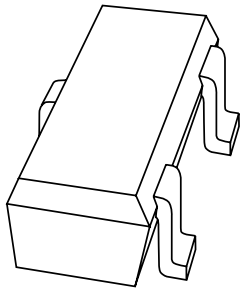


# DATA SHEET



## **PDTTC143XK**

NPN resistor-equipped transistor;  
R1 = 4.7 k $\Omega$ , R2 = 10 k $\Omega$

Product specification

2002 Jan 15

**NPN resistor-equipped transistor;**  
**R1 = 4.7 kΩ, R2 = 10 kΩ**

**PDTC143XK**

**FEATURES**

- Built-in bias resistors
- 250 mW total power dissipation
- Package size 2.9 × 1.5 × 1.15 mm
- Simplification of circuit design
- Reduces number of components and required PCB area.

**APPLICATIONS**

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

**DESCRIPTION**

NPN resistor equipped transistor in a SOT346 (SC-59) plastic package.

**MARKING**

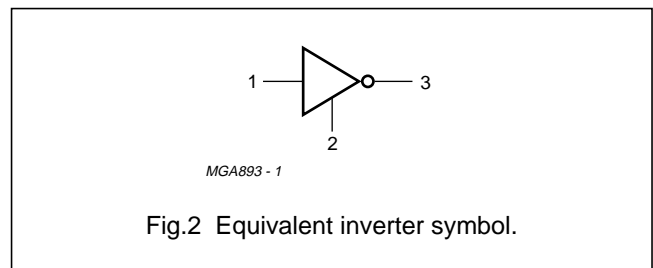
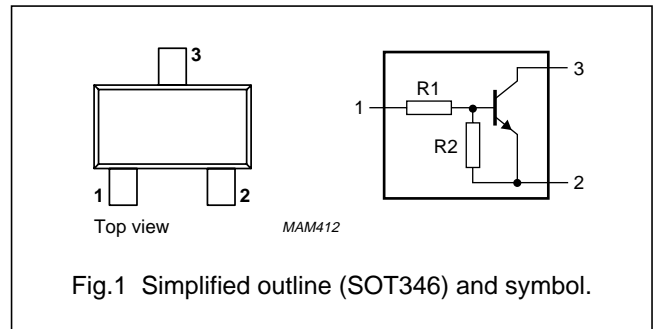
TYPE NUMBER	MARKING CODE
PDTC143XK	26

**QUICK REFERENCE DATA**

SYMBOL	PARAMETER	MAX.	UNIT
V <sub>CEO</sub>	collector-emitter voltage	50	V
I <sub>O</sub>	output current (DC)	100	mA
R1	bias resistor	4.7	kΩ
R2	bias resistor	10	kΩ

**PINNING**

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



NPN resistor-equipped transistor;  
 $R1 = 4.7 \text{ k}\Omega$ ,  $R2 = 10 \text{ k}\Omega$

PDTC143XK

### 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		–	+20	V
	negative		–	–7	V
$I_o$	output current (DC)		–	100	mA
$I_{CM}$	peak collector current		–	100	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25 \text{ }^\circ\text{C}$ ; note 1	–	250	mW
$T_{stg}$	storage temperature		–65	+150	$^\circ\text{C}$
$T_j$	junction temperature		–	150	$^\circ\text{C}$
$T_{amb}$	operating ambient temperature		–65	+150	$^\circ\text{C}$

### Note

- For mounting conditions, see “*Thermal considerations and footprint design for SOT346 in the SC18 Data Handbook*”.

### THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	in free air; note 1	500	K/W

### Note

- For mounting conditions, see “*Thermal considerations and footprint design for SOT346 in the SC18 Data Handbook*”.

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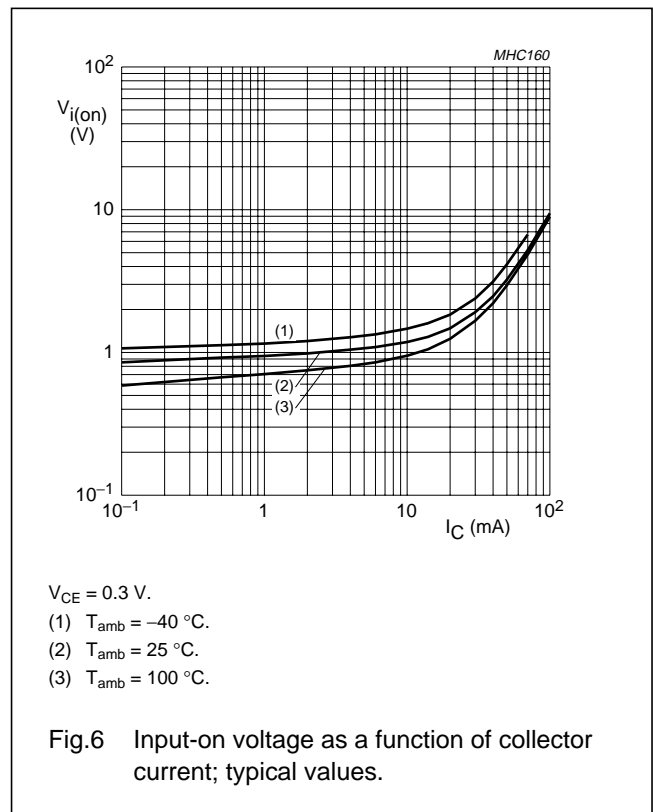
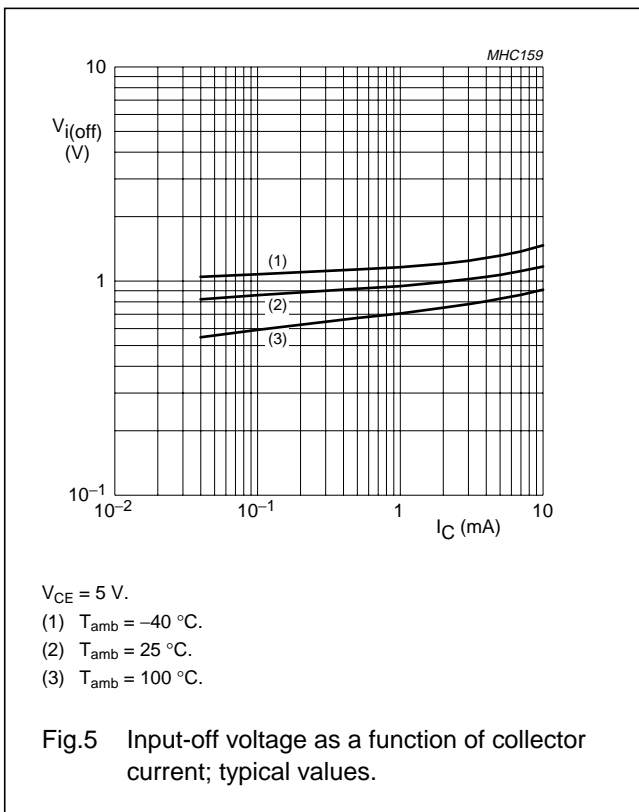
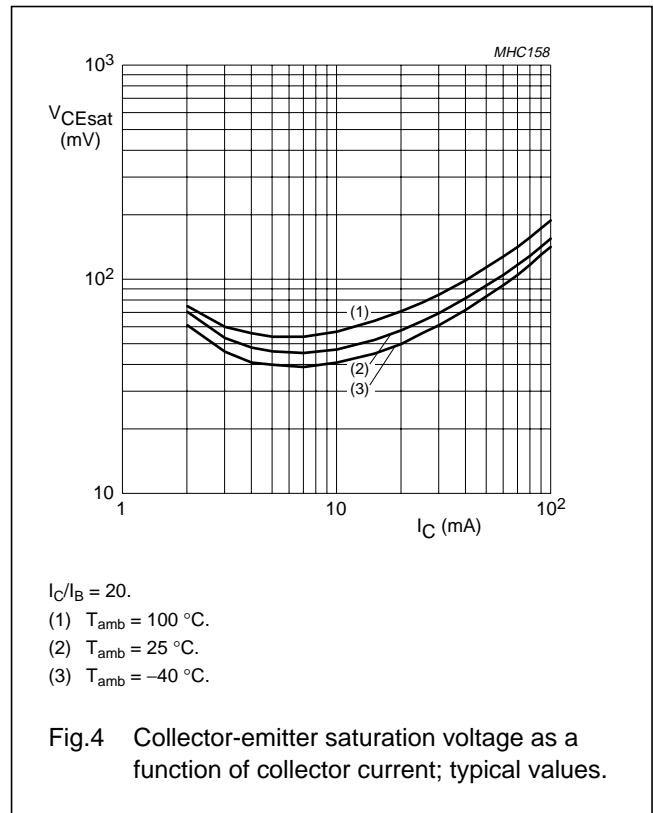
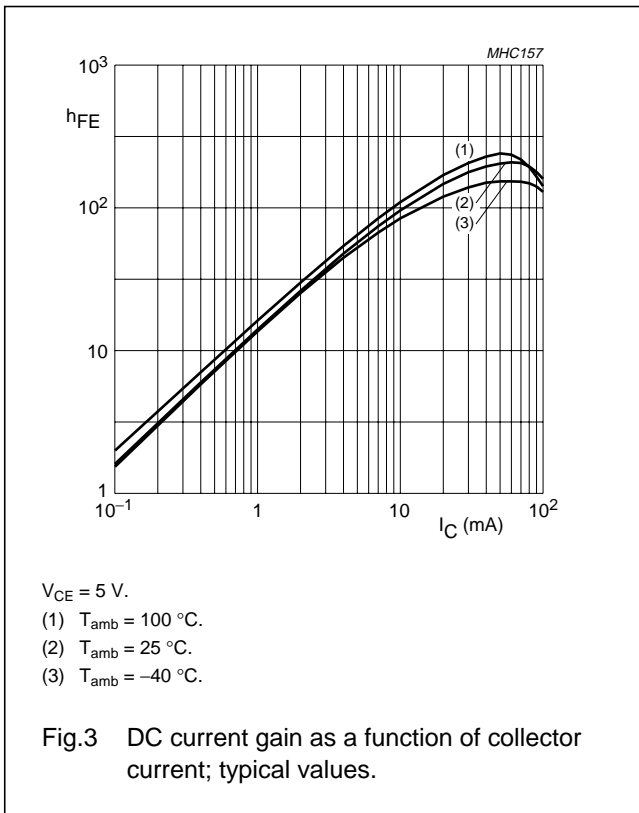
### CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_{\text{CBO}}$	collector-base cut-off current	$V_{\text{CB}} = 50 \text{ V}$ ; $I_{\text{E}} = 0$	–	–	100	nA
$I_{\text{CEO}}$	collector-emitter cut-off current	$V_{\text{CE}} = 30 \text{ V}$ ; $I_{\text{B}} = 0$	–	–	1	$\mu\text{A}$
		$V_{\text{CE}} = 30 \text{ V}$ ; $I_{\text{B}} = 0$ ; $T_{\text{j}} = 150 \text{ }^\circ\text{C}$	–	–	50	$\mu\text{A}$
$I_{\text{EBO}}$	emitter-base cut-off current	$V_{\text{EB}} = 5 \text{ V}$ ; $I_{\text{C}} = 0$	–	–	0.6	mA
$h_{\text{FE}}$	DC current gain	$V_{\text{CE}} = 5 \text{ V}$ ; $I_{\text{C}} = 10 \text{ mA}$	50	–	–	
$V_{\text{CEsat}}$	collector-emitter saturation voltage	$I_{\text{C}} = 10 \text{ mA}$ ; $I_{\text{B}} = 0.5 \text{ mA}$	–	–	100	mV
$V_{\text{i(off)}}$	input off voltage	$V_{\text{CE}} = 5 \text{ V}$ ; $I_{\text{C}} = 100 \mu\text{A}$	–	–	0.3	V
$V_{\text{i(on)}}$	input on voltage	$V_{\text{CE}} = 0.3 \text{ V}$ ; $I_{\text{C}} = 20 \text{ mA}$	2.5	–	–	V
R1	input resistor		3.3	4.7	6.1	$\text{k}\Omega$
$\frac{R2}{R1}$	resistor ratio		1.7	2.1	2.6	
$C_{\text{c}}$	collector capacitance	$I_{\text{E}} = i_{\text{e}} = 0$ ; $V_{\text{CB}} = 10 \text{ V}$ ; $f = 1 \text{ MHz}$	–	–	3	pF

NPN resistor-equipped transistor;  
 R1 = 4.7 kΩ, R2 = 10 kΩ

PDTC143XK



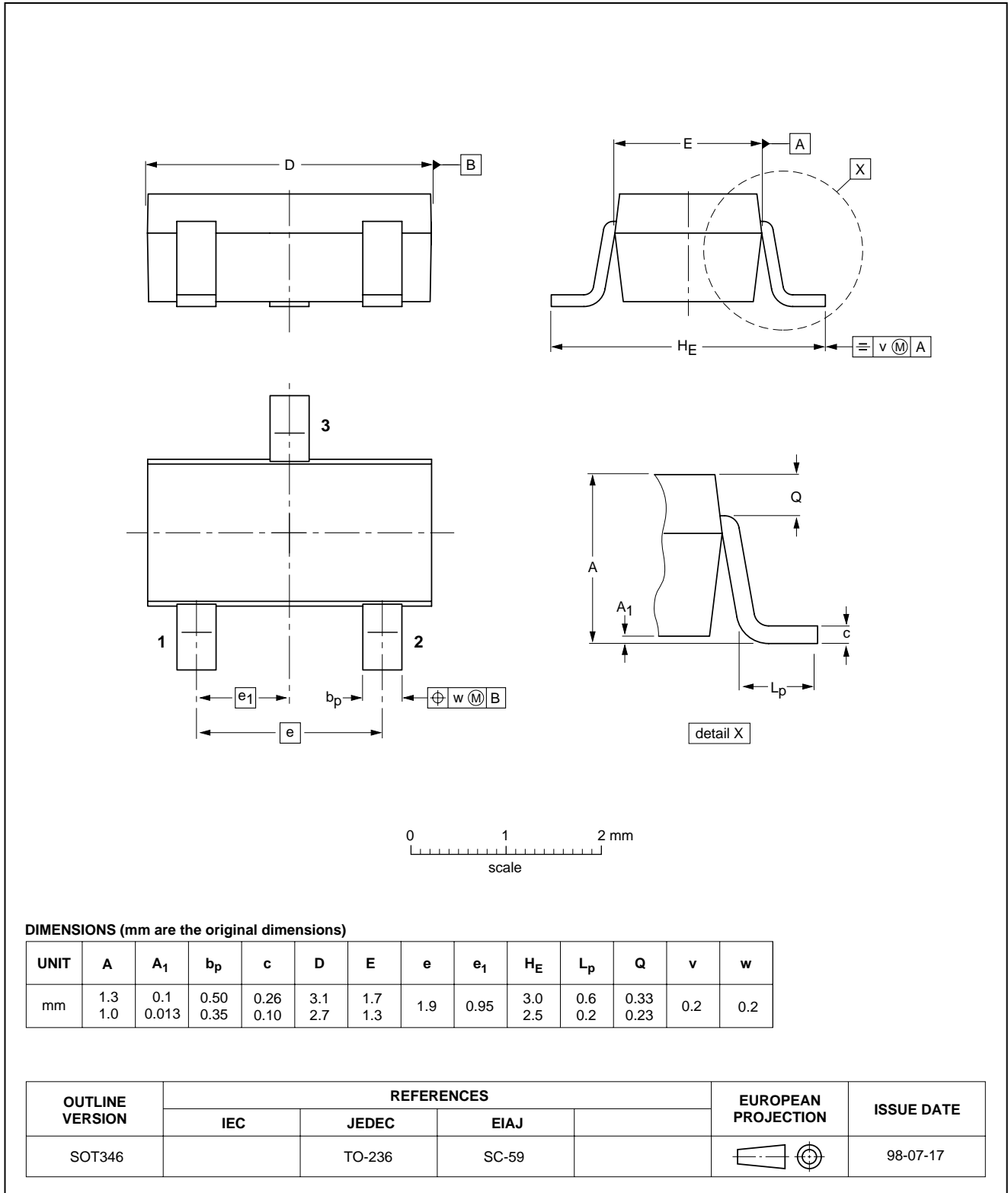
NPN resistor-equipped transistor;  
 R1 = 4.7 kΩ, R2 = 10 kΩ

PDTC143XK

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT346



NPN resistor-equipped transistor;  
R1 = 4.7 k $\Omega$ , R2 = 10 k $\Omega$

PDTC143XK

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DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITIONS
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