

# PIMZ2; PUMZ2

NPN/PNP general-purpose double transistors

Rev. 05 — 24 November 2004

Product data sheet

## 1. Product profile

### 1.1 General description

NPN/PNP general-purpose double transistors.

Table 1: Product overview

Type number	Package		Configuration
	Philips	JEITA	
PIMZ2	SOT457	SC-74	NPN/PNP double transistors
PUMZ2	SOT363	SC-88	NPN/PNP double transistors

### 1.2 Features

- Simplified circuit design
- Reduced component count
- Reduced pick and place costs.

### 1.3 Applications

- General-purpose switching and amplification.

### 1.4 Quick reference data

Table 2: Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_{CE0}$	collector-emitter voltage	open base	-	-	50	V
$I_C$	collector current (DC)		-	-	150	mA

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## 2. Pinning information

**Table 3: Pinning**

Pin	Description	Simplified outline	Symbol
<b>PIMZ2 (SOT457)</b>			
1	collector TR2	<p>SOT457</p>	<p>sym082</p>
2	emitter TR2		
3	collector TR1		
4	emitter TR1		
5	base TR1		
6	base TR2		
<b>PUMZ2 (SOT363)</b>			
1	emitter TR1	<p>SOT363</p>	<p>sym083</p>
2	base TR1		
3	base TR2		
4	collector TR2		
5	emitter TR2		
6	collector TR1		

## 3. Ordering information

**Table 4: Ordering information**

Type number	Package		Version
	Name	Description	
PIMZ2	SC-74	plastic surface mounted package; 6 leads	SOT457
PUMZ2	SC-88	plastic surface mounted package; 6 leads	SOT363

## 4. Marking

**Table 5: Marking codes**

Type number	Marking code <sup>[1]</sup>
PIMZ2	M6
PUMZ2	GZ*

[1] \* = -: made in Hong Kong  
 \* = t: made in Malaysia  
 \* = W: made in China

## 5. Limiting values

**Table 6: 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>					
$V_{CBO}$	collector-base voltage	open emitter	-	60	V
$V_{CEO}$	collector-emitter voltage	open base	-	50	V
$V_{EBO}$	emitter-base voltage	open collector	-	7	V
$I_C$	collector current (DC)		-	150	mA
$I_{CM}$	peak collector current		-	200	mA
$I_{BM}$	peak base current		-	100	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$			
	SOT457		[1] -	200	mW
	SOT363		[1] -	180	mW
$T_{stg}$	storage temperature		-65	+150	°C
$T_j$	junction temperature		-	150	°C
$T_{amb}$	ambient temperature		-65	+150	°C
<b>Per device</b>					
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$			
	SOT457		[1] -	300	mW
	SOT363		[1] -	300	mW

[1] Device mounted on an FR4 printed-circuit board.

## 6. Thermal characteristics

**Table 7: Thermal characteristics**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Per transistor</b>						
$R_{th(j-a)}$	thermal resistance from junction to ambient	$T_{amb} \leq 25\text{ °C}$				
	SOT457		[1] -	-	625	K/W
	SOT363		[1] -	-	694	K/W
<b>Per device</b>						
$R_{th(j-a)}$	thermal resistance from junction to ambient	$T_{amb} \leq 25\text{ °C}$				
	SOT457		[1] -	-	417	K/W
	SOT363		[1] -	-	417	K/W

[1] Device mounted on an FR4 printed-circuit board.

## 7. Characteristics

**Table 8: Characteristics**

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Per transistor; for the PNP transistor with negative polarity; unless otherwise specified</b>						
$I_{CBO}$	collector-base cut-off current	$V_{CB} = 60\text{ V}; I_E = 0\text{ A}$	-	-	100	nA
		$V_{CB} = 60\text{ V}; I_E = 0\text{ A}; T_j = 150\text{ °C}$	-	-	50	$\mu\text{A}$
$I_{EBO}$	emitter-base cut-off current	$V_{EB} = 7\text{ V}; I_C = 0\text{ A}$	-	-	100	nA
$h_{FE}$	DC current gain	$V_{CE} = 6\text{ V}; I_C = 1\text{ mA}$	120	250	560	
<b>TR1 (PNP)</b>						
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = -50\text{ mA}; I_B = -5\text{ mA}$	-	-	-500	mV
$f_T$	transition frequency	$I_E = -2\text{ mA}; V_{CE} = -12\text{ V}; f = 100\text{ MHz}$	-	190	-	MHz
$C_c$	collector capacitance	$I_E = i_e = 0\text{ A}; V_{CB} = -12\text{ V}; f = 1\text{ MHz}$	-	2.3	5	pF
<b>TR2 (NPN)</b>						
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 50\text{ mA}; I_B = 5\text{ mA}$	-	-	250	mV
$f_T$	transition frequency	$I_E = 2\text{ mA}; V_{CE} = 12\text{ V}; f = 100\text{ MHz}$	100	-	-	MHz
$C_c$	collector capacitance	$I_E = i_e = 0\text{ A}; V_{CB} = 12\text{ V}; f = 1\text{ MHz}$	-	-	3	pF

8. Package outline

Plastic surface mounted package; 6 leads

SOT457

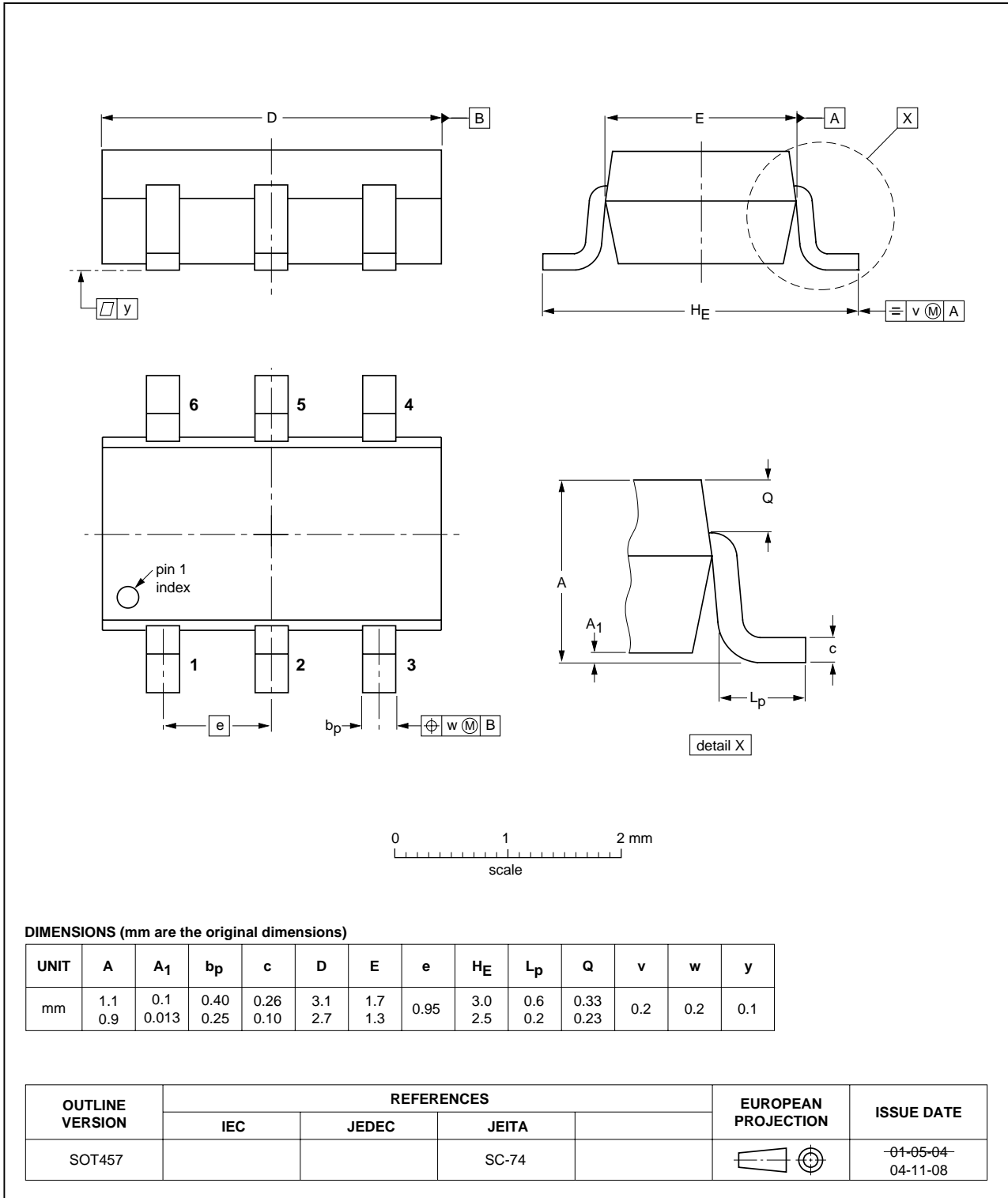


Fig 1. Package outline SOT457 (SC-74)

Plastic surface mounted package; 6 leads

SOT363

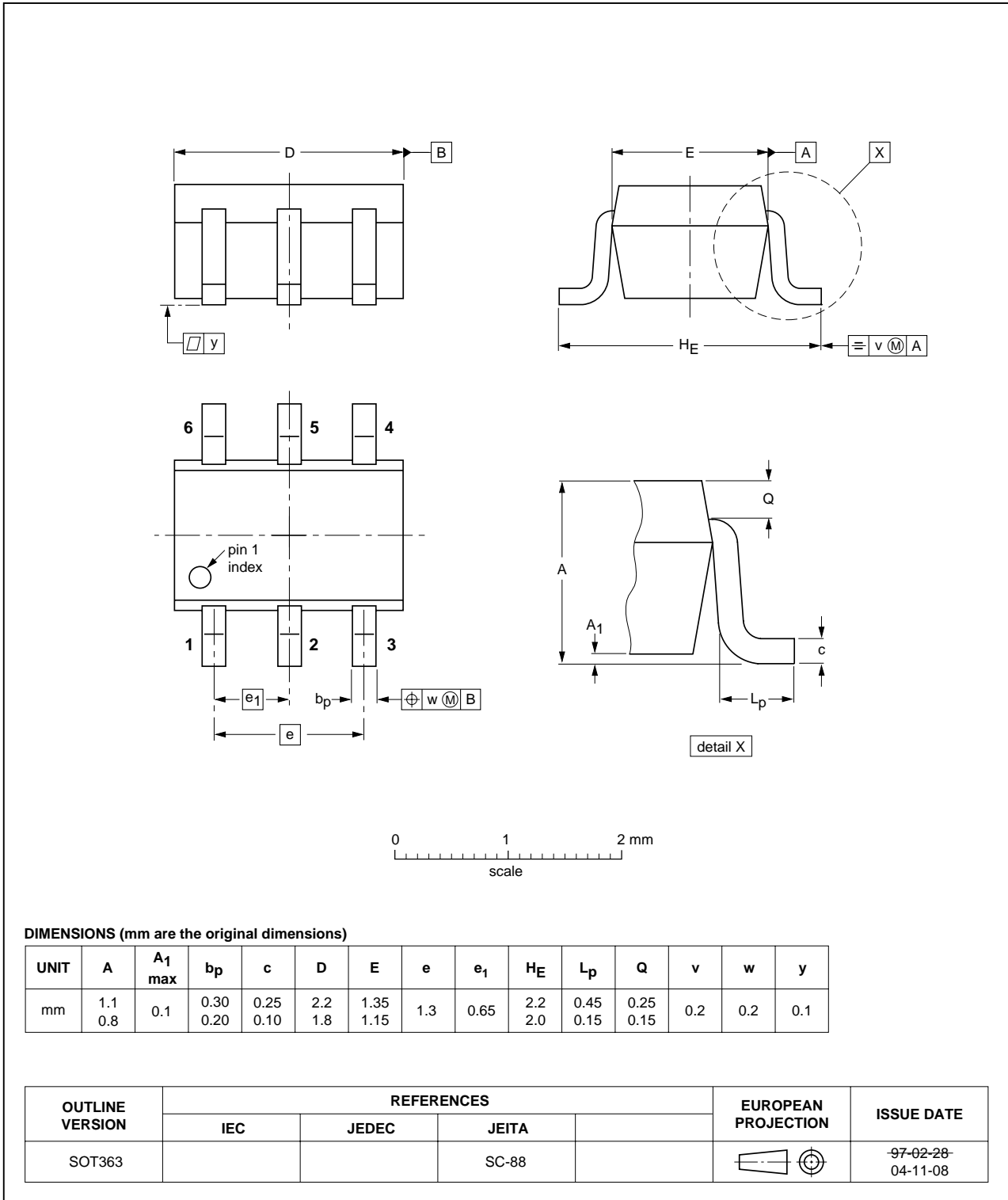


Fig 2. Package outline SOT363 (SC-88)

## 9. Revision history

**Table 9: Revision history**

Document ID	Release date	Data sheet status	Change notice	Doc. number	Supersedes
PIMZ2_PUMZ2_5	20041124	Product data sheet	-	9397 750 13966	PIMZ2_PUMZ2_4
Modifications:	<ul style="list-style-type: none"><li>• The format of this data sheet has been redesigned to comply with the new presentation and information standard of Philips Semiconductors.</li><li>• <a href="#">Table 3</a> PUMZ2 symbol drawing amended</li><li>• <a href="#">Table 5</a> PIMZ2 marking code and PUMZ2 table note amended</li></ul>				
PIMZ2_PUMZ2_4	20031217	Product specification	-	9397 750 12385	PIMZ2_2
PIMZ2_2	20030714	Product specification	-	9397 750 11659	PIMZ2_1
PIMZ2_1	20030602	Objective specification	-	9397 750 11456	-

## 10. Data sheet status

Level	Data sheet status <sup>[1]</sup>	Product status <sup>[2]</sup> <sup>[3]</sup>	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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