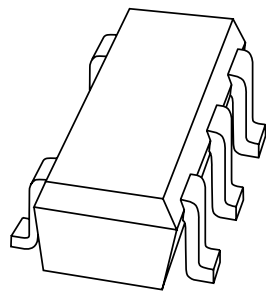


DATA SHEET



PSSI2021SAY Constant current source

Product specification

2001 May 07

Constant current source

PSSI2021SAY

FEATURES

- One chip constant current source
- Reduced number of components and board space.

APPLICATIONS

- Especially suitable for space reduction in, for example, LED driving circuits or active bias controlling.

DESCRIPTION

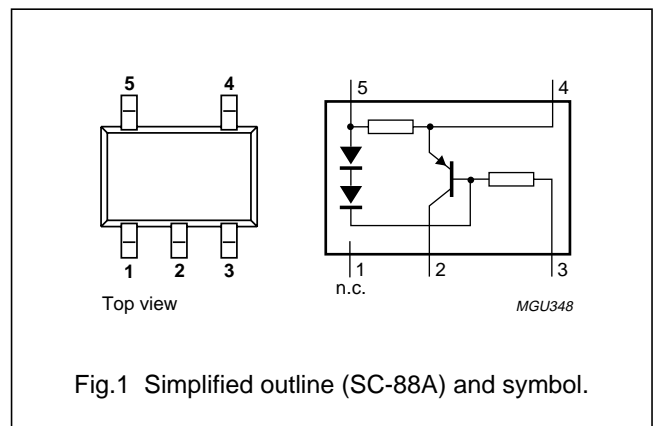
Resistor equipped PNP transistor with two diodes on one chip in a plastic SC-88A package. Built-in bias resistor and two diodes allow operation as constant current source. The stabilized current can be adjusted between 15 μ A and 50 mA by connection of external resistors between pins 4 and 5.

MARKING

TYPE NUMBER	MARKING CODE
PSSI2021SAY	S1p

PINNING

PIN	SYMBOL	DESCRIPTION
1	n.c.	not connected
2	I_{stab}/V_{out}	stabilized current/output voltage
3	GND	ground
4	$R_{external}$	external resistor
5	V_S	supply voltage



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_S	supply voltage		–	75	V
V_{out}	output voltage	$V_S = 75$ V	–	73	V
V_R	reverse voltage	between all terminals	–	0.5	V
I_{stab}	continuous stabilized current (DC)		–	50	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	335	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

Note

1. Device mounted on a FR4 printed-circuit board.

Constant current source

PSSI2021SAY

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	in free air; note 1	370	K/W

Note

1. Device mounted on a FR4 printed-circuit board.

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{stab}	stabilized current	$V_S = 12\text{ V}; V_{out} = 0\text{ to }10\text{ V};$ $R_{external} = \text{infinity}$	10	15	20	μA
I_{supply}	supply current	$V_S = 12\text{ V}; V_{out} = 0\text{ to }10\text{ V};$ $I_{stab} = 15\ \mu\text{A}$	–	240	370	μA
		$V_S = 75\text{ V}; V_{out} = 0\text{ V};$ $I_{stab} = 15\ \mu\text{A}$	–	1.5	2.2	mA
$\frac{\Delta I_{stab}}{I_{stab}}$	stability of stabilized current as a function of $V_{control}$	$V_{out} = 1\text{ to }10\text{ V}; V_S = 12\text{ V};$ $T_{amb} = 25\text{ °C}$	–	0.5	1	%
$\frac{\Delta I_{stab}}{\Delta T \times I_{stab}}$	stability of stabilized current as a function of temperature	$V_{out} = 1\text{ V}; V_S = 12\text{ V};$ $T_{amb} = -55\text{ to }+150\text{ °C}$	–	0.15	0.3	%

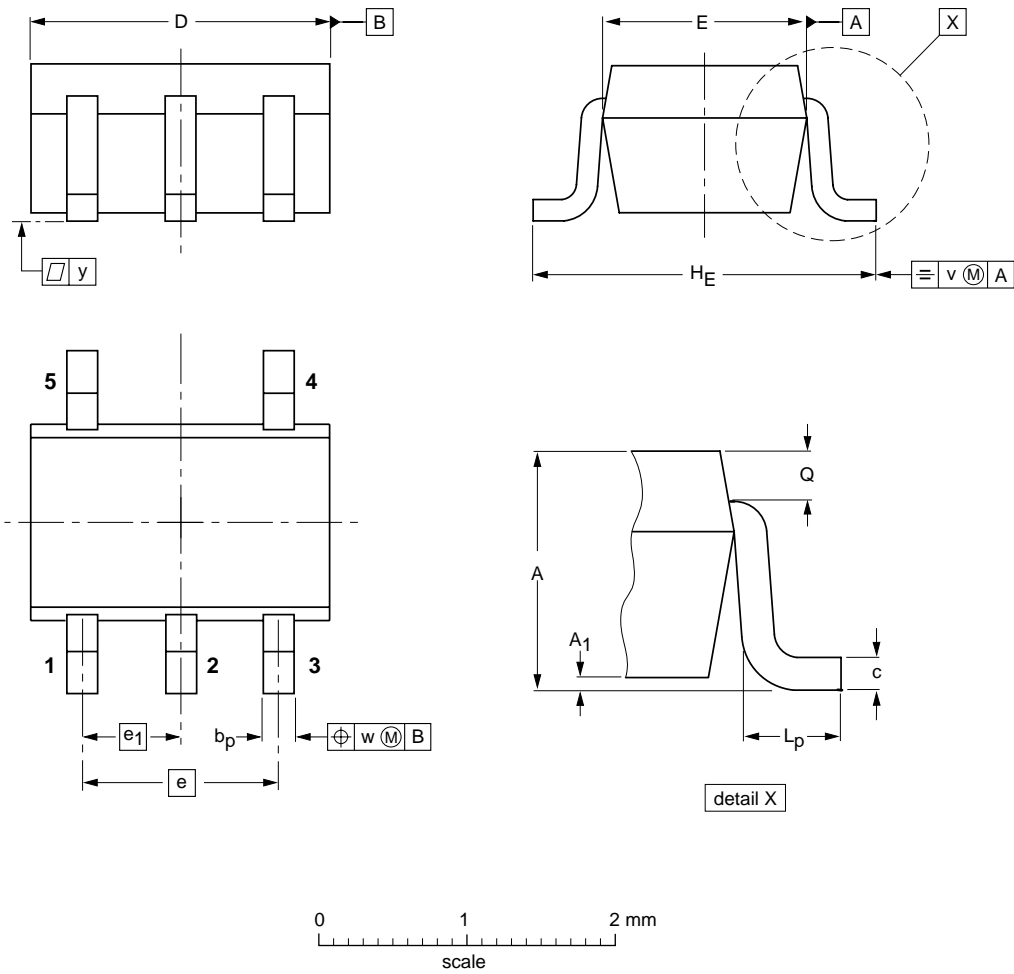
Constant current source

PSSI2021SAY

PACKAGE OUTLINE

Plastic surface mounted package; 5 leads

SOT353



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max	b _p	c	D	E ⁽²⁾	e	e ₁	H _E	L _p	Q	v	w	y
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT353			SC-88A			97-02-28

Constant current source

PSSI2021SAY

DATA SHEET STATUS

DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITIONS
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.
Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Changes will be communicated according to the Customer Product/Process Change Notification (CPCN) procedure SNW-SQ-650A.

Notes

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Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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NOTES

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