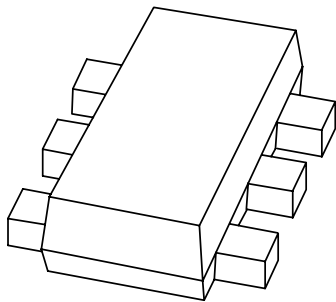


DATA SHEET



PEMH13

**NPN resistor-equipped transistors;
R1 = 4.7 k Ω , R2 = 47 k Ω**

Preliminary specification

2001 Dec 13

**NPN resistor-equipped transistors;
R1 = 4.7 kΩ, R2 = 47 kΩ**

PEMH13

FEATURES

- 300 mW total power dissipation
- Very small 1.6 × 1.2 mm ultra thin package
- Improved thermal behaviour due to flat leads
- Self alignment during soldering due to straight leads
- Replaces two SC-75/SC-89 packaged transistors on same PCB area
- Reduces required PCB area
- Reduced pick and place costs.

APPLICATIONS

- General purpose switching and amplification
- Inverter and interface circuits
- Circuit driver.

DESCRIPTION

NPN resistor-equipped transistors in a SOT666 plastic package.

MARKING

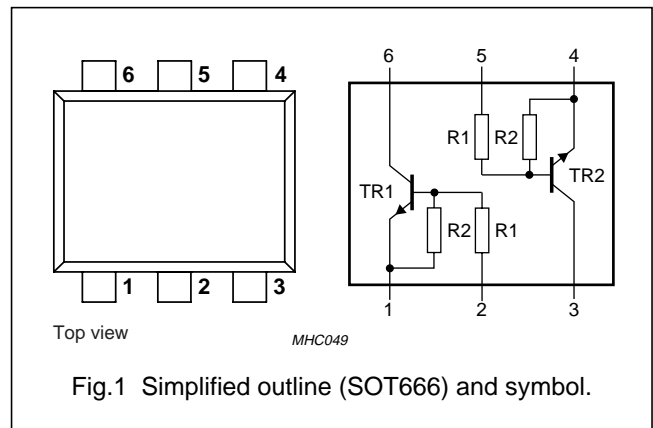
TYPE NUMBER	MARKING CODE
PEMH13	21

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
V _{CEO}	collector-emitter voltage	50	V
I _{CM}	peak collector current	100	mA
TR1	NPN	–	–
TR2	NPN	–	–
R1	bias resistor	4.7	kΩ
R2	bias resistor	47	kΩ

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					
V _{CBO}	collector-base voltage	open emitter	–	50	V
V _{CEO}	collector-emitter voltage	open base	–	50	V
V _{EBO}	emitter-base voltage	open collector	–	10	V
V _i	input voltage positive negative		–	+30	V
			–	–5	V
I _o	output current (DC)		–	100	mA
I _{CM}	peak collector current		–	100	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °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} ≤ 25 °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.

NPN resistor-equipped transistors;
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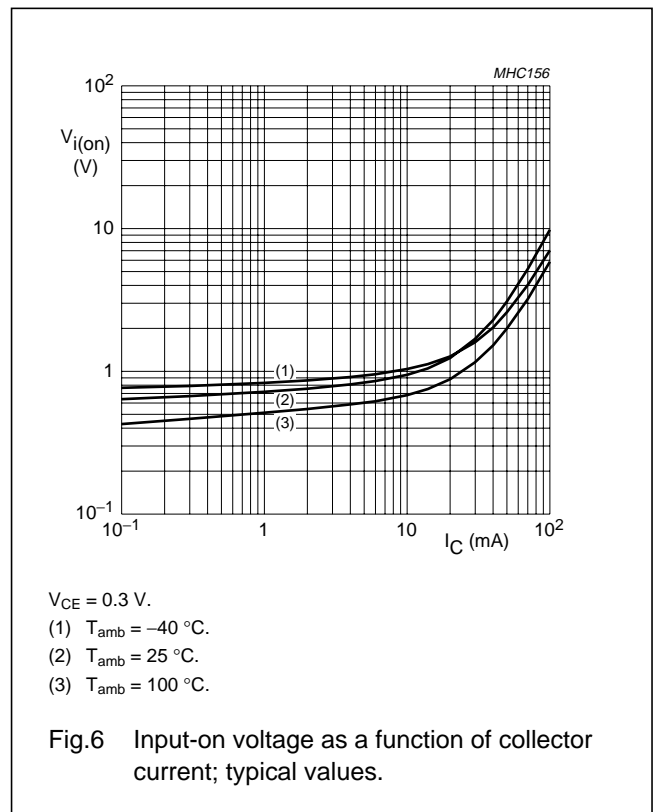
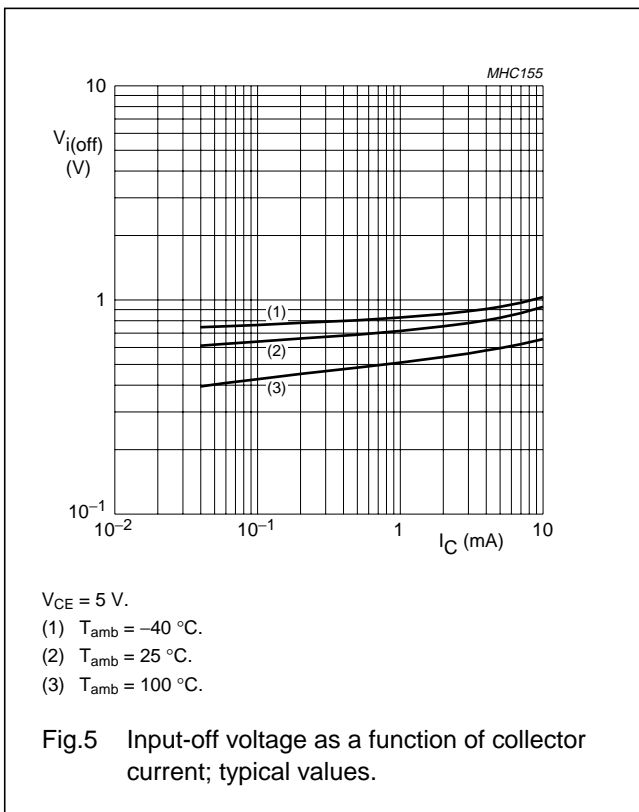
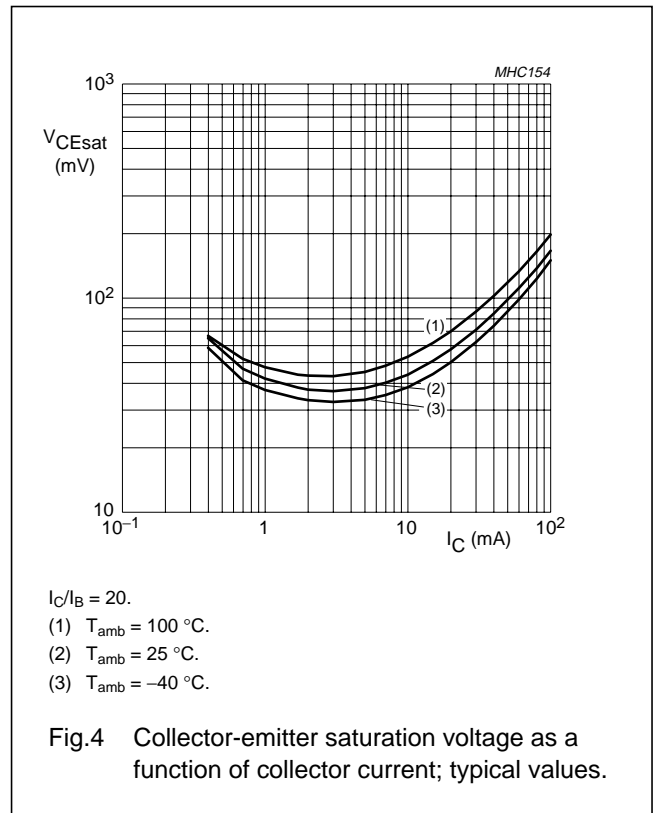
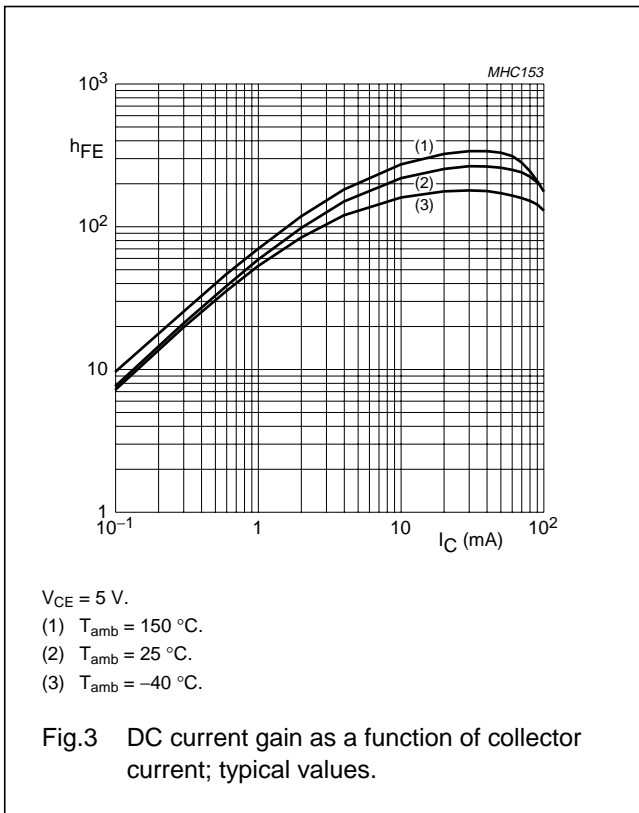
CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Per transistor						
I_{CBO}	collector-base cut-off current	$V_{\text{CB}} = 50 \text{ V}$; $I_{\text{E}} = 0$	–	–	100	nA
I_{CEO}	collector-emitter cut-off current	$V_{\text{CE}} = 50 \text{ V}$; $I_{\text{B}} = 0$	–	–	1	μA
		$V_{\text{CE}} = 30 \text{ V}$; $I_{\text{B}} = 0$; $T_{\text{j}} = 150 \text{ }^\circ\text{C}$	–	–	50	μA
I_{EBO}	emitter-base cut-off current	$V_{\text{EB}} = 5 \text{ V}$; $I_{\text{C}} = 0$	–	–	170	μA
h_{FE}	DC current gain	$V_{\text{CE}} = 5 \text{ V}$; $I_{\text{C}} = 10 \text{ mA}$	100	–	–	
V_{CEsat}	collector-emitter saturation voltage	$I_{\text{C}} = 5 \text{ mA}$; $I_{\text{B}} = 0.25 \text{ mA}$	–	–	100	mV
$V_{\text{i(off)}}$	input off voltage	$V_{\text{CE}} = 5 \text{ V}$; $I_{\text{C}} = 100 \mu\text{A}$	–	0.6	0.5	V
$V_{\text{i(on)}}$	input on voltage	$V_{\text{CE}} = 0.3 \text{ V}$; $I_{\text{C}} = 5 \text{ mA}$	1.3	0.9	–	V
R1	input resistor		3.3	4.7	6.1	$\text{k}\Omega$
$\frac{R2}{R1}$	resistor ratio		8	10	12	
C_{c}	collector capacitance	$I_{\text{E}} = i_{\text{e}} = 0$; $V_{\text{CB}} = 10 \text{ V}$; $f = 1 \text{ MHz}$	–	–	2.5	pF

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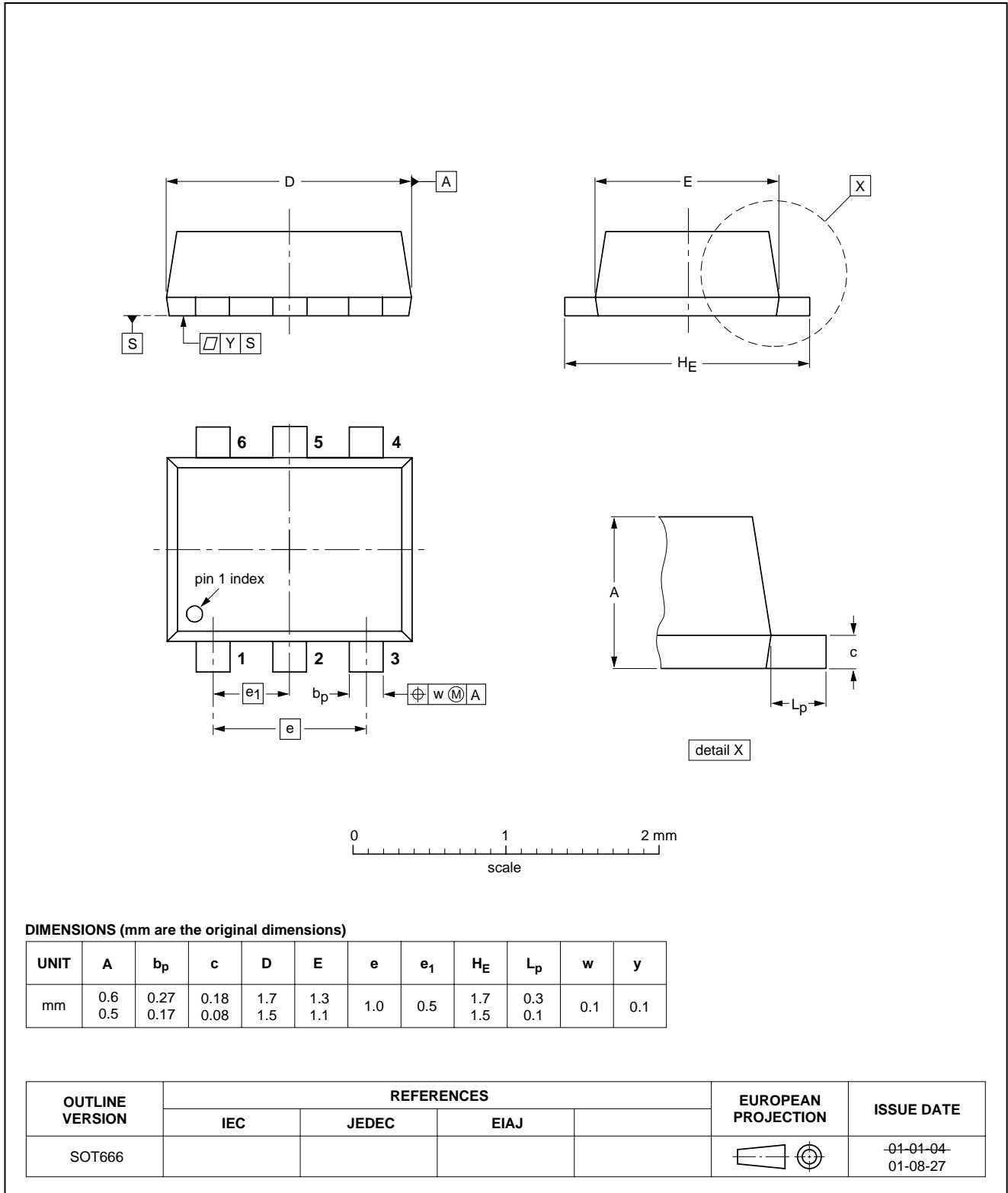
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PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT666



NPN resistor-equipped transistors;
R1 = 4.7 k Ω , R2 = 47 k Ω

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DATA SHEET STATUS

DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITIONS
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