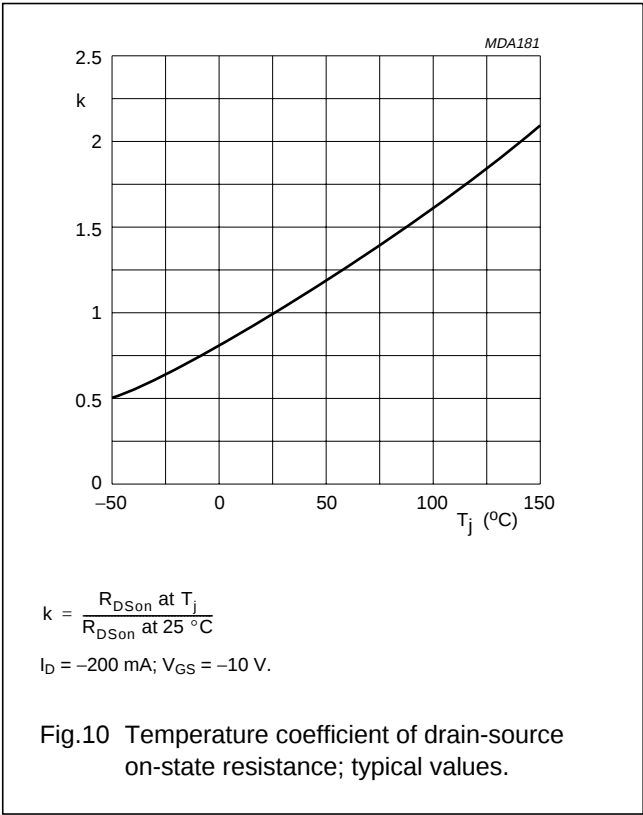
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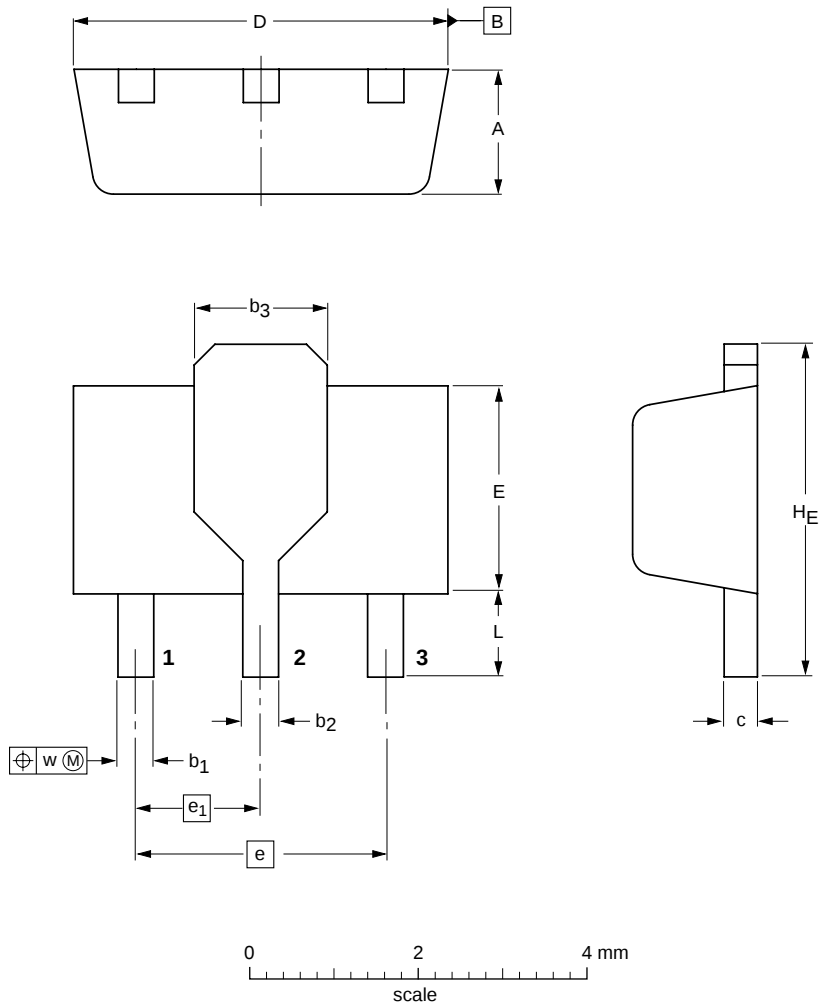
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PACKAGE OUTLINE

Plastic surface mounted package; collector pad for good heat transfer; 3 leads

SOT89



DIMENSIONS (mm are the original dimensions)

UNIT	A	b ₁	b ₂	b ₃	c	D	E	e	e ₁	H _E	L min.	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.37	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	0.8	0.13

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT89		TO-243	SC-62			97-02-28 99-09-13

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NOTES

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