

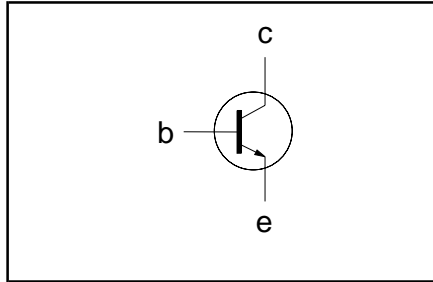
NPN high voltage Power transistor

BUX84S

FEATURES

- Fast switching
- Excellent thermal stability
- High thermal cycling performance
- Low thermal resistance
- Surface mounting package

SYMBOL



QUICK REFERENCE DATA

$V_{CESM} = 800 \text{ V}$
$V_{CEO} = 400 \text{ V}$
$I_C = 2 \text{ A}$
$V_{CE(SAT)} \leq 1 \text{ V} (I_C = 1 \text{ A})$
$t_f = 0.4 \mu\text{s (typ)}$

GENERAL DESCRIPTION

High voltage, high speed glass passivated NPN power transistor in a plastic package.

Applications:-

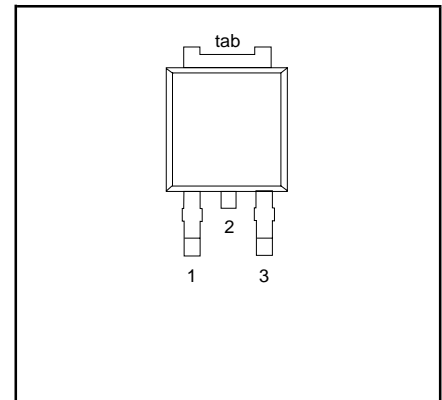
- Off-line SMPS
- TV and monitor power supplies
- Inverters
- Electronic lighting ballasts

The BUX84S is supplied in the SOT428 (DPAK) surface mounting package.

PINNING

PIN	DESCRIPTION
1	base
2	collector ¹
3	emitter
4	collector (tab)

SOT428



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CESM}	Collector-emitter voltage (peak value)	$V_{BE} = 0 \text{ V}$	-	800	V
V_{CEO}	Collector-emitter voltage (DC)	base open circuit	-	400	V
V_{EBO}	Emitter-base voltage	collector open circuit	-	5	V
I_C	Collector current (DC)		-	2	A
I_{CM}	Collector current (peak value)	$t_p = 2 \text{ ms}$	-	3	A
I_B	Base current (DC)		-	0.75	A
I_{BM}	Base current (peak value)		-	1	A
$-I_{BM}$	Reverse base current (peak value during turn-off)		-	1	A
P_{tot}	Total power dissipation	$T_{mb} = 25 \text{ }^\circ\text{C}$	-	50	W
T_j, T_{stg}	Operating junction and storage temperature		- 65	150	$^\circ\text{C}$

¹ It is not possible to make connection to pin:2 of the SOT428 package.

NPN high voltage Power transistor

BUX84S

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base		-	-	2.5	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	pcb mounted, FR4 board, minimum footprint	-	50	-	K/W

ELECTRICAL CHARACTERISTICS

$T_j = 25^\circ\text{C}$ unless otherwise specified

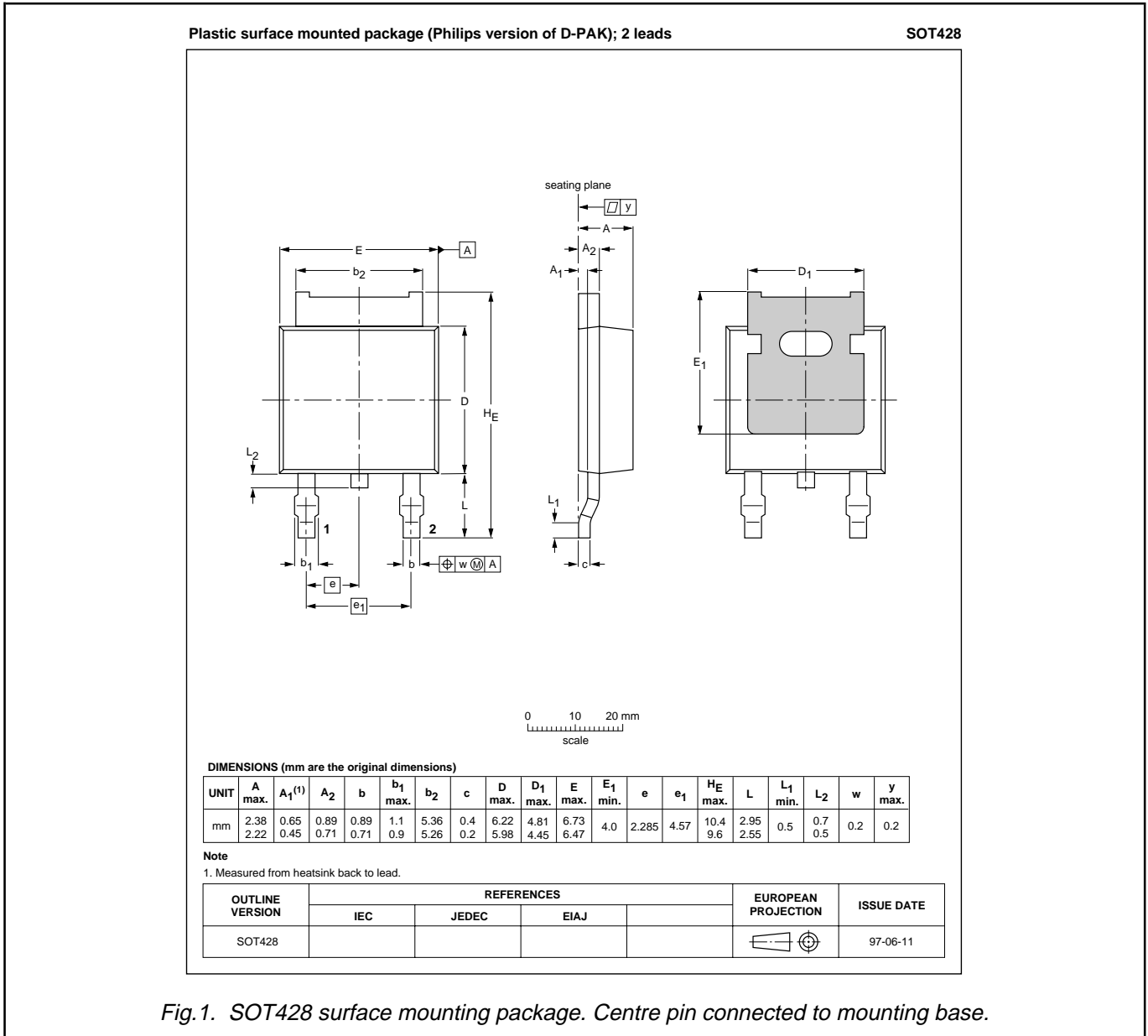
For characteristic curves, refer to BUX84 data sheet.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{CEO(sust)}$	Collector-emitter sustaining voltage	$I_C = 100\text{ mA}; I_{B(OFF)} = 0\text{ A}; L = 25\text{ mH}$	400	-	-	V
$V_{CE(SAT)}$	Collector-emitter saturation voltage	$I_C = 0.3\text{ A}; I_B = 30\text{ mA}$ $I_C = 1\text{ A}; I_B = 0.2\text{ A}$	-	-	0.8 1	V V
$V_{BE(SAT)}$	Base-emitter saturation voltage	$I_C = 1\text{ A}; I_B = 0.2\text{ A}$	-	-	1.1	V
I_{CES}	Collector-emitter cut-off current	$V_{CEM} = 800\text{ V}; V_{BE} = 0\text{ V}$ $V_{CEM} = 800\text{ V}; V_{BE} = 0\text{ V}; T_j = 125^\circ\text{C}$	-	-	200 1.5	μA mA
I_{EBO}	Emitter-base cut-off current	$V_{EB} = 5\text{ V}; I_C = 0\text{ A}$	-	-	1	mA
h_{FE}	DC current gain	$V_{CE} = 5\text{ V}; I_C = 5\text{ mA}$ $V_{CE} = 5\text{ V}; I_C = 100\text{ mA}$	15 20	- 50	- 100	
f_T	Transition frequency	$V_{CE} = 10\text{ V}; I_C = 200\text{ mA}; f = 1\text{ MHz}$	-	20	-	MHz
t_{on}	Turn-on time	$I_{C(on)} = 1\text{ A}; I_{B(on)} = 200\text{ mA}; I_{B(off)} = -400\text{ mA};$ $V_{CC} = 250\text{ V}$	-	0.2	0.5	μs
t_f	Fall time	$T_j = 25^\circ\text{C}$	-	0.4	-	μs
t_s	Storage time	$T_j = 95^\circ\text{C}$	-	-	1.4	μs
			-	2	3.5	μs

NPN high voltage
Power transistor

BUX84S

MECHANICAL DATA



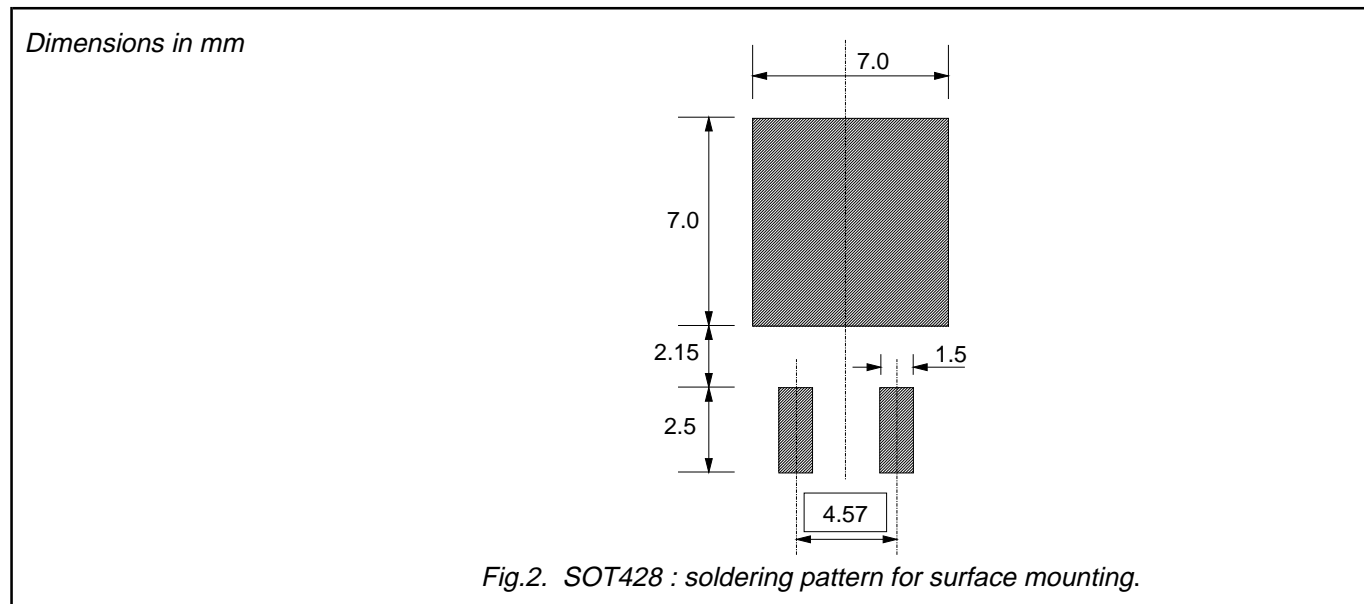
Notes

1. This product is supplied in anti-static packaging. The gate-source input must be protected against static discharge during transport or handling.
2. Refer to SMD Footprint Design and Soldering Guidelines, Data Handbook SC18.
3. Epoxy meets UL94 V0 at 1/8".

NPN high voltage
Power transistor

BUX84S

MOUNTING INSTRUCTIONS



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 are given 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 this 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.	
© Philips Electronics N.V. 1999	
All rights are reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner.	
The information presented in this document does not form part of any quotation or contract, it is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent or other industrial or intellectual property rights.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably 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.