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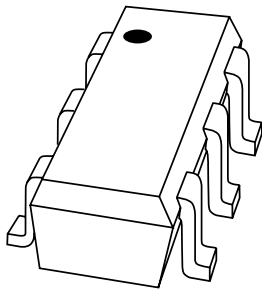Should be replaced with:
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Kind regards,

Team Nexperia

DATA SHEET

PBSS4240Y

40 V low V_{CEsat} NPN transistor

Product data sheet

2001 Jul 13

NXP founded by Philips

40 V low V_{CEsat} NPN transistor   **PBSS4240Y**

FEATURES

- Low collector-emitter saturation voltage
- High current capability
- Improved device reliability due to reduced heat generation
- Replacement for SOT89/SOT223 standard packaged transistors due to enhanced performance.

APPLICATIONS

- Supply line switching circuits
- Battery management applications
- DC/DC converter applications
- Strobe flash units
- Heavy duty battery powered equipment (motor and lamp drivers).

DESCRIPTION

NPN low V_{CEsat} transistor in a SOT363 (SC-88) plastic package.
PNP complement: PBSS5240Y.

MARKING

TYPE NUMBER	MARKING CODE[1]
PBSS4240Y	42*

Note

1. * = p: made in Hongkong.
    * = t: made in Malaysia.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
V_{CEO}	collector-emitter voltage	40	V
I_{CM}	peak collector current	3	A
R_{CEsat}	equivalent on-resistance	<200	mΩ

PINNING

PIN	DESCRIPTION
1	collector
2	collector
3	base
4	emitter
5	collector
6	collector
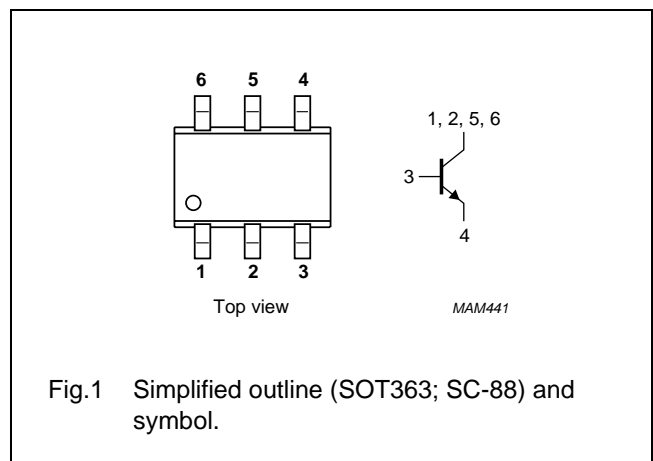
Fig.1   Simplified outline (SOT363; SC-88) and symbol.

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	–	40	V
V_{CEO}	collector-emitter voltage	open base	–	40	V
V_{EBO}	emitter-base voltage	open collector	–	5	V
I_C	collector current (DC)		–	2	A
I_{CM}	peak collector current		–	3	A
I_{BM}	peak base current		–	300	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\ °C$; note 1	–	270	mW
		$T_{amb} \leq 25\ °C$; note 2	–	430	mW
T_{stg}	storage temperature		−65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		−65	+150	°C

Notes

1. Device mounted on a printed-circuit board, single side copper, tinplated and standard footprint.

2. Device mounted on a printed-circuit board, single side copper, tinplated and mounting pad for collector 1 cm^2.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	in free air; note 1	463	K/W
		in free air; note 2	291	K/W

Notes

1. Device mounted on a printed-circuit board, single side copper, tinplated and standard footprint.

2. Device mounted on a printed-circuit board, single side copper, tinplated and mounting pad for collector 1 cm^2.

40 V low V_{CEsat} NPN transistor

CHARACTERISTICS

$T_{amb} = 25\ °C$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	$V_{CB} = 30\ V$; $I_E = 0$	–	–	100	nA
		$V_{CB} = 30\ V$; $I_E = 0$; $T_j = 150\ °C$	–	–	50	µA
I_{EBO}	emitter-base cut-off current	$V_{EB} = 4\ V$; $I_C = 0$	–	–	100	nA
h_{FE}	DC current gain	$V_{CE} = 2\ V$; $I_C = 100\ mA$	350	470	–	
		$V_{CE} = 2\ V$; $I_C = 500\ mA$	300	450	–	
		$V_{CE} = 2\ V$; $I_C = 1\ A$	300	420	–	
		$V_{CE} = 2\ V$; $I_C = 2\ A$	150	250	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 100\ mA$; $I_B = 1\ mA$	–	45	70	mV
		$I_C = 500\ mA$; $I_B = 50\ mA$	–	70	100	mV
		$I_C = 750\ mA$; $I_B = 15\ mA$	–	120	180	mV
		$I_C = 1\ A$; $I_B = 50\ mA$	–	130	180	mV
		$I_C = 2\ A$; $I_B = 200\ mA$	–	240	320	mV
R_{CEsat}	equivalent on-resistance	$I_C = 500\ mA$; $I_B = 50\ mA$; note 1	–	140	<200	mΩ
V_{BEsat}	base-emitter saturation voltage	$I_C = 2\ A$; $I_B = 200\ mA$	–	–	1.1	V
V_{BEon}	base-emitter turn-on voltage	$V_{CE} = 2\ V$; $I_C = 100\ mA$	–	–	0.75	V
C_c	collector capacitance	$V_{CB} = 10\ V$; $I_E = I_e = 0$; $f = 1\ MHz$	–	15	20	pF
f_T	transition frequency	$I_C = 100\ mA$; $V_{CE} = 10\ V$; $f = 100\ MHz$	100	230	–	MHz

Note

1. Pulse test: $t_p \leq 300\ µs$; $\delta \leq 0.02$.

40 V low V$_{CEsat}$ NPN transistor

PBSS4240Y

PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT363

detail X

```
0        1        2 mm
|........|........|
      scale
```
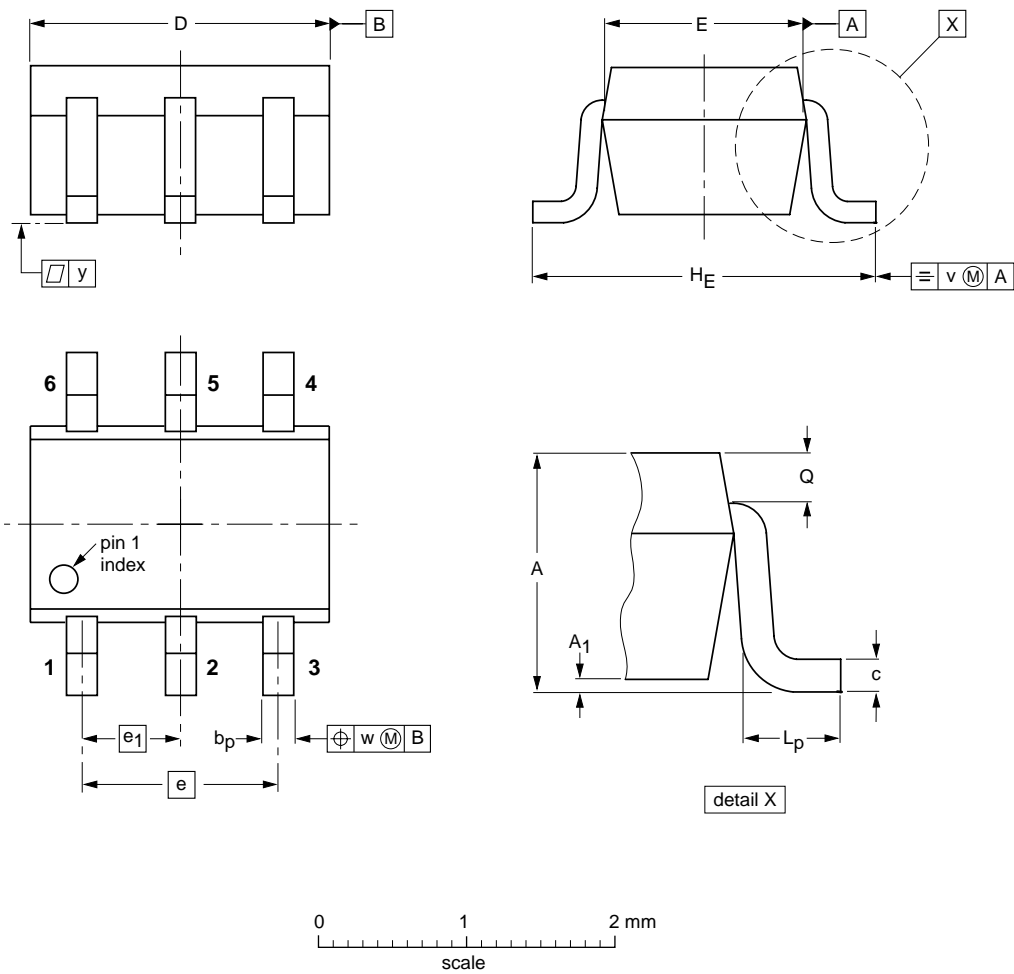
DIMENSIONS (mm are the original dimensions)

UNIT	A	A$_1$ max	b$_p$	c	D	E	e	e$_1$	H$_E$	L$_p$	Q	v	w	y
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT363			SC-88			97-02-28

40 V low V$_{CEsat}$ NPN transistor   PBSS4240Y

DATA SHEET STATUS

DOCUMENT STATUS[1]	PRODUCT STATUS[2]	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

Notes

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NXP Semiconductors

Customer notification

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