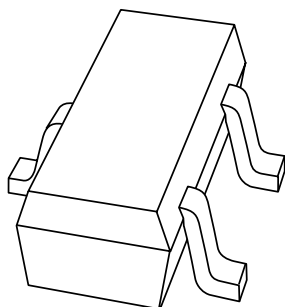


DATA SHEET



PDTTC114TE NPN resistor-equipped transistor

Product specification
File under Discrete Semiconductors, SC04

1997 Jul 11

NPN resistor-equipped transistor

PDTC114TE

FEATURES

- Built-in bias resistor R1 (typ. 10 kΩ)
- Simplification of circuit design
- Reduces number of components and board space.

APPLICATIONS

- Especially suitable for space reduction in interface and driver circuits
- Inverter circuit configurations without use of an external resistor.

DESCRIPTION

NPN resistor-equipped transistor in an SC-75; SOT416 plastic package. PNP complement: PDTA114TE.

PINNING

PIN	DESCRIPTION
1	base/input
2	emitter/ground
3	collector/output

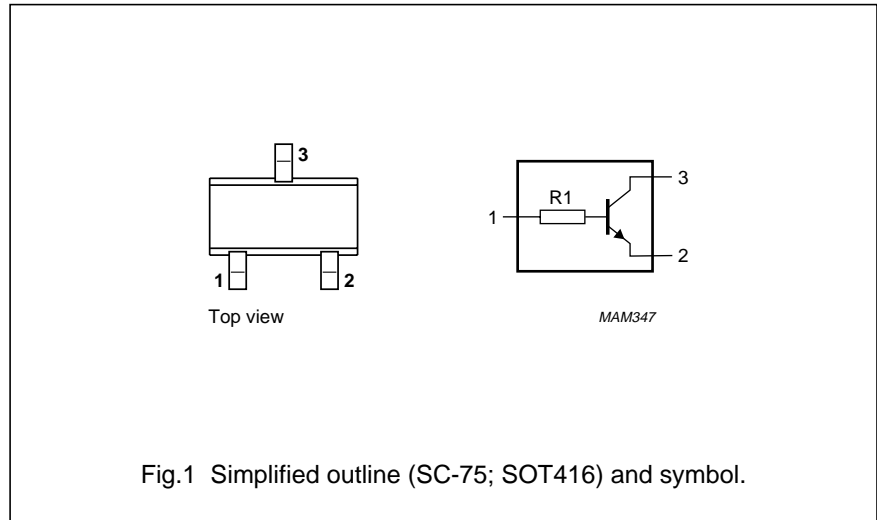


Fig.1 Simplified outline (SC-75; SOT416) and symbol.

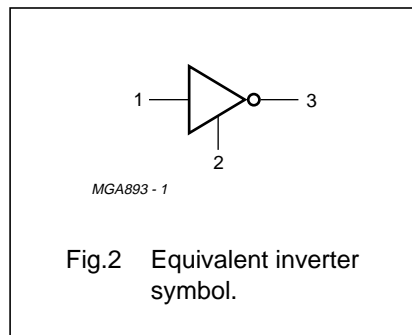


Fig.2 Equivalent inverter symbol.

MARKING

TYPE NUMBER	MARKING CODE
PDTC114TE	24

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{CE0}	collector-emitter voltage	open base	–	–	50	V
I_O	output current (DC)		–	–	100	mA
I_{CM}	peak collector current		–	–	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$	–	–	150	mW
h_{FE}	DC current gain	$I_C = 1\text{ mA}; V_{CE} = 5\text{ V}$	100	–	600	
R1	input resistor		7	10	13	kΩ

NPN resistor-equipped transistor

PDTC114TE

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	–	50	V
V_{CEO}	collector-emitter voltage	open base	–	50	V
V_{EBO}	emitter-base voltage	open collector	–	5	V
I_O	output current (DC)		–	100	mA
I_{CM}	peak collector current		–	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	150	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	833	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.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0$; $V_{CB} = 50\text{ V}$	–	–	100	nA
I_{CEO}	collector cut-off current	$I_B = 0$; $V_{CE} = 30\text{ V}$	–	–	1	μA
		$I_B = 0$; $V_{CE} = 30\text{ V}$; $T_j = 150\text{ °C}$	–	–	50	μA
I_{EBO}	emitter cut-off current	$I_C = 0$; $V_{EB} = 5\text{ V}$	–	–	100	nA
h_{FE}	DC current gain	$I_C = 1\text{ mA}$; $V_{CE} = 5\text{ V}$	100	–	600	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 10\text{ mA}$; $I_B = 0.5\text{ mA}$	–	–	300	mV
R1	input resistor		7	10	13	k Ω
C_c	collector capacitance	$I_E = i_e = 0$; $V_{CB} = 10\text{ V}$; $f = 1\text{ MHz}$	–	–	3.5	pF

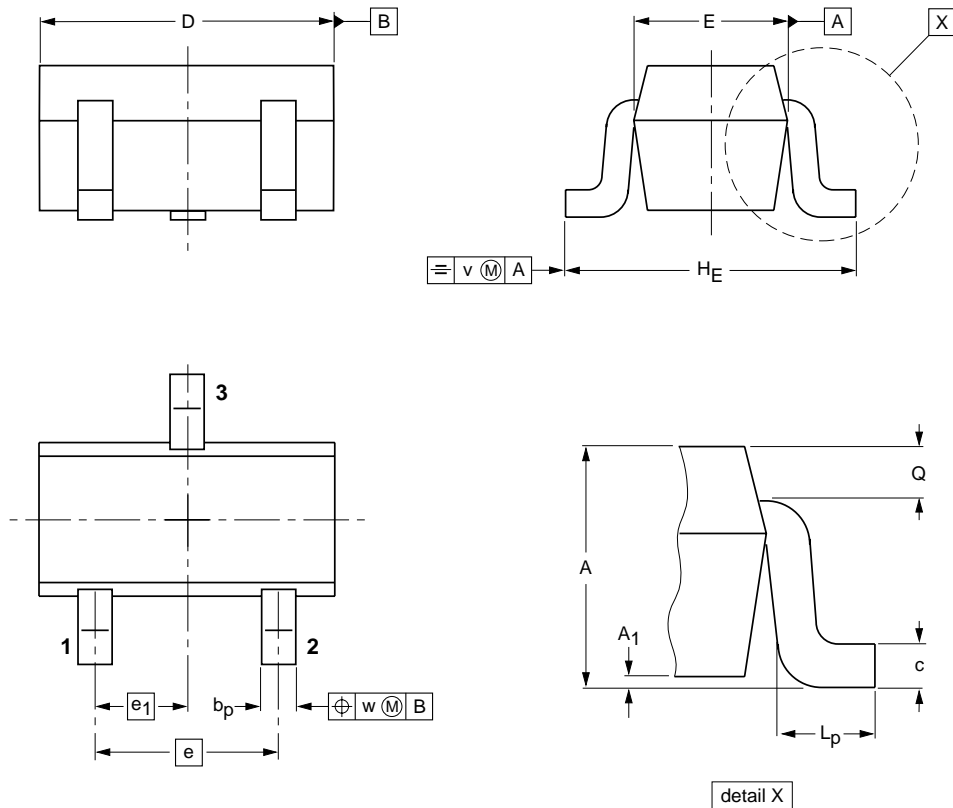
NPN resistor-equipped transistor

PDTC114TE

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT416



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	0.95 0.60	0.1	0.30 0.15	0.25 0.10	1.8 1.4	0.9 0.7	1	0.5	1.75 1.45	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT416			SC-75			97-02-28

NPN resistor-equipped transistor

PDTC114TE

DEFINITIONS

Data sheet status	
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.
Limiting values	
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.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

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NPN resistor-equipped transistor

PDTC114TE

NOTES

NPN resistor-equipped transistor

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