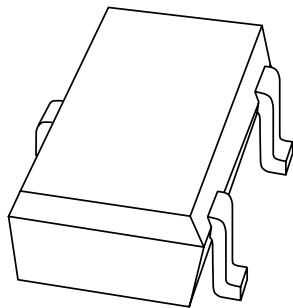


# DATA SHEET



**2PD1820A**

**NPN general purpose transistor**

Product specification  
Supersedes data of 1997 May 22

1999 Apr 12

# NPN general purpose transistor

# 2PD1820A

### FEATURES

- High current (max. 500 mA)
- Low voltage (max. 50 V)
- Low collector-emitter saturation voltage (max. 600 mV).

### APPLICATIONS

- General purpose switching and amplification, especially for portable equipment.

### DESCRIPTION

NPN transistor in an SC-70; SOT323 plastic package.  
PNP complement: 2PB1219A.

### MARKING

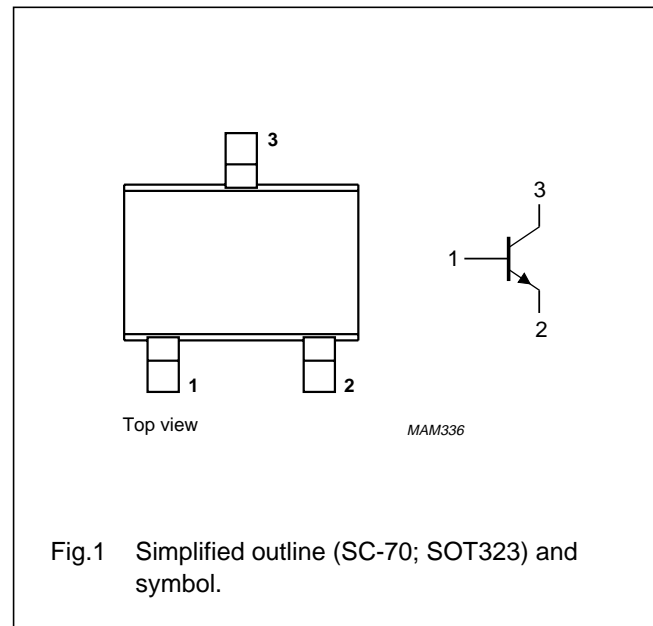
TYPE NUMBER	MARKING CODE <sup>(1)</sup>
2PD1820AQ	A*Q
2PD1820AR	A*R
2PD1820AS	A*S

### Note

- \* = - : Made in Hong Kong.  
\* = t : Made in Malaysia.

### PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



### LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter	-	60	V
V <sub>CEO</sub>	collector-emitter voltage	open base	-	50	V
V <sub>EBO</sub>	emitter-base voltage	open collector	-	5	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		-	200	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

### Note

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

## NPN general purpose transistor

## 2PD1820A

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	625	K/W

## Note

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

## CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{CBO}$	collector cut-off current	$I_E = 0; V_{CB} = 20\text{ V}$	–	10	nA
		$I_E = 0; V_{CB} = 20\text{ V}; T_j = 150\text{ °C}$	–	5	$\mu\text{A}$
$I_{EBO}$	emitter cut-off current	$I_C = 0; V_{EB} = 4\text{ V}$	–	10	nA
$h_{FE}$	DC current gain 2PD1820AQ 2PD1820AR 2PD1820AS	$I_C = 150\text{ mA}; V_{CE} = 10\text{ V};$ note 1	85	170	
			120	240	
			170	340	
$h_{FE}$	DC current gain	$I_C = 500\text{ mA}; V_{CE} = 10\text{ V};$ note 1	40	–	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 300\text{ mA}; I_B = 30\text{ mA};$ note 1	–	600	mV
$C_c$	collector capacitance	$I_E = i_e = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	–	15	pF
$f_T$	transition frequency	$I_C = 50\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz};$ note 1	150	–	MHz

## Note

1. Pulse test:  $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$ .

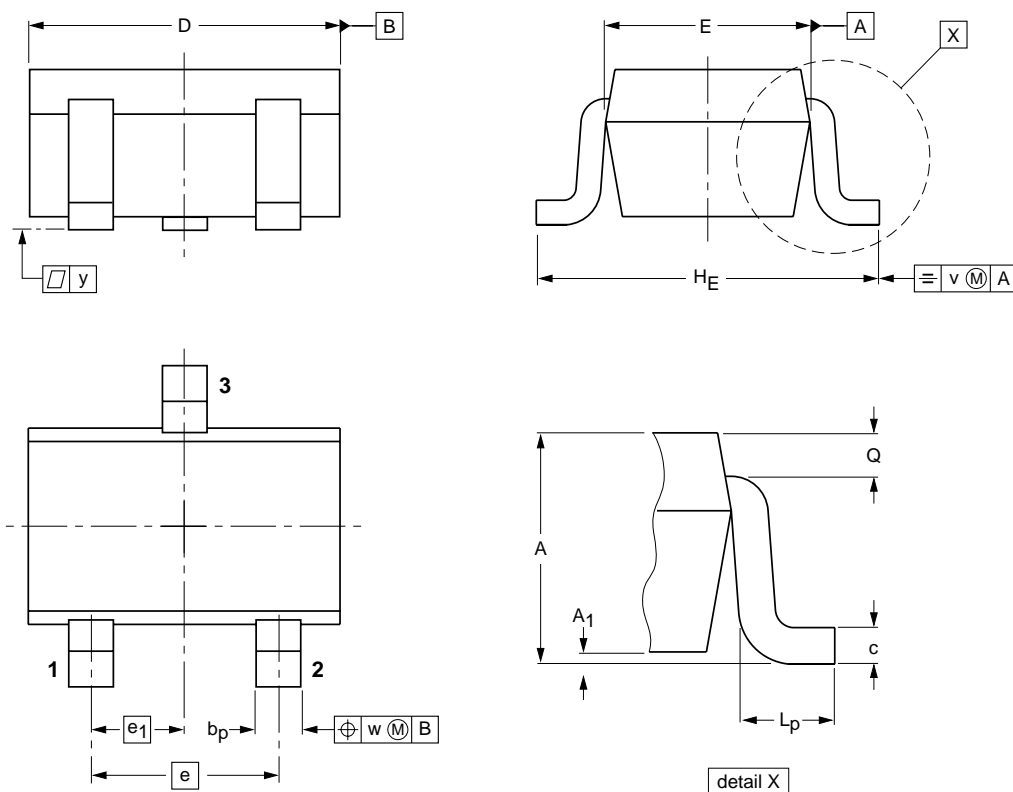
NPN general purpose transistor

2PD1820A

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT323			SC-70			97-02-28

## NPN general purpose transistor

2PD1820A

**DEFINITIONS**

<b>Data Sheet Status</b>	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
<b>Limiting values</b>	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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NPN general purpose transistor

2PD1820A

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**NOTES**

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2PD1820A

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**NOTES**

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