

ANTREX Electronics

Electronic Components Sourcing Information

Product Reference Information

Part Number: BST60,115
Manufacturer: Nexperia USA Inc.
Package: TO-243AA
Availability: Please confirm with sales

Product Page:

<https://antrexco.com/product/details/nexperia-usa-inc/bst60-115.html>

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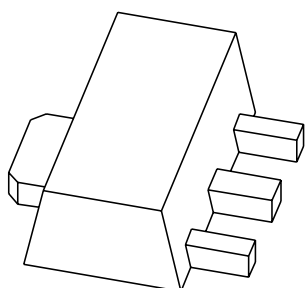
Secure sourcing support for OEM / EMS projects

Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

DATA SHEET



BST60; BST61; BST62 PNP Darlington transistors

Product specification
Supersedes data of 2001 Feb 20

2004 Dec 09

PNP Darlington transistors

BST60; BST61; BST62

FEATURES

- High current (max. 0.5 A)
- Low voltage (max. 80 V)
- Integrated diode and resistor.

APPLICATIONS

- Industrial switching applications such as:
 - Print hammer
 - Solenoid
 - Relay and lamp driving.

DESCRIPTION

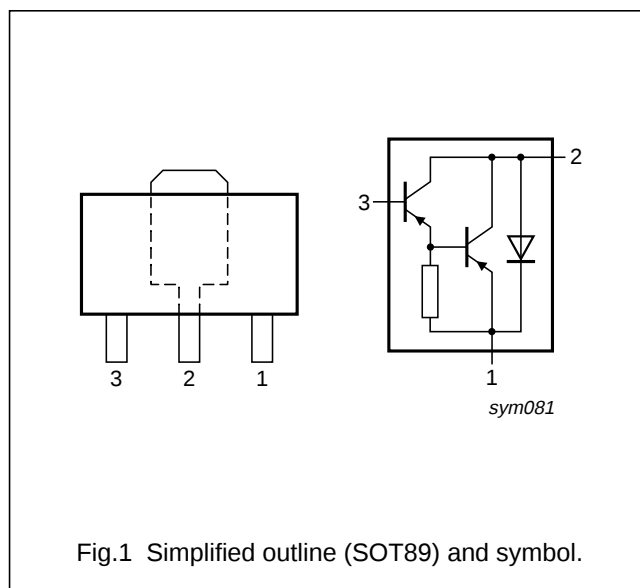
PNP Darlington transistor in a SOT89 plastic package.
NPN complements: BST50, BST51 and BST52.

MARKING

TYPE NUMBER	MARKING CODE
BST60	BS1
BST61	BS2
BST62	BS3

PINNING

PIN	DESCRIPTION
1	emitter
2	collector
3	base



ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BST60	SC-62	plastic surface mounted package; collector pad for good heat transfer; 3 leads	SOT89
BST61			
BST62			

PNP Darlington transistors

BST60; BST61; BST62

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter			
	BST60		–	–60	V
	BST61		–	–80	V
	BST62		–	–90	V
V_{CES}	collector-emitter voltage	$V_{BE} = 0$ V			
	BST60		–	–45	V
	BST61		–	–60	V
	BST62		–	–80	V
V_{EBO}	emitter-base voltage	open collector	–	–5	V
I_C	collector current (DC)		–	–1	A
I_{CM}	peak collector current		–	–2	A
I_B	base current (DC)		–	–100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	1.3	W
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	ambient temperature		–65	+150	°C

Note

- Device mounted on a printed-circuit board, single-sided copper, tin-plated, mounting pad for collector 6 cm².
For other mounting conditions, see “*Thermal considerations for SOT89 in the General Part of associated Handbook*”.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-a)}$	thermal resistance from junction to ambient	note 1	96	K/W
$R_{th(j-s)}$	thermal resistance from junction to soldering point		16	K/W

Note

- Device mounted on a printed-circuit board, single-sided copper, tin-plated, mounting pad for collector 6 cm².
For other mounting conditions, see “*Thermal considerations for SOT89 in the General Part of associated Handbook*”.

PNP Darlington transistors

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CHARACTERISTICS

$T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

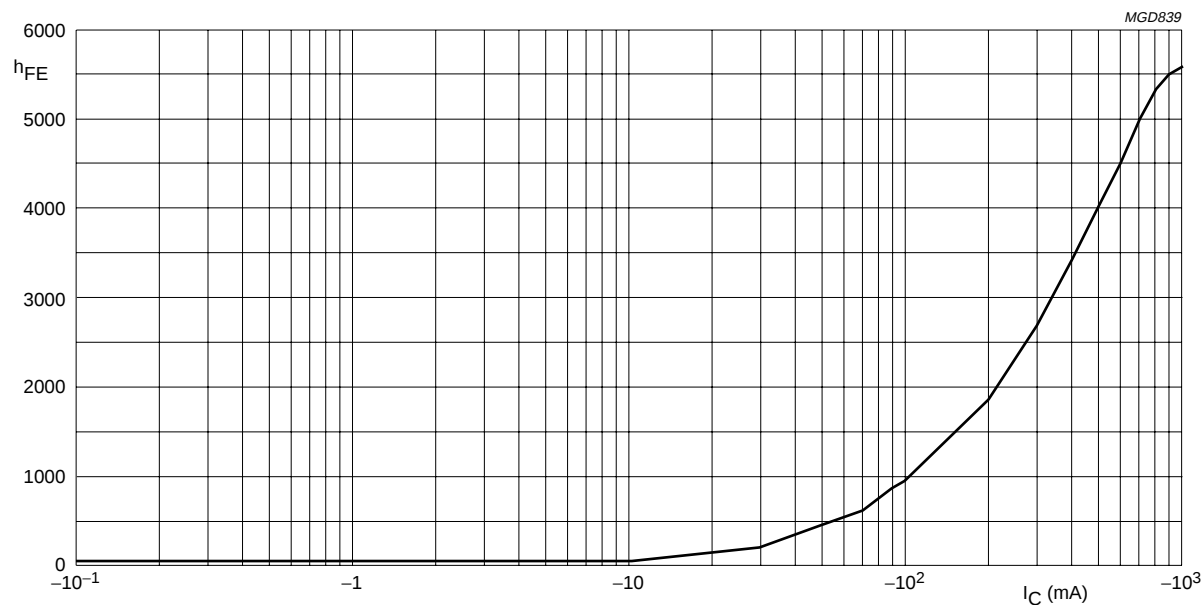
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CES}	collector-emitter cut-off current					
	BST60	$V_{BE} = 0\text{ V}; V_{CE} = -45\text{ V}$	–	–	–50	nA
	BST61	$V_{BE} = 0\text{ V}; V_{CE} = -60\text{ V}$	–	–	–50	nA
	BST62	$V_{BE} = 0\text{ V}; V_{CE} = -80\text{ V}$	–	–	–50	nA
I_{EBO}	emitter-base cut-off current	$I_C = 0\text{ A}; V_{EB} = -4\text{ V}$	–	–	–50	nA
h_{FE}	DC current gain	$V_{CE} = -10\text{ V}$; note 1; see Fig.2				
		$I_C = -150\text{ mA}$	1000	–	–	
		$I_C = -500\text{ mA}$	2000	–	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -500\text{ mA}; I_B = -0.5\text{ mA}$	–	–	–1.3	V
		$I_C = -500\text{ mA}; I_B = -0.5\text{ mA}; T_j = 150\text{ }^{\circ}\text{C}$	–	–	–1.3	V
V_{BEsat}	base-emitter saturation voltage	$I_C = -500\text{ mA}; I_B = -0.5\text{ mA}$	–	–	–1.9	V
f_T	transition frequency	$I_C = -500\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$	–	200	–	MHz
Switching times (between 10% and 90% levels); (see Fig.3)						
t_{on}	turn-on time	$I_{Con} = -500\text{ mA}; I_{Bon} = -0.5\text{ mA}; I_{Boff} = 0.5\text{ mA}$	–	500	–	ns
t_{off}	turn-off time		–	700	–	ns

Note

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$.

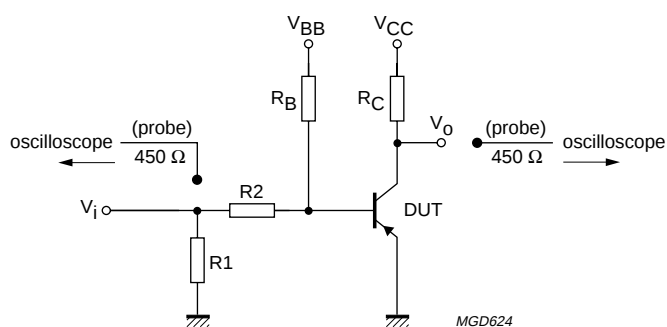
PNP Darlington transistors

BST60; BST61; BST62



$V_{CE} = -10$ V.

Fig.2 DC current gain; typical values.



$V_i = -10$ V; $T = 200$ μ s; $t_p = 6$ μ s; $t_r = t_f \leq 3$ ns.
 $R_1 = 56$ Ω ; $R_2 = 10$ k Ω ; $R_B = 10$ k Ω ; $R_C = 18$ Ω .
 $V_{BB} = 1.8$ V; $V_{CC} = -10.7$ V.
 Oscilloscope: input impedance $Z_i = 50$ Ω .

Fig.3 Test circuit for switching times.

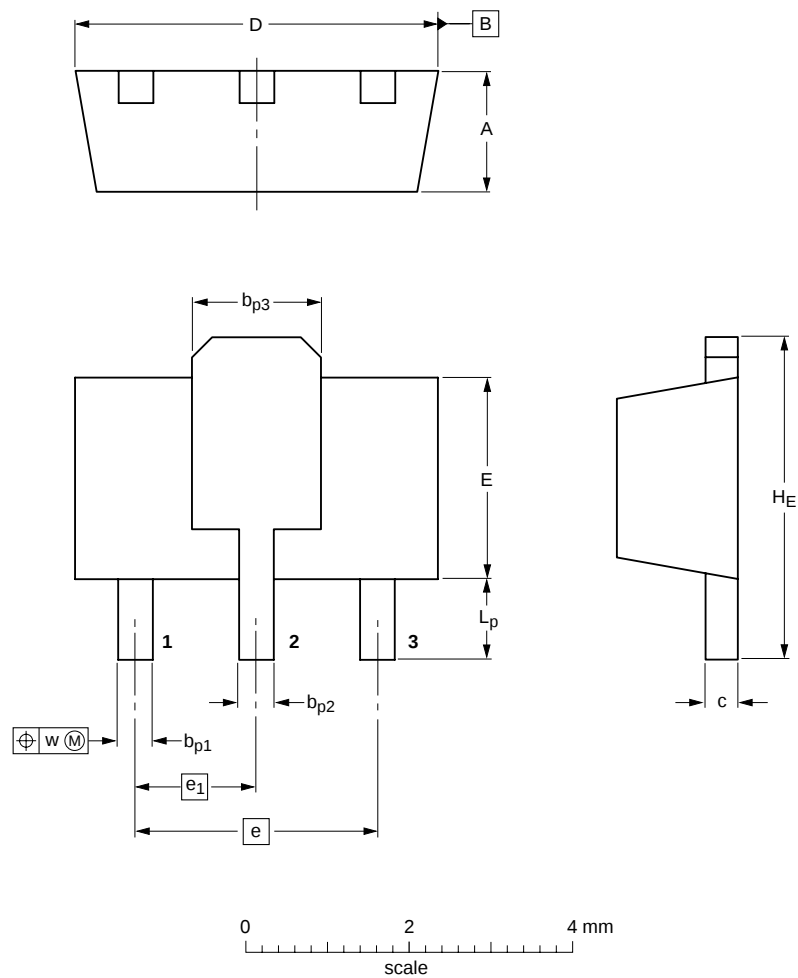
PNP Darlington transistors

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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 _{p1}	b _{p2}	b _{p3}	c	D	E	e	e ₁	H _E	L _p	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.23	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	1.2 0.8	0.13

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT89		TO-243	SC-62			99-09-13 04-08-03

PNP Darlington transistors

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DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

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Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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