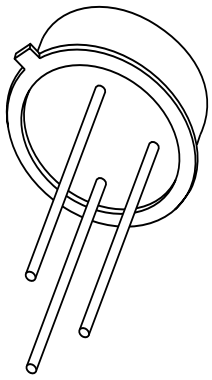
DATA SHEET



2N2484
NPN general purpose transistor

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

1997 May 01

Philips
Semiconductors

PHILIPS

NPN general purpose transistor 2N2484

FEATURES

- Low current (max. 50 mA)
- Low voltage (max. 60 V)

APPLICATIONS

- General purpose switching and amplification
- High performance (low-level), low-noise amplifier applications both for direct current and frequencies up to 100 MHz.

DESCRIPTION

NPN transistor in a TO-18; SOT18 metal package.

PINNING

PIN	DESCRIPTION
1	emitter
2	base
3	collector, connected to the case

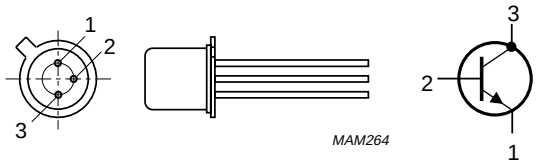


Fig.1 Simplified outline (TO-18; SOT18) and symbol.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	–	60	V
V_{CEO}	collector-emitter voltage	open base	–	–	60	V
I_{CM}	peak collector current		–	–	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	–	–	360	mW
h_{FE}	DC current gain	I_C = 10 µA; V_{CE} = 5 V	100	–	500	
		I_C = 1 mA; V_{CE} = 5 V	250	–	–	
		I_C = 10 mA; V_{CE} = 5 V	–	–	800	
f_T	transition frequency	I_C = 0.5 mA; V_{CE} = 5 V; f = 100 MHz	60	80	–	MHz

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	–	60	V
V_{EBO}	emitter-base voltage	open collector	–	6	V
I_C	collector current (DC)		–	50	mA
I_{CM}	peak collector current		–	100	mA
I_{BM}	peak base current		–	50	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	–	360	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	200	°C
T_{amb}	operating ambient temperature		–65	+150	°C

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	480	K/W
$R_{th\ j\text{-}c}$	thermal resistance from junction to case	150	K/W

CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

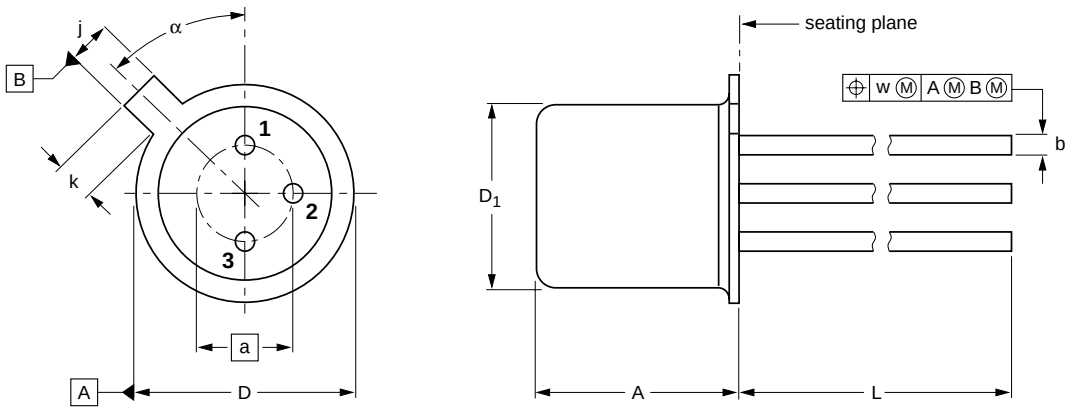
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	I_E = 0; V_{CB} = 45 V	–	–	10	nA
		I_E = 0; V_{CB} = 45 V; T_j = 150 °C	–	–	10	µA
I_{EBO}	emitter cut-off current	I_C = 0; V_{EB} = 5 V	–	–	10	nA
h_{FE}	DC current gain	I_C = 1 µA; V_{CE} = 5 V	30	–	–	
		I_C = 10 µA; V_{CE} = 5 V	100	–	500	
		I_C = 10 µA; V_{CE} = 5 V; T_j = 55 °C	20	–	–	
		I_C = 100 µA; V_{CE} = 5 V	175	–	–	
		I_C = 500 µA; V_{CE} = 5 V	200	–	–	
		I_C = 1 mA; V_{CE} = 5 V	250	–	–	
		I_C = 10 mA; V_{CE} = 5 V; note 1	–	–	800	
V_{CEsat}	collector-emitter saturation voltage	I_C = 1 mA; I_B = 0.1 mA	–	–	350	mV
V_{BE}	base-emitter voltage	I_C = 0.1 mA; V_{CE} = 5 V	500	–	700	mV
C_c	collector capacitance	I_E = i_e = 0; V_{CB} = 5 V; f = 1 MHz	–	–	6	pF
C_e	emitter capacitance	I_C = i_c = 0; V_{EB} = 0.5 V; f = 1 MHz	–	9	–	pF
f_T	transition frequency	I_C = 50 µA; V_{CE} = 5 V; f = 100 MHz	15	–	–	MHz
		I_C = 500 µA; V_{CE} = 5 V; f = 100 MHz	60	80	–	MHz
F	noise figure	I_C = 10 µA; V_{CE} = 5 V; R_S = 10 kΩ				
		f = 100 Hz; B = 20 Hz	–	–	10	dB
		f = 1 kHz; B = 200 Hz	–	–	3	dB
		f = 10 kHz; B = 2 kHz	–	–	2	dB
		Wide band; B = 15.7 kHz	–	–	3	dB

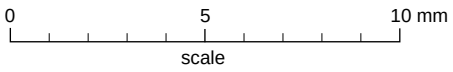
Note

1. Pulse test: $t_p \leq 300$ µs; $\delta \leq 0.01$.

PACKAGE OUTLINE

Metal-can cylindrical single-ended package; 3 leads **SOT18/13**





DIMENSIONS (millimetre dimensions are derived from the original inch dimensions)

UNIT	A	a	b	D	D_1	j	k	L	w	α
mm	5.31 4.74	2.54	0.47 0.41	5.45 5.30	4.70 4.55	1.03 0.94	1.1 0.9	15.0 12.7	0.40	45°

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT18/13	B11/C7 type 3	TO-18				97-04-18

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.	

LIFE SUPPORT APPLICATIONS

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