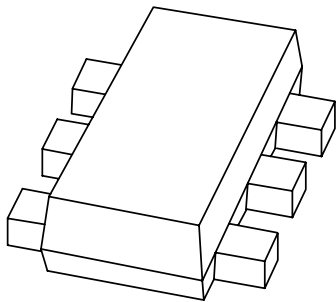


# DATA SHEET



## **PEMZ7** NPN/PNP general purpose transistors

Product data sheet  
Supersedes data of 2001 Sep 25

2001 Nov 07

# NPN/PNP general purpose transistors

# PEMZ7

## FEATURES

- 300 mW total power dissipation
- Very small 1.6 × 1.2 mm ultra thin package
- Self alignment during soldering due to straight leads
- Low collector capacitance
- Low  $V_{CEsat}$
- High current capabilities
- Improved thermal behaviour due to flat leads
- Reduced required PCB area
- Reduced pick and place costs.

## APPLICATIONS

- Heavy duty battery powered equipment (automotive, telecom and audio-video) such as motor and lamp drivers
- $V_{CEsat}$  critical applications such as latest low supply voltage IC applications
- All battery driven equipment, to save battery power.

## DESCRIPTION

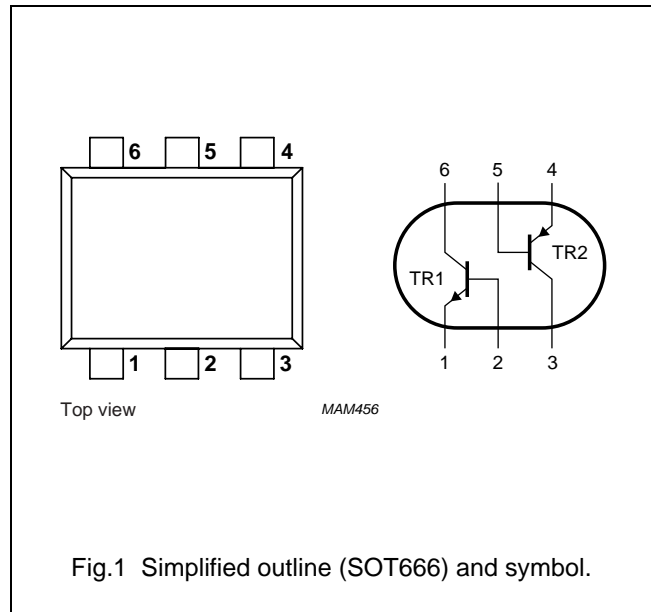
NPN/PNP low  $V_{CEsat}$  transistor pair in a SOT666 plastic package.

## MARKING

TYPE NUMBER	MARKING CODE
PEMZ7	Z7

## PINNING

PIN	DESCRIPTION
1, 4	emitter TR1; TR2
2, 5	base TR1; TR2
6, 3	collector TR1; TR2



## NPN/PNP general purpose transistors

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**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per transistor; for the PNP transistor with negative polarity</b>					
V <sub>CBO</sub>	collector-base voltage	open emitter	–	15	V
V <sub>CEO</sub>	collector-emitter voltage	open base	–	12	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	6	V
I <sub>C</sub>	collector current (DC)		–	500	mA
I <sub>CM</sub>	peak collector current		–	1	A
I <sub>BM</sub>	peak base current		–	100	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	–	200	mW
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	operating ambient temperature		–65	+150	°C
<b>Per device</b>					
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	–	300	mW

**Note**

1. Transistor mounted on an FR4 printed-circuit board.

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th j-a</sub>	thermal resistance from junction to ambient	notes 1 and 2	416	K/W

**Notes**

1. Transistor mounted on an FR4 printed-circuit board.
2. The only recommended soldering method is reflow soldering.

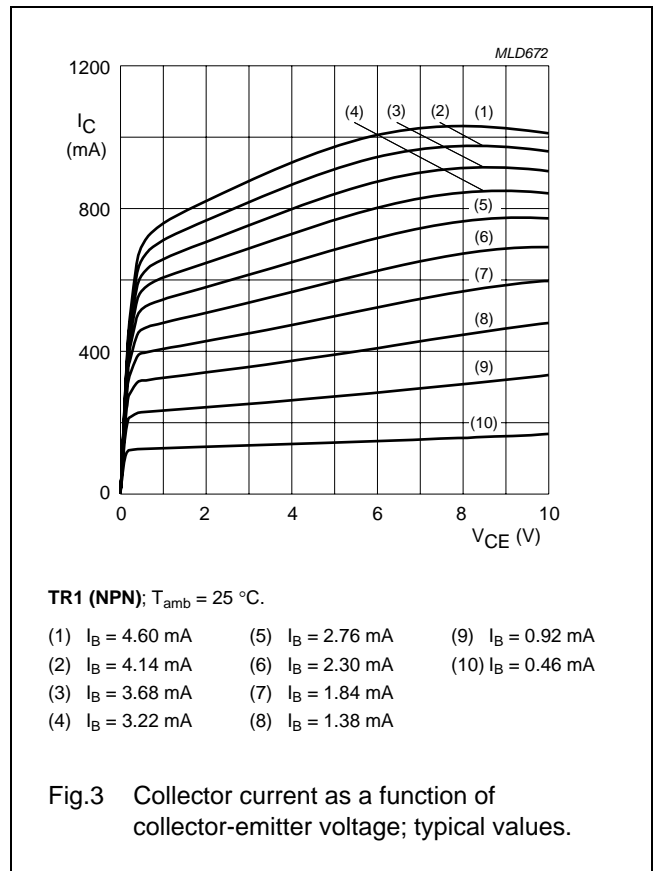
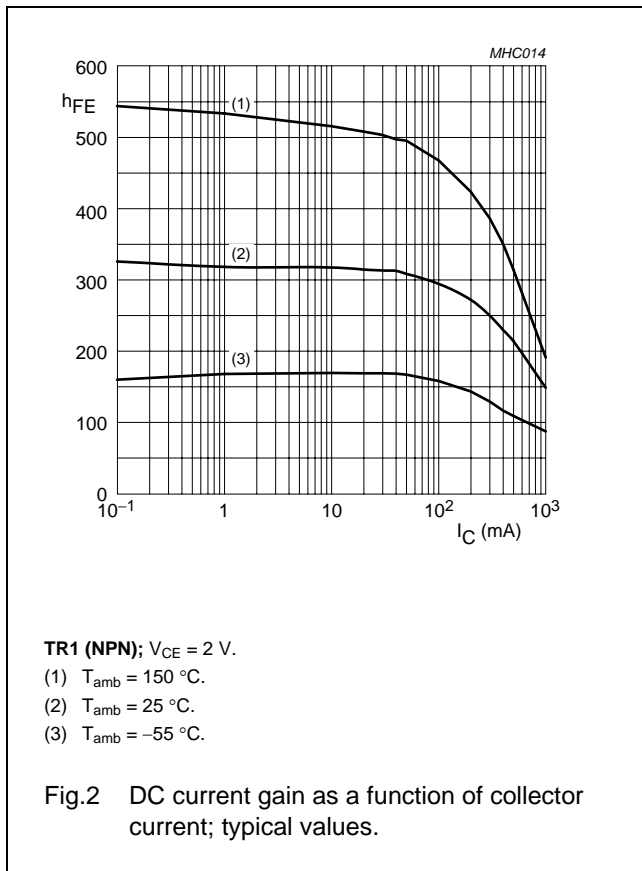
NPN/PNP general purpose transistors

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CHARACTERISTICS

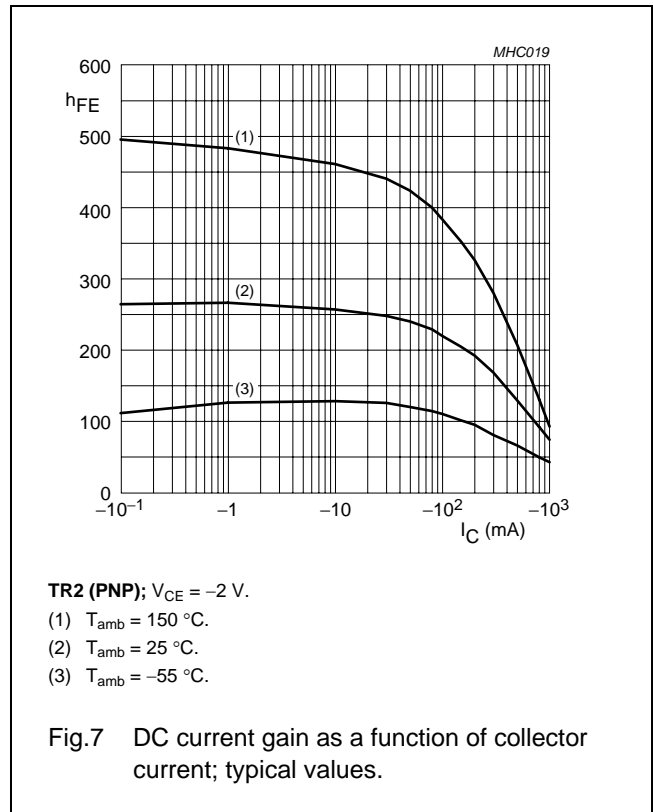
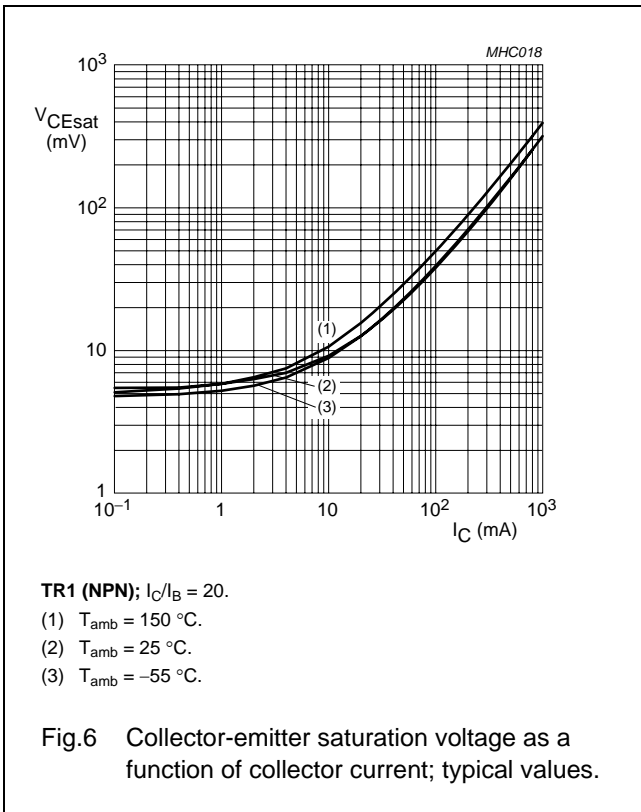
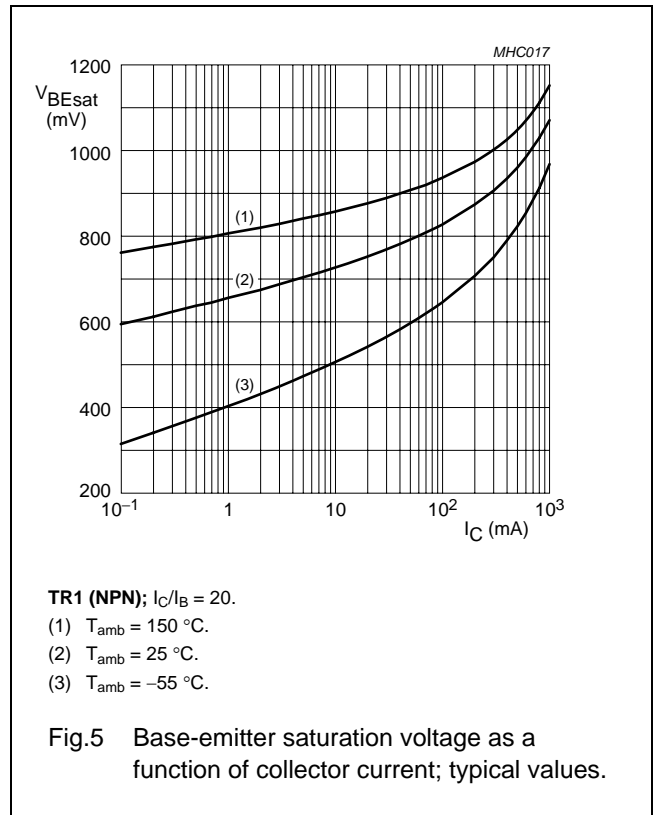
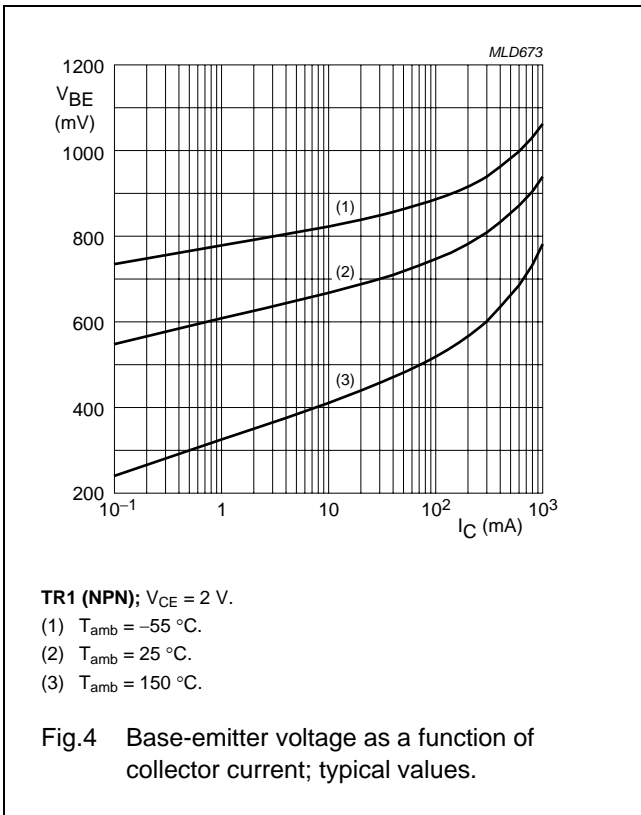
T<sub>amb</sub> = 25 °C; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
<b>Per transistor; for the PNP transistor with negative polarity</b>						
I <sub>CBO</sub>	collector-base cut-off current	V <sub>CB</sub> = 15 V; I <sub>E</sub> = 0	–	–	100	nA
		V <sub>CB</sub> = 15 V; I <sub>E</sub> = 0; T <sub>J</sub> = 150 °C	–	–	50	μA
I <sub>EBO</sub>	emitter-base cut-off current	V <sub>EB</sub> = 5 V; I <sub>C</sub> = 0	–	–	100	nA
h <sub>FE</sub>	DC current gain	V <sub>CE</sub> = 2 V; I <sub>C</sub> = 10 mA	200	–	–	
V <sub>CEsat</sub>	collector-emitter saturation voltage	I <sub>C</sub> = 200 mA; I <sub>B</sub> = 10 mA	–	–	220	mV
f <sub>T</sub>	transition frequency TR1 (NPN) TR2 (PNP)	I <sub>C</sub> = 100 mA; V <sub>CE</sub> = 5 V; f = 100 MHz	250	420	–	MHz
			100	280	–	MHz
C <sub>c</sub>	collector capacitance TR1 (NPN) TR2 (PNP)	V <sub>CB</sub> = 10 V; I <sub>E</sub> = I <sub>e</sub> = 0; f = 1 MHz	–	4.4	6	pF
			–	–	10	pF
			–	–	–	



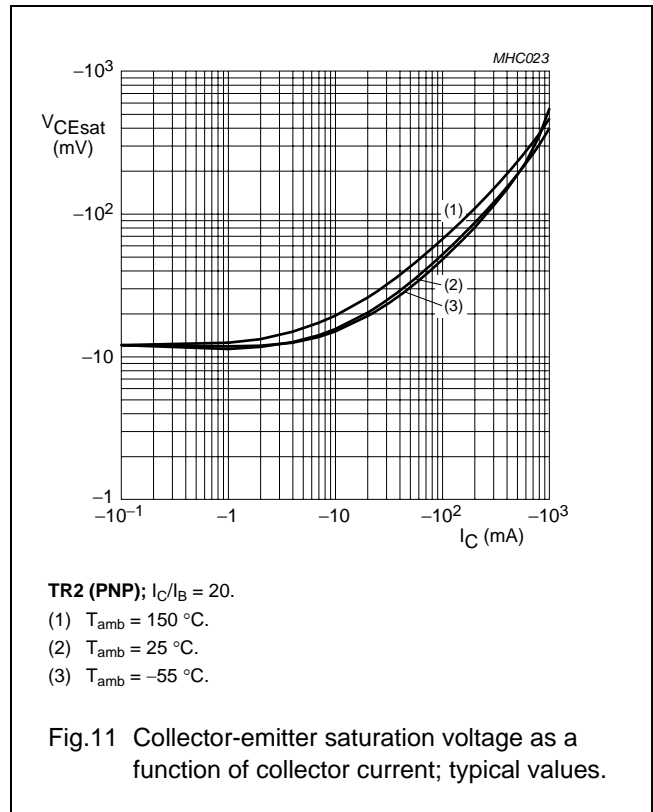
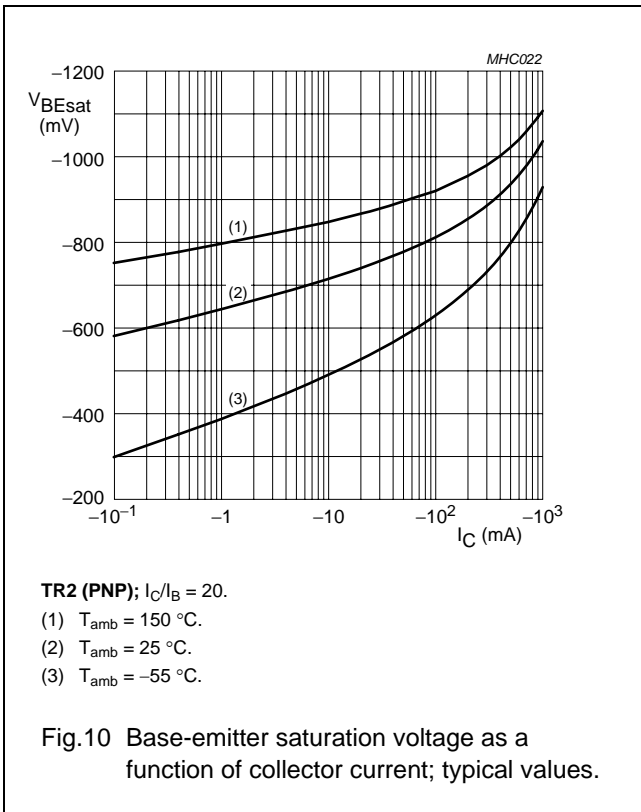
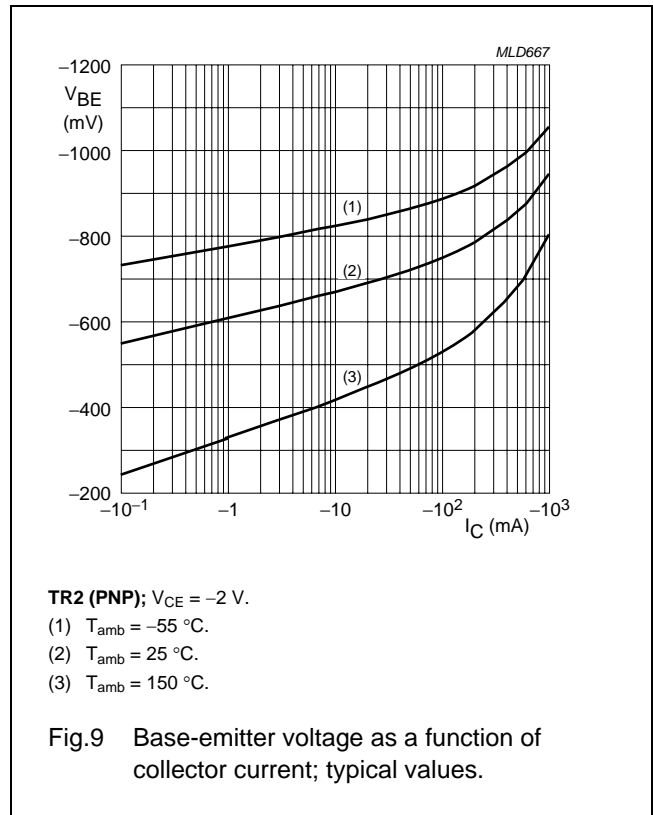
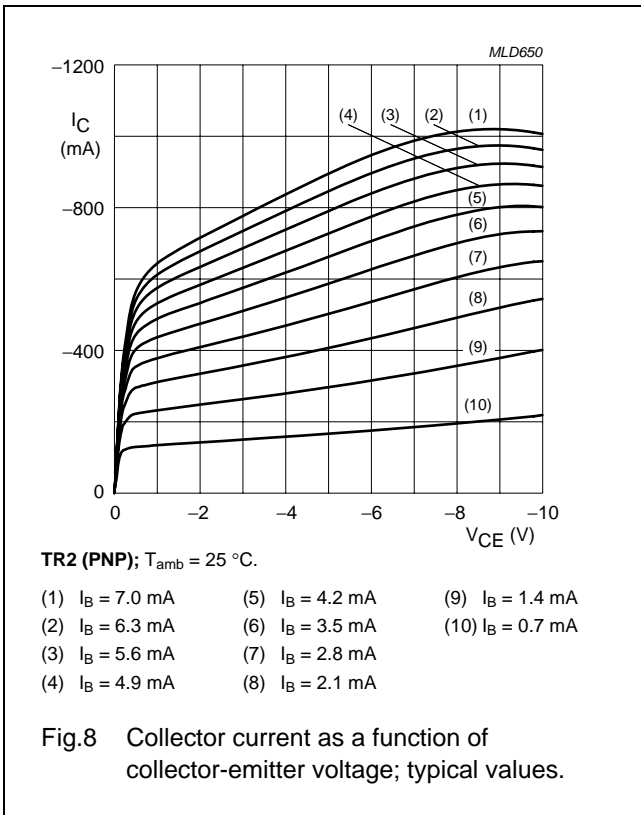
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NPN/PNP general purpose transistors

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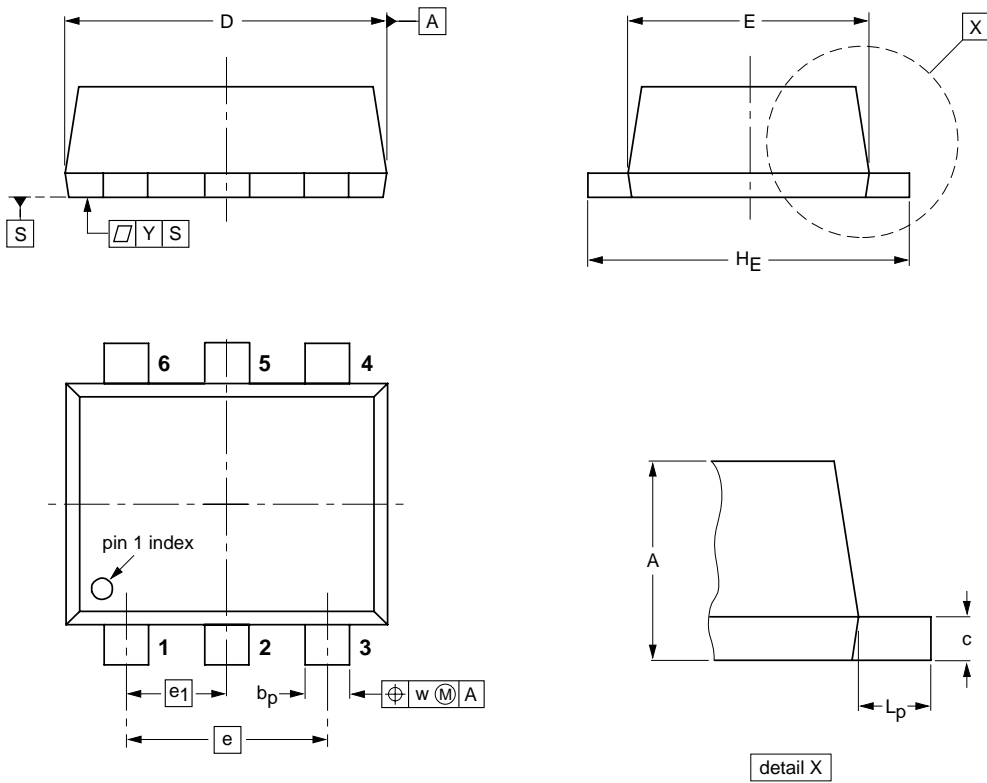
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PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT666



DIMENSIONS (mm are the original dimensions)

UNIT	A	$b_p$	c	D	E	e	$e_1$	$H_E$	$L_p$	w	y
mm	0.6 0.5	0.27 0.17	0.18 0.08	1.7 1.5	1.3 1.1	1.0	0.5	1.7 1.5	0.3 0.1	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT666						01-01-04 01-08-27

## NPN/PNP general purpose transistors

PEMZ7

## DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	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.

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