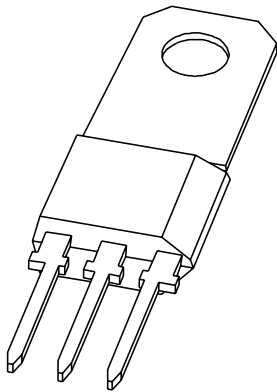


DATA SHEET



BF819

NPN high-voltage transistor

Product specification
Supersedes data of 1997 Jun 20
File under Discrete Semiconductors, SC04

1997 Sep 03

NPN high-voltage transistor

BF819

FEATURES

- Low current (max. 100 mA)
- High voltage (max. 250 V).

APPLICATIONS

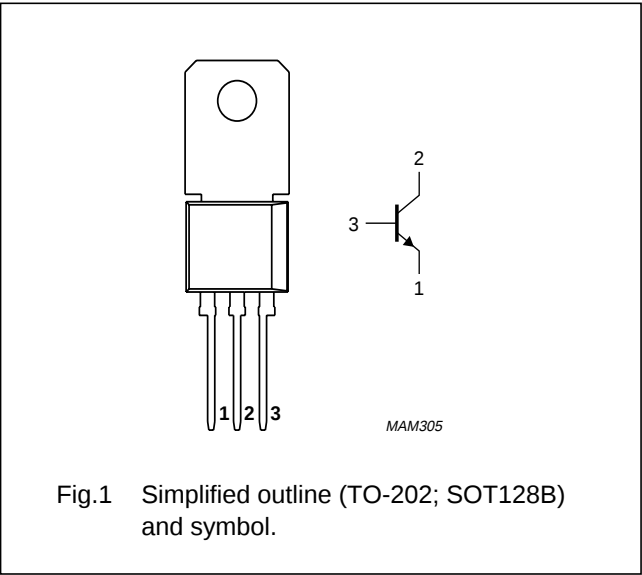
- Driver for a line output transistor in colour television receivers.

DESCRIPTION

NPN high-voltage transistor in a TO-202; SOT128B plastic package.

PINNING

PIN	DESCRIPTION
1	emitter
2	collector, connected to mounting base
3	base



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	—	300	V
V_{CEO}	collector-emitter voltage	open base	—	250	V
I_{CM}	peak collector current		—	300	mA
P_{tot}	total power dissipation	$T_{amb} \leq 75\text{ }^{\circ}\text{C}$	—	6	W
h_{FE}	DC current gain	$I_C = 20\text{ mA}$, $V_{CE} = 10\text{ V}$	45	—	
C_{re}	feedback capacitance	$I_C = i_c = 0$; $V_{CB} = 30\text{ V}$; $f = 1\text{ MHz}$	—	3.5	pF
f_T	transition frequency	$I_C = 15\text{ mA}$; $V_{CE} = 10\text{ V}$; $f = 100\text{ MHz}$	90	—	MHz

NPN high-voltage transistor

BF819

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	300	V
V_{CEO}	collector-emitter voltage	open base	–	250	V
V_{EBO}	emitter-base voltage	open collector	–	5	V
I_C	collector current (DC)		–	100	mA
I_{CM}	peak collector current		–	300	mA
I_{BM}	peak base current		–	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 75\text{ °C}$	–	1.2	W
		$T_{mb} \leq 75\text{ °C}$	–	6	W
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	in free air	62.5	K/W
$R_{th\ j-mb}$	thermal resistance from junction to mounting base		12.5	K/W

CHARACTERISTICS

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

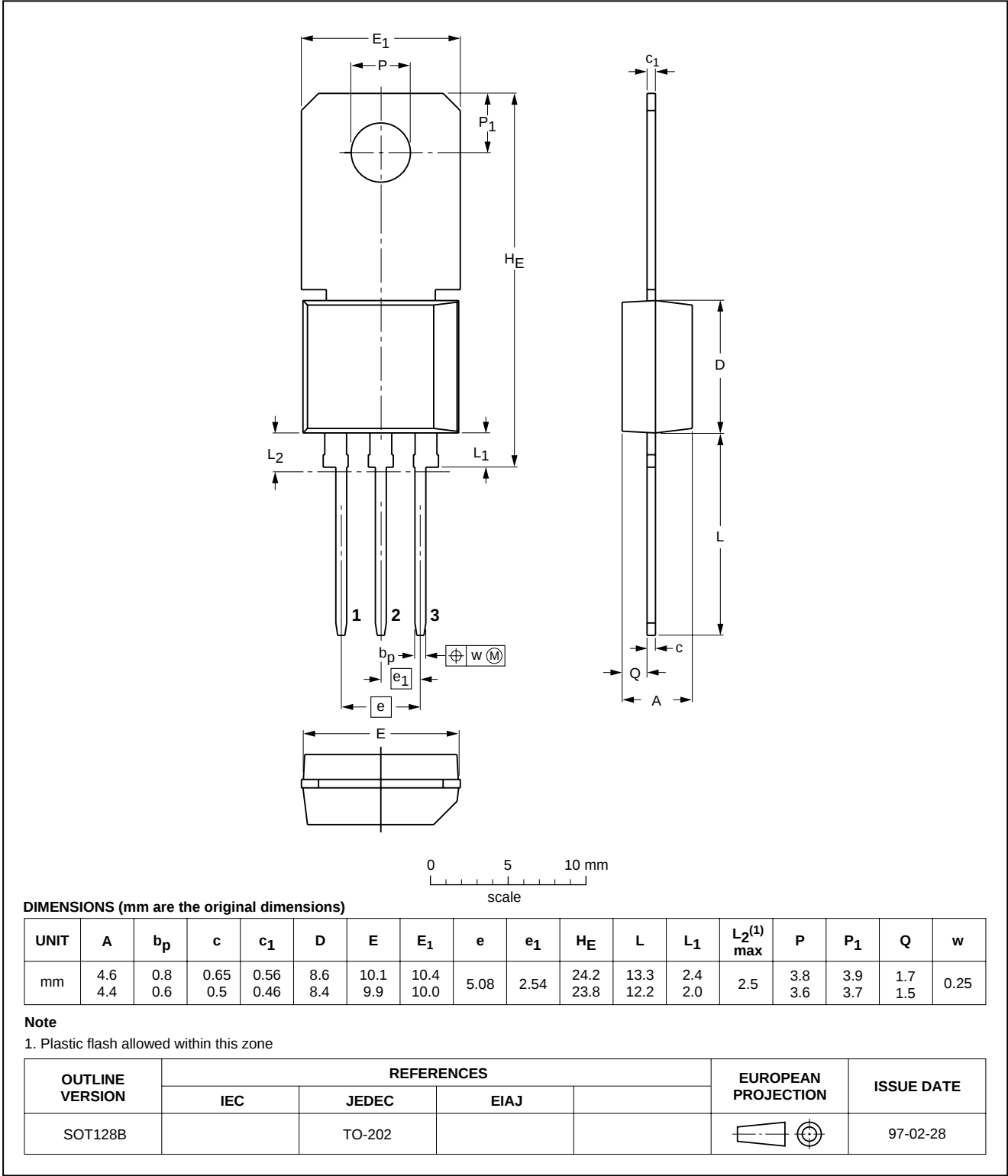
SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = 250\text{ V}$	–	50	nA
		$I_E = 0; V_{CB} = 250\text{ V}; T_j = 150\text{ °C}$	–	5	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 5\text{ V}$	–	100	nA
h_{FE}	DC current gain	$I_C = 20\text{ mA}; V_{CE} = 10\text{ V}$	45	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 200\text{ mA}; I_B = 20\text{ mA}$	–	11	V
C_c	collector capacitance	$I_E = I_C = 0; V_{CB} = 30\text{ V}; f = 1\text{ MHz}$	–	4.5	pF
C_{re}	feedback capacitance	$I_C = I_C = 0; V_{CB} = 30\text{ V}; f = 1\text{ MHz}$	–	3.5	pF
f_T	transition frequency	$I_C = 15\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz}$	90	–	MHz

NPN high-voltage transistor

BF819

PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; with cooling fin, mountable to heatsink,
1 mounting hole; 3 leads (in-line) SOT128B



NPN high-voltage transistor**BF819**

DEFINITIONS

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

NPN high-voltage transistor

BF819

NOTES

NPN high-voltage transistor

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NOTES

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