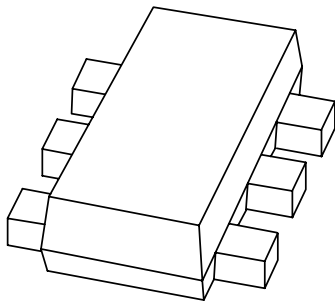


DATA SHEET



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

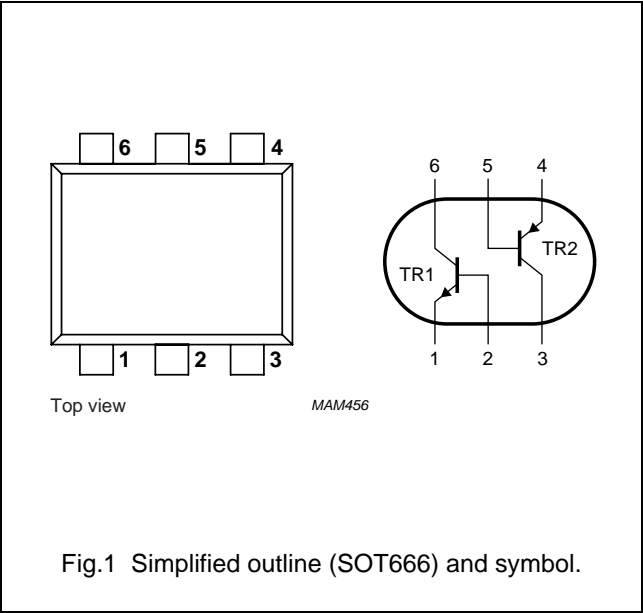
NPN/PNP low V_{CEsat} transistor pair in a SOT666 plastic package.

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



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LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per transistor; for the PNP transistor with negative polarity					
V_{CBO}	collector-base voltage	open emitter	–	15	V
V_{CEO}	collector-emitter voltage	open base	–	12	V
V_{EBO}	emitter-base voltage	open collector	–	6	V
I_C	collector current (DC)		–	500	mA
I_{CM}	peak collector current		–	1	A
I_{BM}	peak base current		–	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	200	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C
Per device					
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	300	mW

Note

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

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	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.

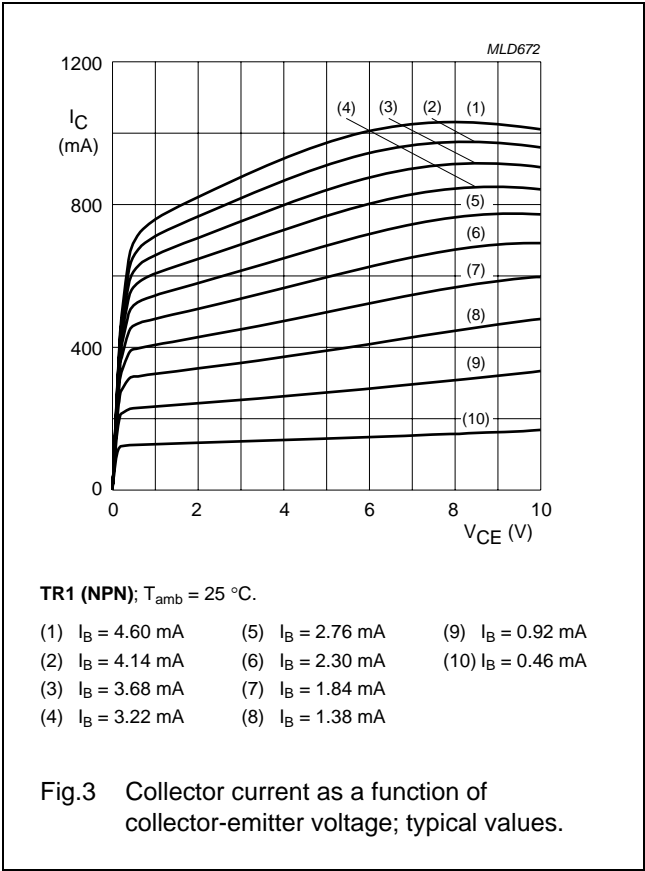
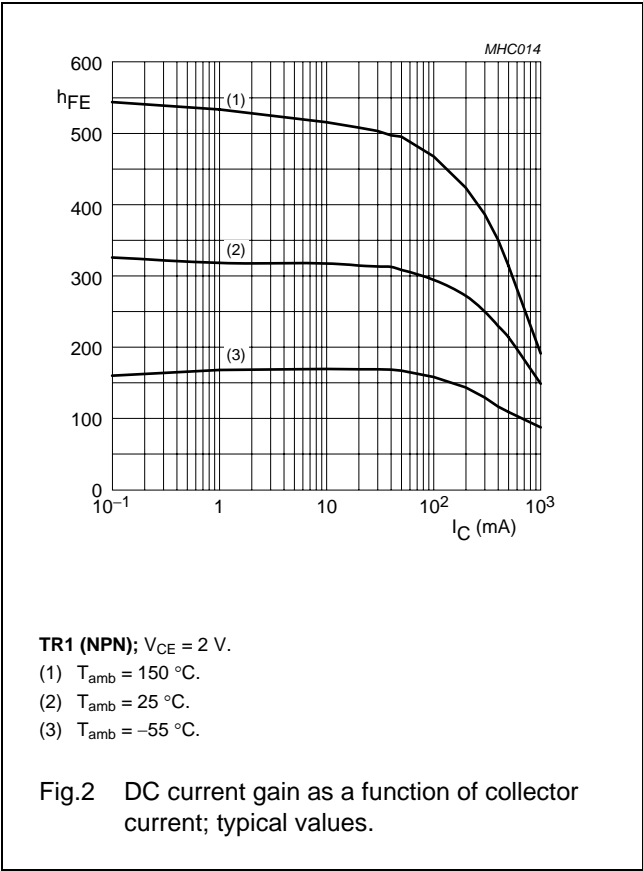
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CHARACTERISTICS

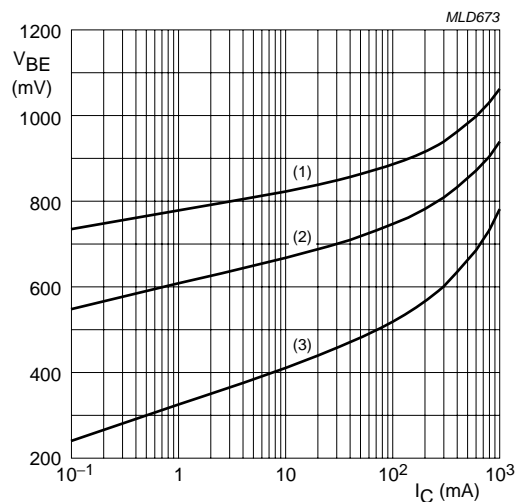
T_{amb} = 25 °C; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Per transistor; for the PNP transistor with negative polarity						
I _{CBO}	collector-base cut-off current	V _{CB} = 15 V; I _E = 0	–	–	100	nA
		V _{CB} = 15 V; I _E = 0; T _j = 150 °C	–	–	50	μA
I _{EBO}	emitter-base cut-off current	V _{EB} = 5 V; I _C = 0	–	–	100	nA
h _{FE}	DC current gain	V _{CE} = 2 V; I _C = 10 mA	200	–	–	
V _{CEsat}	collector-emitter saturation voltage	I _C = 200 mA; I _B = 10 mA	–	–	220	mV
f _T	transition frequency	I _C = 100 mA; V _{CE} = 5 V; f = 100 MHz	250	420	–	MHz
	TR1 (NPN)					
C _c	collector capacitance	V _{CB} = 10 V; I _E = I _e = 0; f = 1 MHz	–	4.4	6	pF
	TR1 (NPN)					
	TR2 (PNP)		–	–	10	pF



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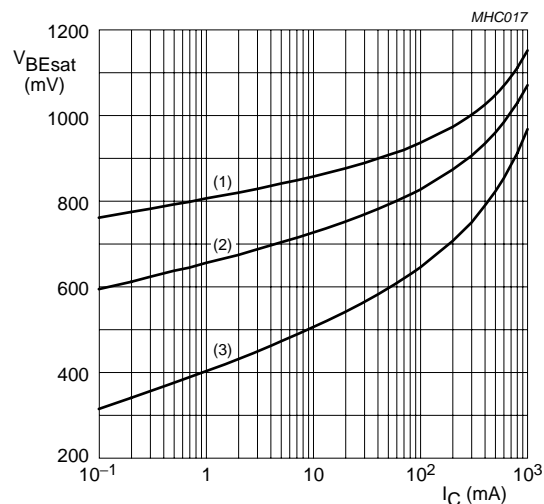
TR1 (NPN); $V_{CE} = 2\text{ V}$.

(1) $T_{amb} = -55^\circ\text{C}$.

(2) $T_{amb} = 25^\circ\text{C}$.

(3) $T_{amb} = 150^\circ\text{C}$.

Fig.4 Base-emitter voltage as a function of collector current; typical values.



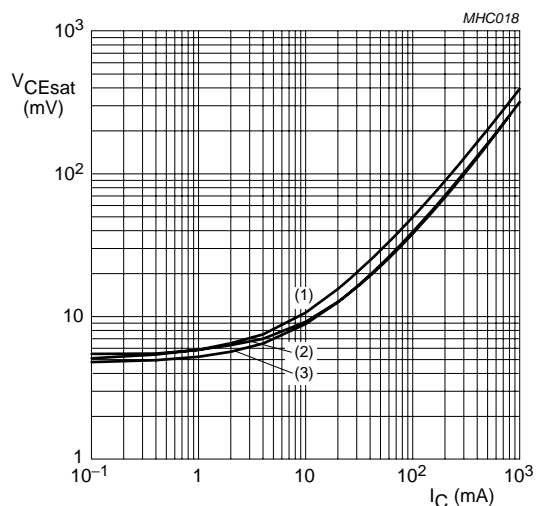
TR1 (NPN); $I_C/I_B = 20$.

(1) $T_{amb} = 150^\circ\text{C}$.

(2) $T_{amb} = 25^\circ\text{C}$.

(3) $T_{amb} = -55^\circ\text{C}$.

Fig.5 Base-emitter saturation voltage as a function of collector current; typical values.



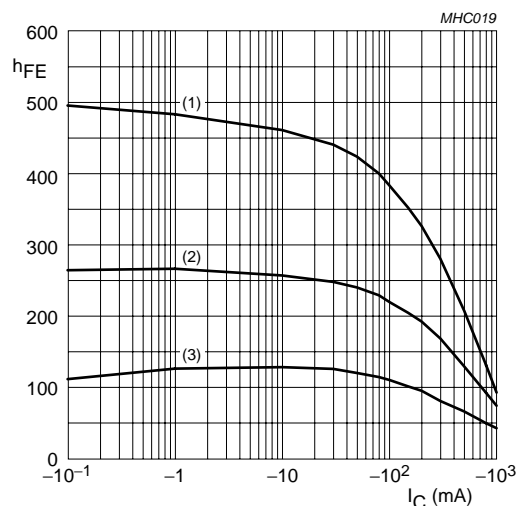
TR1 (NPN); $I_C/I_B = 20$.

(1) $T_{amb} = 150^\circ\text{C}$.

(2) $T_{amb} = 25^\circ\text{C}$.

(3) $T_{amb} = -55^\circ\text{C}$.

Fig.6 Collector-emitter saturation voltage as a function of collector current; typical values.



TR2 (PNP); $V_{CE} = -2\text{ V}$.

(1) $T_{amb} = 150^\circ\text{C}$.

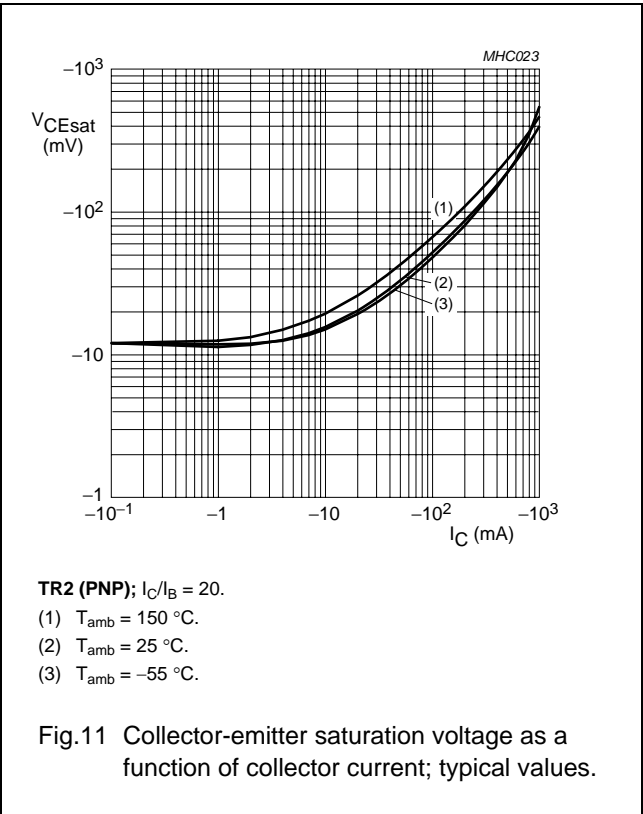
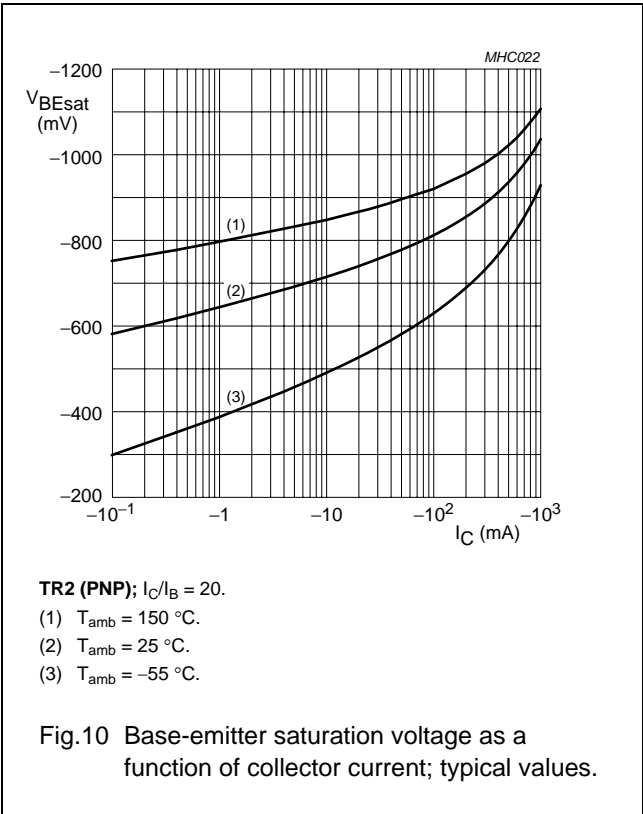
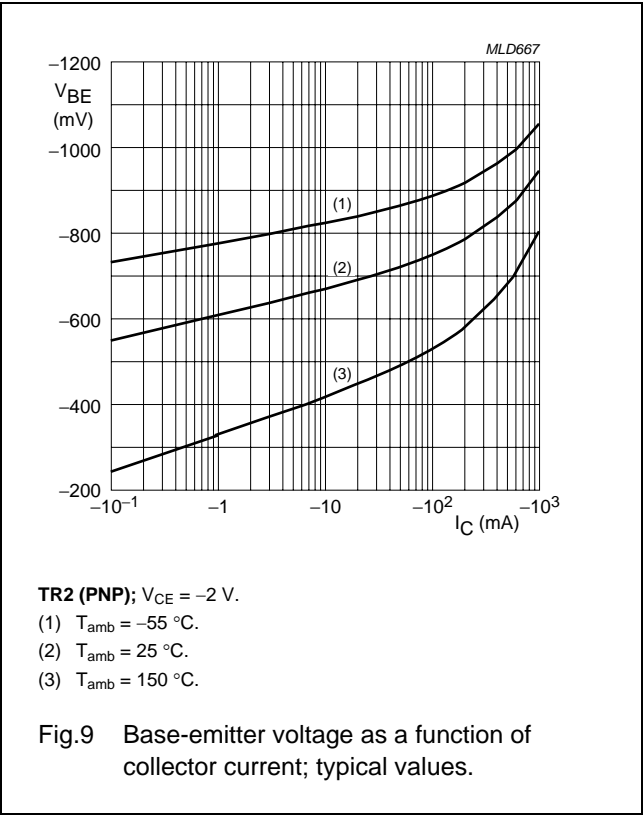
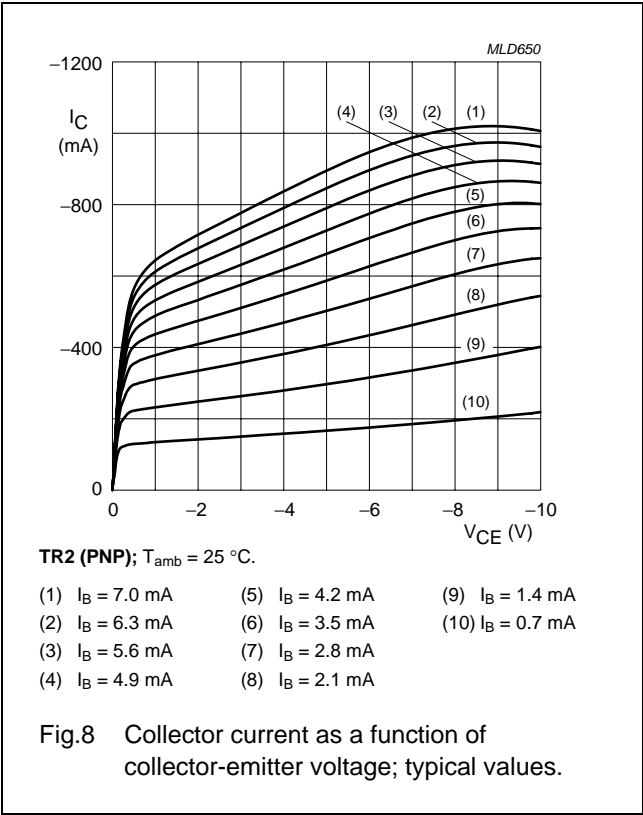
(2) $T_{amb} = 25^\circ\text{C}$.

(3) $T_{amb} = -55^\circ\text{C}$.

Fig.7 DC current gain as a function of collector current; typical values.

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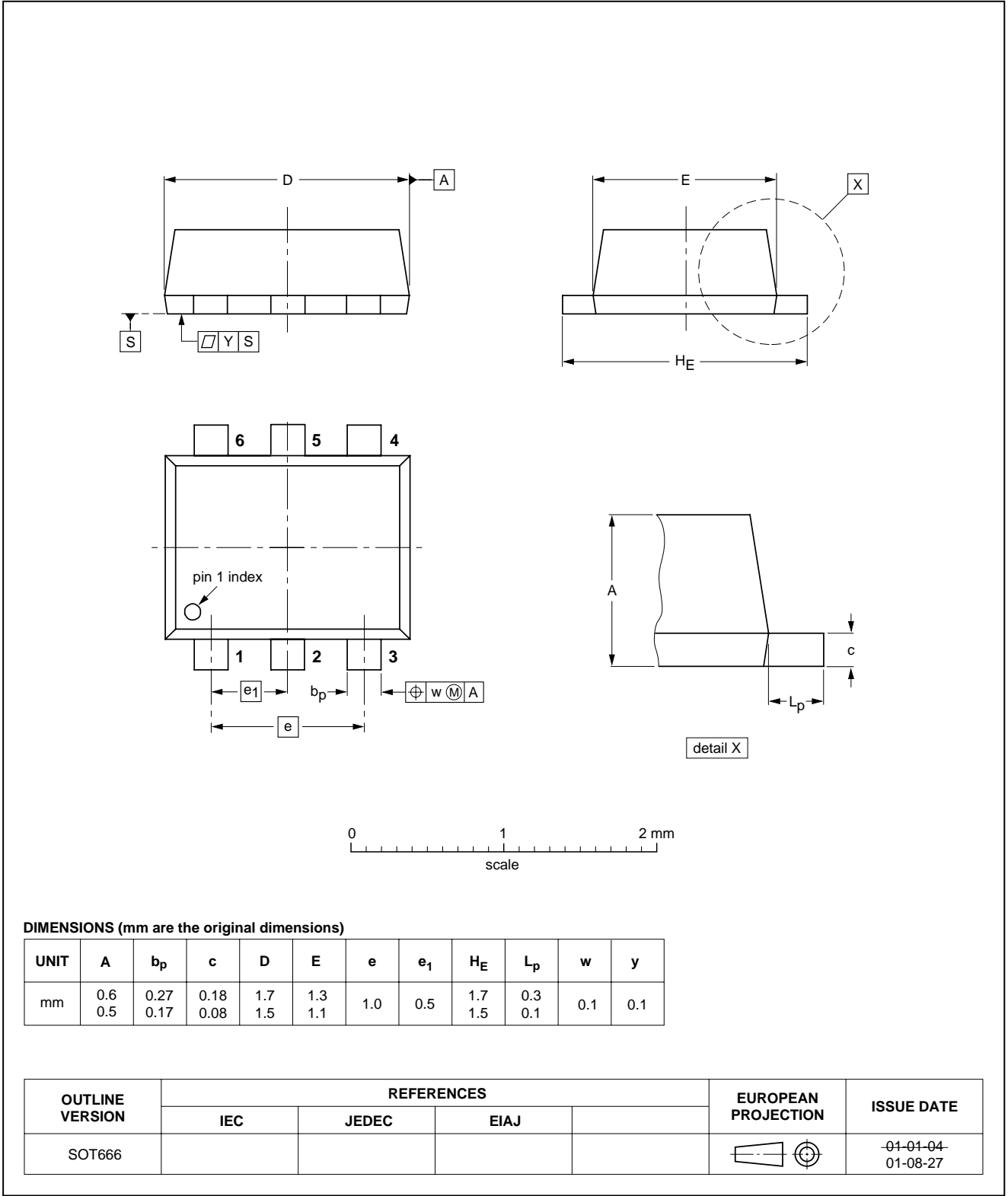
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PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT666



NPN/PNP general purpose transistors

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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.

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