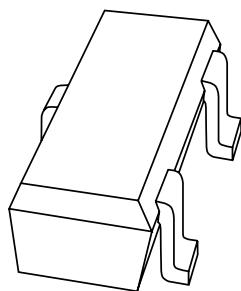


# DATA SHEET



**2PD601A**

**NPN general purpose transistor**

Product specification  
Supersedes data of November 1994  
File under Discrete Semiconductors, SC04

1997 Jun 20

## NPN general purpose transistor

2PD601A

## FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 50 V).

## APPLICATIONS

- General purpose switching and amplification.

## DESCRIPTION

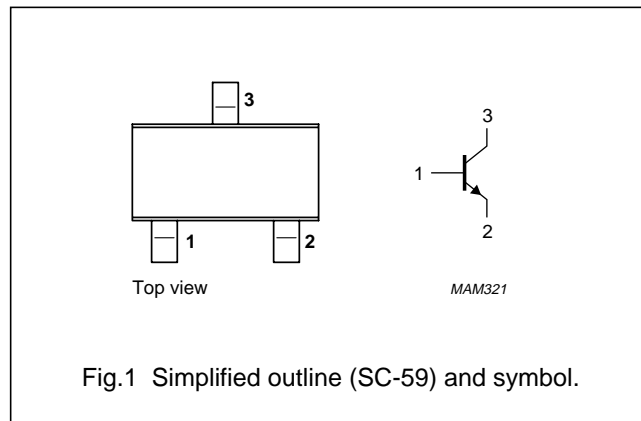
NPN transistor in an SC-59 plastic package.  
PNP complement: 2PB709A.

## MARKING

TYPE NUMBER	MARKING CODE
2PD601AQ	ZQ
2PD601AR	ZR
2PD601AS	ZS

## PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



## QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CBO}$	collector-base voltage	open emitter	–	60	V
$V_{CEO}$	collector-emitter voltage	open base	–	50	V
$I_{CM}$	peak collector current		–	200	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$	–	250	mW
$h_{FE}$	DC current gain	$I_C = 2\text{ mA}; V_{CE} = 10\text{ V}$	160	460	
$f_T$	transition frequency	$I_C = 2\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz}$			
	2PD601AQ		100	–	MHz
	2PD601AR		120	–	MHz
	2PD601AS		140	–	MHz

## NPN general purpose transistor

2PD601A

**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CBO}$	collector-base voltage	open emitter	–	60	V
$V_{CEO}$	collector-emitter voltage	open base	–	50	V
$V_{EBO}$	emitter-base voltage	open collector	–	6	V
$I_C$	collector current (DC)		–	100	mA
$I_{CM}$	peak collector current		–	200	mA
$I_{BM}$	peak base current		–	100	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$ ; note 1	–	250	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	150	°C
$T_{amb}$	operating ambient temperature		–65	+150	°C

**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	note 1	500	K/W

**Note**

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

## NPN general purpose transistor

2PD601A

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{CBO}$	collector cut-off current	$I_E = 0; V_{CB} = 60\text{ V}$	–	10	nA
		$I_E = 0; V_{CB} = 60\text{ V}; T_j = 150\text{ °C}$	–	5	$\mu\text{A}$
$I_{EBO}$	emitter cut-off current	$I_C = 0; V_{EB} = 5\text{ V}$	–	10	nA
$h_{FE}$	DC current gain	$I_C = 100\text{ mA}; V_{CE} = 2\text{ V}; \text{note 1}$	90	–	
$h_{FE}$	DC current gain 2PD601AQ 2PD601AR 2PD601AS	$I_C = 2\text{ mA}; V_{CE} = 10\text{ V}; \text{note 1}$	160	260	
			210	340	
			290	460	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 100\text{ mA}; I_B = 10\text{ mA}; \text{note 1}$	–	500	mV
$C_c$	collector capacitance	$I_E = i_e = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	–	3.5	pF
$f_T$	transition frequency 2PD601AQ 2PD601AR 2PD601AS	$I_C = 2\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz}$	100	–	MHz
			120	–	MHz
			140	–	MHz

**Note**

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

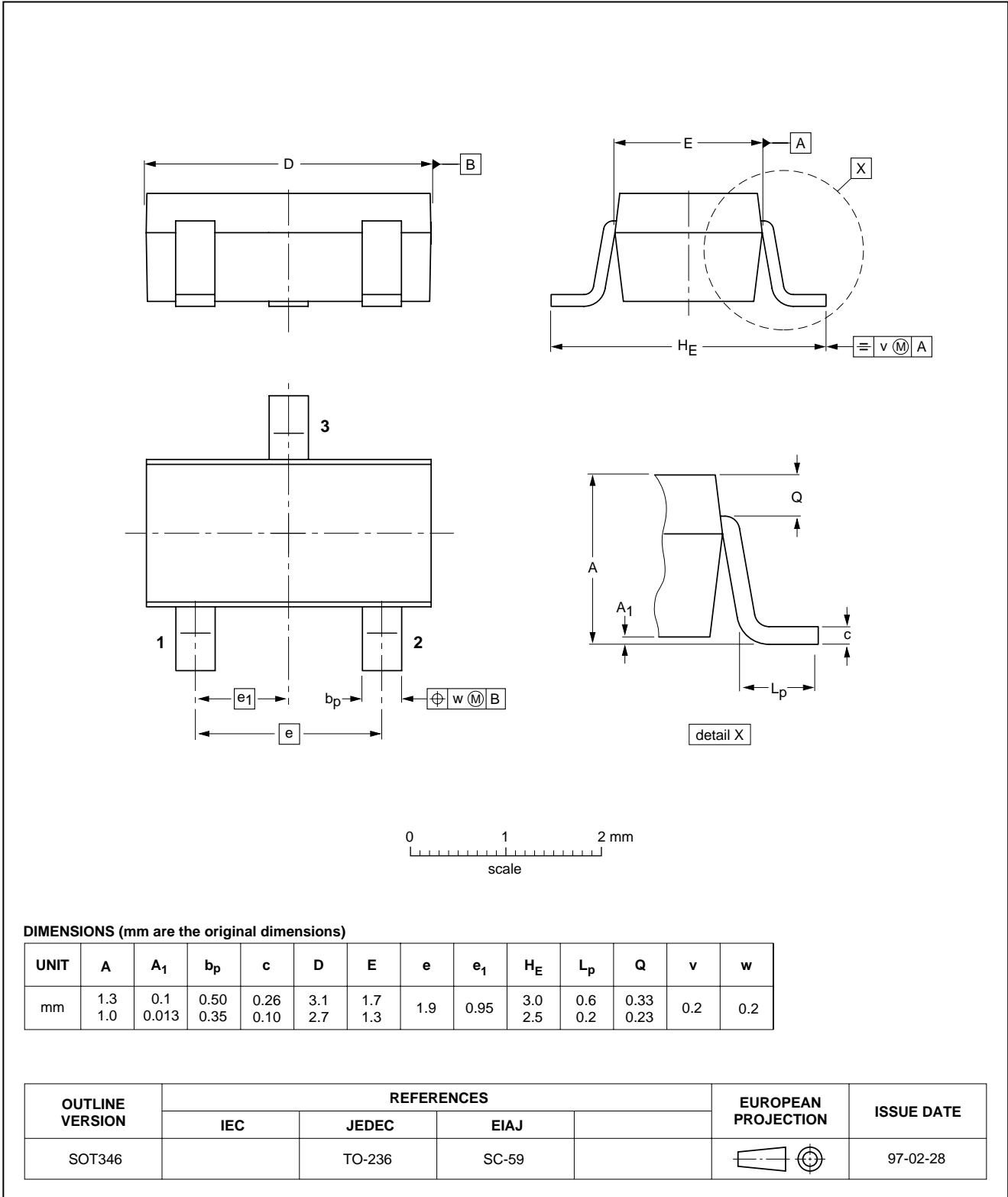
NPN general purpose transistor

2PD601A

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT346



## NPN general purpose transistor

2PD601A

**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

2PD601A

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