

DATA SHEET

PDTA143E series

PNP resistor-equipped transistors;

$R1 = 4.7\text{ k}\Omega$, $R2 = 4.7\text{ k}\Omega$

Product data sheet
Supersedes data of 2003 Sep 08

2004 Aug 04

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FEATURES

- Built-in bias resistors
- Simplified circuit design
- Reduction of component count
- Reduced pick and place costs.

APPLICATIONS

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

QUICK REFERENCE DATA

SYMBOL	PARAMETER	TYP.	MAX.	UNIT
V _{CEO}	collector-emitter voltage	–	–50	V
I _O	output current (DC)	–	–100	mA
R1	bias resistor	4.7	–	k Ω
R2	bias resistor	4.7	–	k Ω

DESCRIPTION

PNP resistor-equipped transistor (see “Simplified outline, symbol and pinning” for package details).

PRODUCT OVERVIEW

TYPE NUMBER	PACKAGE		MARKING CODE	NPN COMPLEMENT
	PHILIPS	EIAJ		
PDTA143EE	SOT416	SC-75	01	PDTC143EE
PDTA143EEF	SOT490	SC-89	50	PDTC143EEF
PDTA143EK	SOT346	SC-59	01	PDTC143EK
PDTA143EM	SOT883	SC-101	DL	PDTC143EM
PDTA143ES	SOT54 (TO-92)	SC-43	TA143E	PDTC143ES
PDTA143ET	SOT23	–	*01 ⁽¹⁾	PDTC143ET
PDTA143EU	SOT323	SC-70	*01 ⁽¹⁾	PDTC143EU

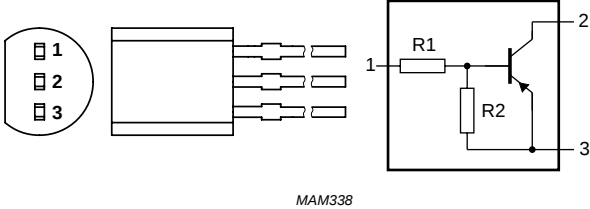
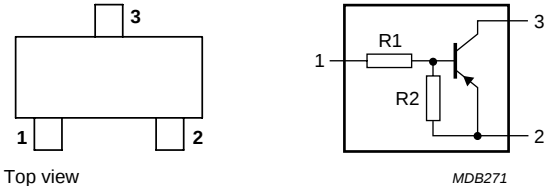
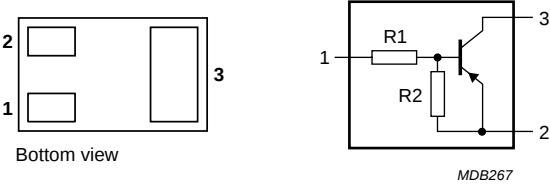
Note

1. * = p: Made in Hong Kong.
* = t: Made in Malaysia.
* = W: Made in China.

PNP resistor-equipped transistors;
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SIMPLIFIED OUTLINE, SYMBOL AND PINNING

TYPE NUMBER	SIMPLIFIED OUTLINE AND SYMBOL	PINNING	
		PIN	DESCRIPTION
PDTA143ES	 MAM338	1 2 3	base collector emitter
PDTA143EE PDTA143EEF PDTA143EK PDTA143ET PDTA143EU	 Top view MDB271	1 2 3	base emitter collector
PDTA143EM	 Bottom view MDB267	1 2 3	base emitter collector

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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	–	–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		–	+10	V
			–	–30	V
I _O	output current (DC)		–	–100	mA
I _{CM}	peak collector current		–	–100	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C			
	SOT23	note 1	–	250	mW
	SOT54	note 1	–	500	mW
	SOT323	note 1	–	200	mW
	SOT346	note 1	–	250	mW
	SOT416	note 1	–	150	mW
	SOT490	notes 1 and 2	–	250	mW
	SOT883	notes 2 and 3	–	250	mW
T _{stg}	storage temperature		–65	+150	°C
T _j	junction temperature		–	150	°C
T _{amb}	operating ambient temperature		–65	+150	°C

Notes

1. Refer to standard mounting conditions.
2. Reflow soldering is the only recommended soldering method.
3. Refer to SOT883 standard mounting conditions; FR4 with 60 μ m copper strip line.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-a}	thermal resistance from junction to ambient	in free air		
	SOT23	note 1	500	K/W
	SOT54	note 1	250	K/W
	SOT323	note 1	625	K/W
	SOT346	note 1	500	K/W
	SOT416	note 1	833	K/W
	SOT490	notes 1 and 2	500	K/W
	SOT883	notes 2 and 3	500	K/W

Notes

1. Refer to standard mounting conditions.
2. Reflow soldering is the only recommended soldering method.
3. Refer to SOT883 standard mounting conditions; FR4 with 60 μ m copper strip line.

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CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I _{CBO}	collector-base cut-off current	V _{CB} = -50 V; I _E = 0	–	–	-100	nA
I _{CEO}	collector-emitter cut-off current	V _{CE} = -30 V; I _B = 0	–	–	-1	μ A
		V _{CE} = -30 V; I _B = 0; T _j = 150 °C	–	–	-50	μ A
I _{EBO}	emitter-base cut-off current	V _{EB} = -5 V; I _C = 0	–	–	-0.9	mA
h _{FE}	DC current gain	V _{CE} = -5 V; I _C = -10 mA	30	–	–	
V _{CEsat}	collector-emitter saturation voltage	I _C = -10 mA; I _B = -0.5 mA	–	–	-150	mV
V _{i(off)}	input-off voltage	I _C = -100 μ A; V _{CE} = -5 V	–	-1.1	-0.5	V
V _{i(on)}	input-on voltage	I _C = -20 mA; V _{CE} = -0.3 V	-2.5	-1.9	–	V
R1	input resistor		3.3	4.7	6.1	k Ω
$\frac{R2}{R1}$	resistor ratio		0.8	1	1.2	
C _c	collector capacitance	I _E = i _e = 0; V _{CB} = -10 V; f = 1 MHz	–	–	3	pF

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PACKAGE OUTLINES

Plastic surface-mounted package; 3 leads

SOT23

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
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT23		TO-236AB				04-11-04 06-03-16

PNP resistor-equipped transistors;
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Plastic single-ended leaded (through hole) package; 3 leads

SOT54

The image contains three mechanical drawings of the SOT54 package. The top view shows a rectangular body with a semi-circular end, three leads labeled 1, 2, and 3, and dimensions E (total width), d (lead spacing), D (body width), and b₁ (lead width). The side view shows the package height and lead length L, with dimensions A (body length), L₁ (lead length from body), b (lead thickness), e₁ (lead thickness at base), and e (total lead thickness). A detail view of a lead shows its thickness c. A scale bar at the bottom indicates 0, 2.5, and 5 mm.

DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b ₁	c	D	d	E	e	e ₁	L	L ₁ ⁽¹⁾ max.
mm	5.2 5.0	0.48 0.40	0.66 0.55	0.45 0.38	4.8 4.4	1.7 1.4	4.2 3.6	2.54	1.27	14.5 12.7	2.5

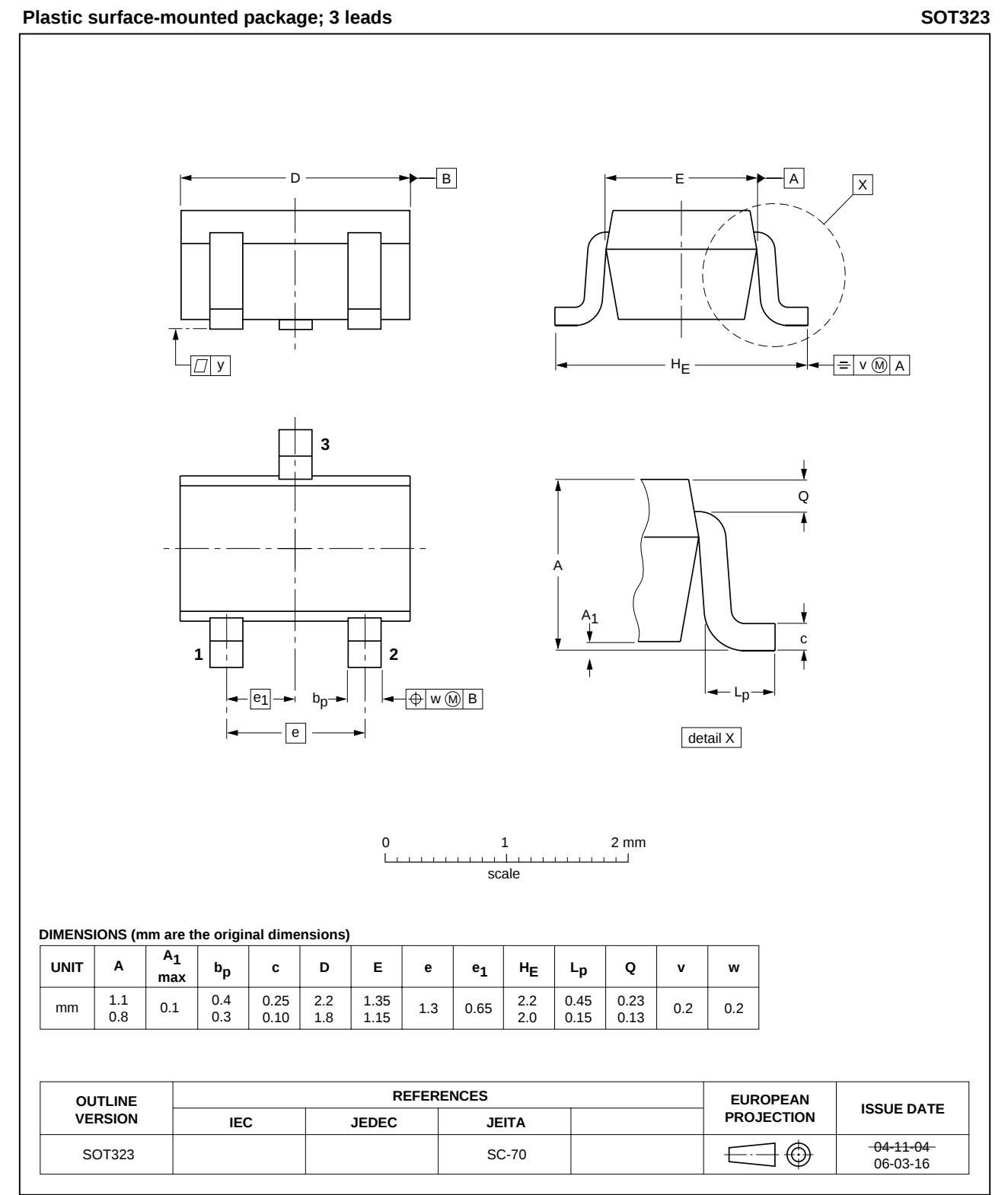
Note

1. Terminal dimensions within this zone are uncontrolled to allow for flow of plastic and terminal irregularities.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT54		TO-92	SC-43A			04-06-28 04-11-16

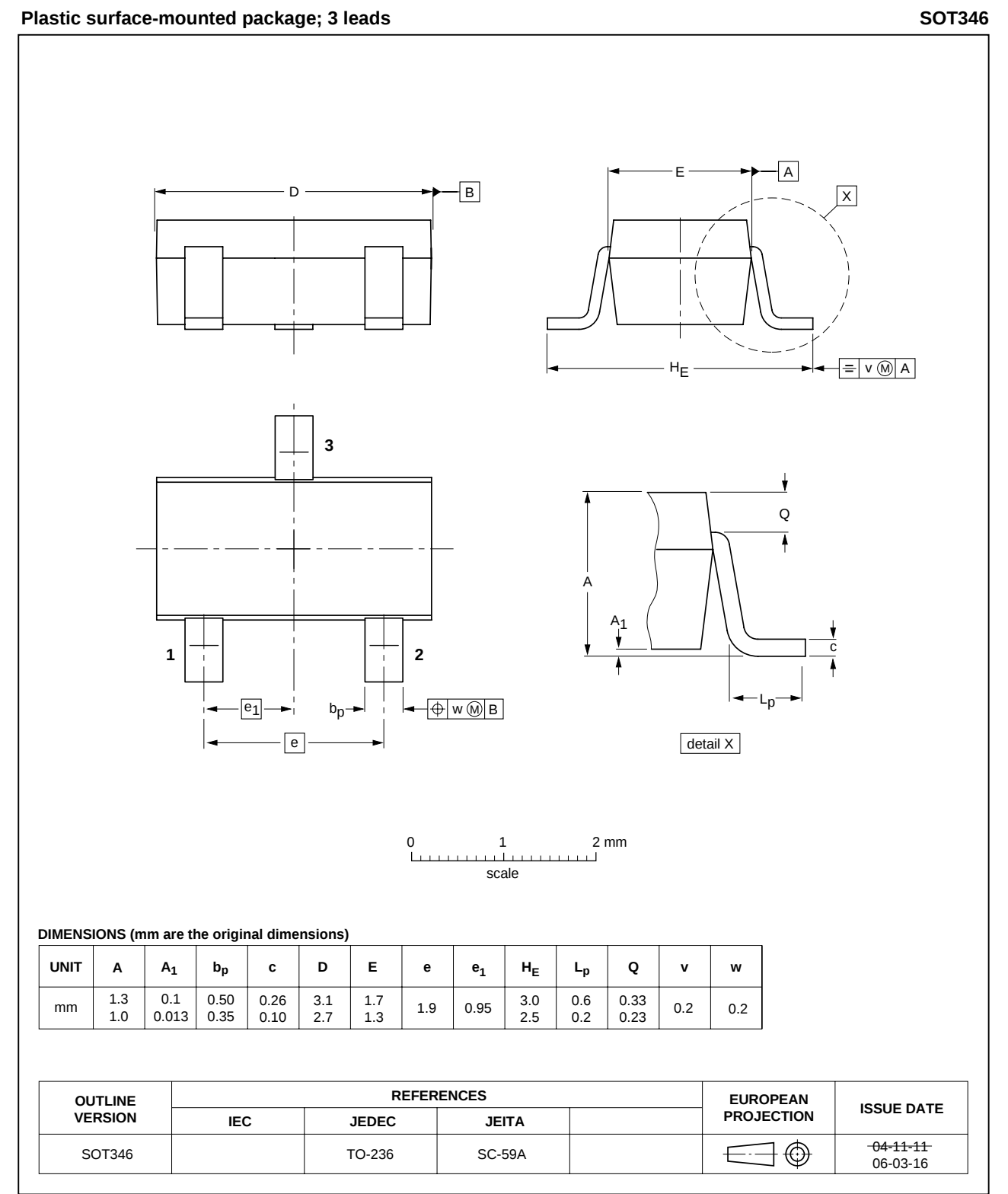
PNP resistor-equipped transistors;
R1 = 4.7 kΩ, R2 = 4.7 kΩ

PDTA143E series



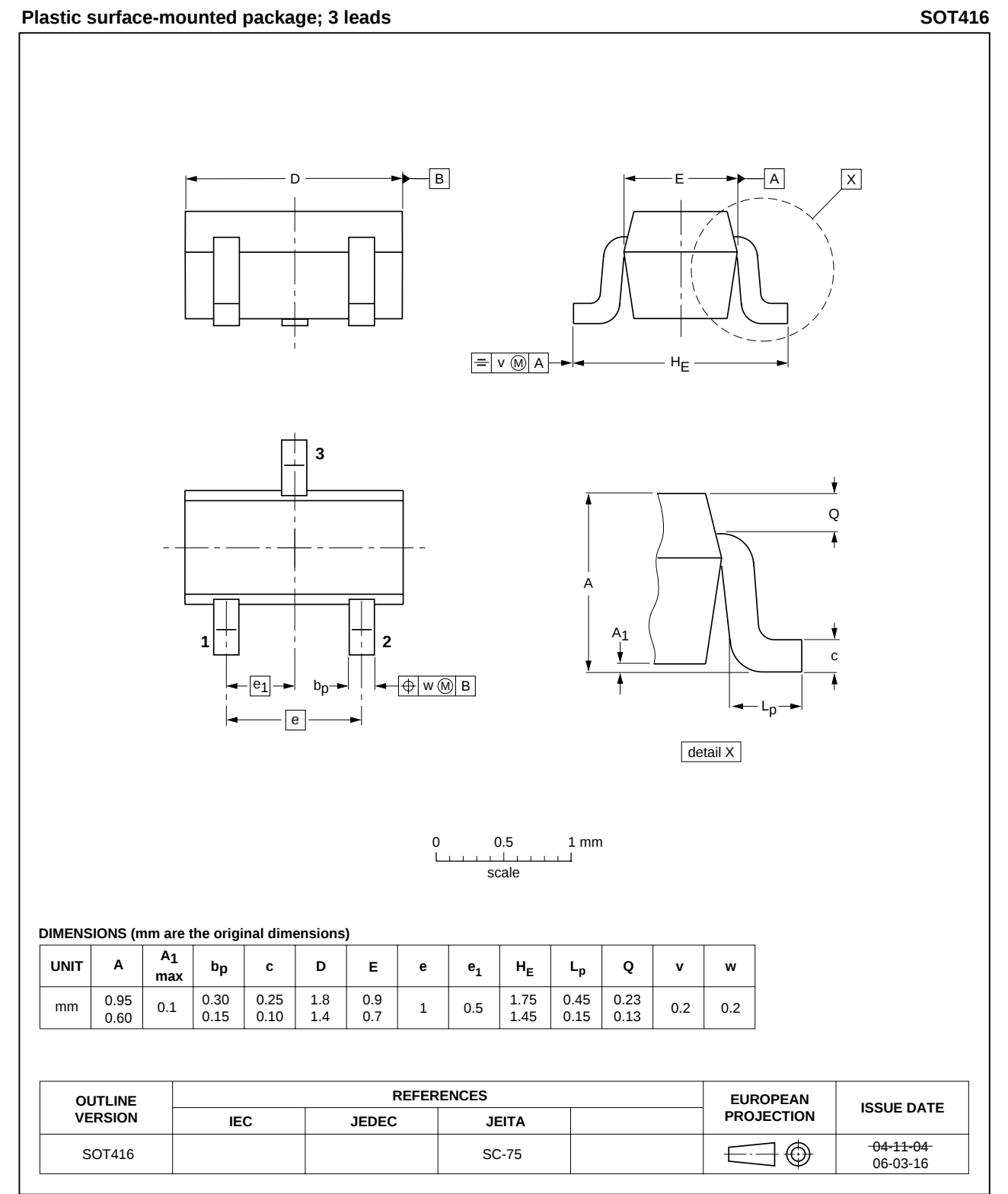
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PNP resistor-equipped transistors;
R1 = 4.7 kΩ, R2 = 4.7 kΩ

PDTA143E series

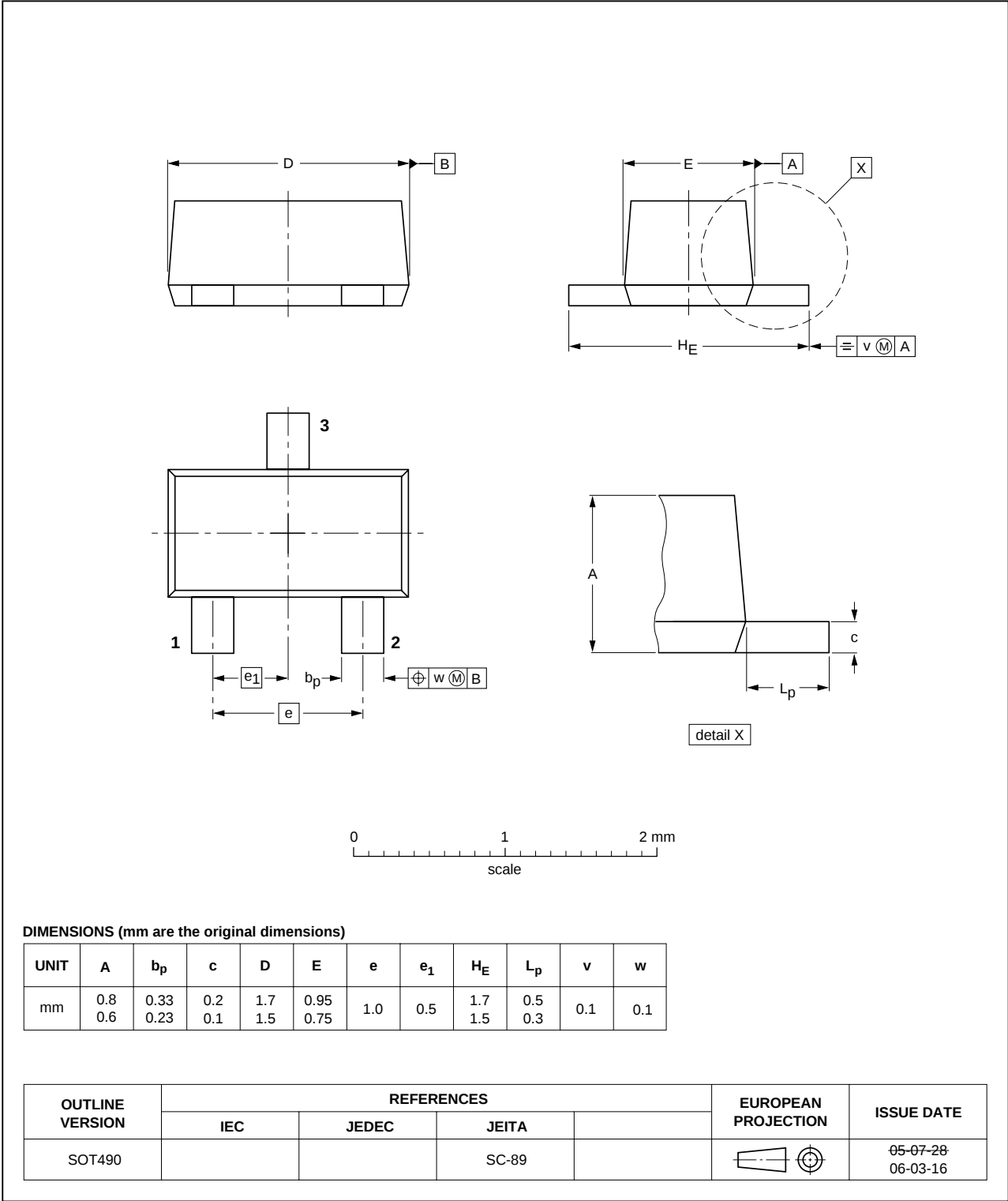


PNP resistor-equipped transistors;
R1 = 4.7 kΩ, R2 = 4.7 kΩ

PDTA143E series

Plastic surface-mounted package; 3 leads

SOT490

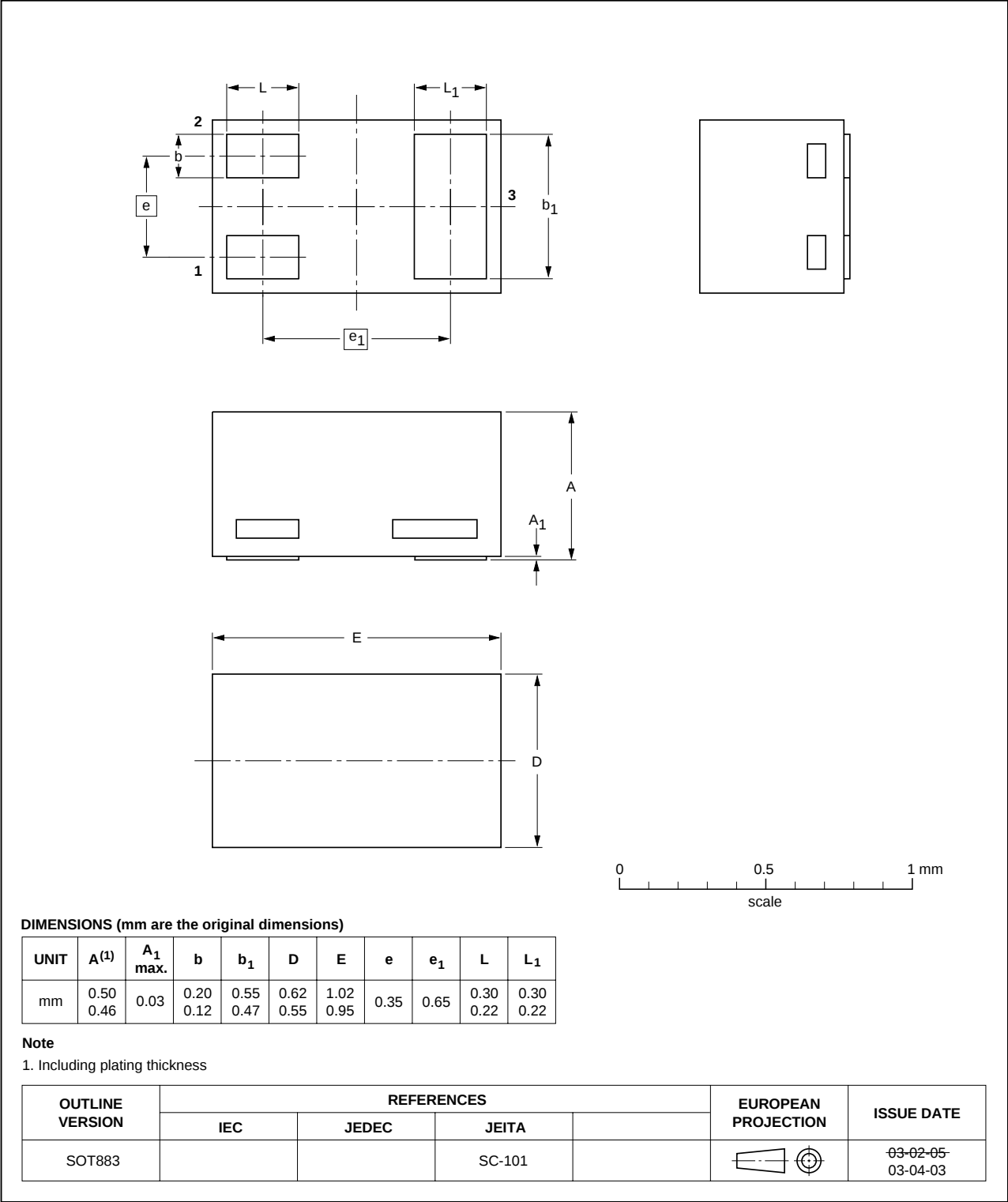


PNP resistor-equipped transistors;
R1 = 4.7 kΩ, R2 = 4.7 kΩ

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Leadless ultra small plastic package; 3 solder lands; body 1.0 x 0.6 x 0.5 mm

SOT883



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PDTA143E series

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

1. Please consult the most recently issued document before initiating or completing a design.
2. The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nxp.com>.

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NXP Semiconductors

Customer notification

This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

Contact information

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