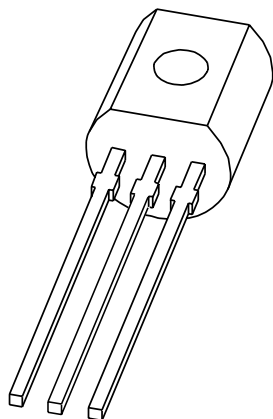


DATA SHEET



ED1502

NPN general purpose transistor

Product specification
File under Discrete Semiconductors, SC04

1997 May 01

NPN general purpose transistor

ED1502

FEATURES

- Low current (max. 25 mA)
- Low voltage (max. 20 V)
- High gain.

APPLICATIONS

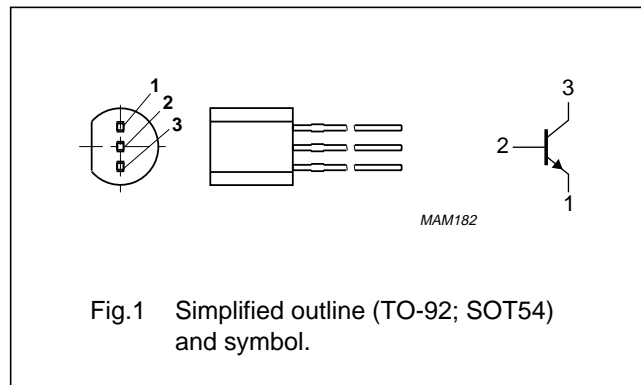
- General purpose switching and amplification.

DESCRIPTION

NPN transistor in a plastic TO-92; SOT54 package.

PINNING

PIN	DESCRIPTION
1	emitter
2	base
3	collector



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	40	V
V_{CEO}	collector-emitter voltage	open base	–	20	V
I_{CM}	peak collector current		–	25	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$	–	500	mW
h_{FE}	DC current gain	$I_C = 7\text{ mA}; V_{CE} = 10\text{ V}$	36	210	
f_T	transition frequency	$I_C = 5\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz}$	361	825	MHz

NPN general purpose transistor

ED1502

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CB0}	collector-base voltage	open emitter	–	40	V
V_{CEO}	collector-emitter voltage	open base	–	20	V
V_{EBO}	emitter-base voltage	open collector	–	4	V
I_C	collector current (DC)		–	25	mA
I_{CM}	peak collector current		–	25	mA
I_{BM}	peak base current		–	25	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	500	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

Note

1. Refer to TO-92; SOT54 standard mounting conditions.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	250	K/W

Note

1. Refer to TO-92; SOT54 standard mounting conditions.

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT				
I_{CBO}	collector cut-off current	$I_E = 0$; $V_{CB} = 40\text{ V}$	–	–	10	μA				
		$I_E = 0$; $V_{CB} = 20\text{ V}$; $T_j = 150\text{ °C}$	–	–	5	μA				
I_{EBO}	emitter cut-off current	$I_C = 0$; $V_{EB} = 4\text{ V}$	–	–	10	μA				
h_{FE}	DC current gain	$I_C = 7\text{ mA}$; $V_{CE} = 10\text{ V}$								
							ED1502A	36	–	55
							ED1502B	48	–	75
							ED1502C	66	–	100
							ED1502D	84	–	127
ED1502E	105	–	210							
V_{BE}	base-emitter voltage	$I_C = 7\text{ mA}$; $V_{CE} = 10\text{ V}$; note 1	–	–	925	mV				
C_{re}	feedback capacitance	$I_C = i_c = 0$; $V_{CB} = 10\text{ V}$; $f = 1\text{ MHz}$	–	0.5	–	pF				
f_T	transition frequency	$I_C = 10\text{ mA}$; $V_{CE} = 5\text{ V}$; $f = 100\text{ MHz}$	361	–	825	MHz				

Note

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

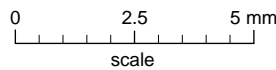
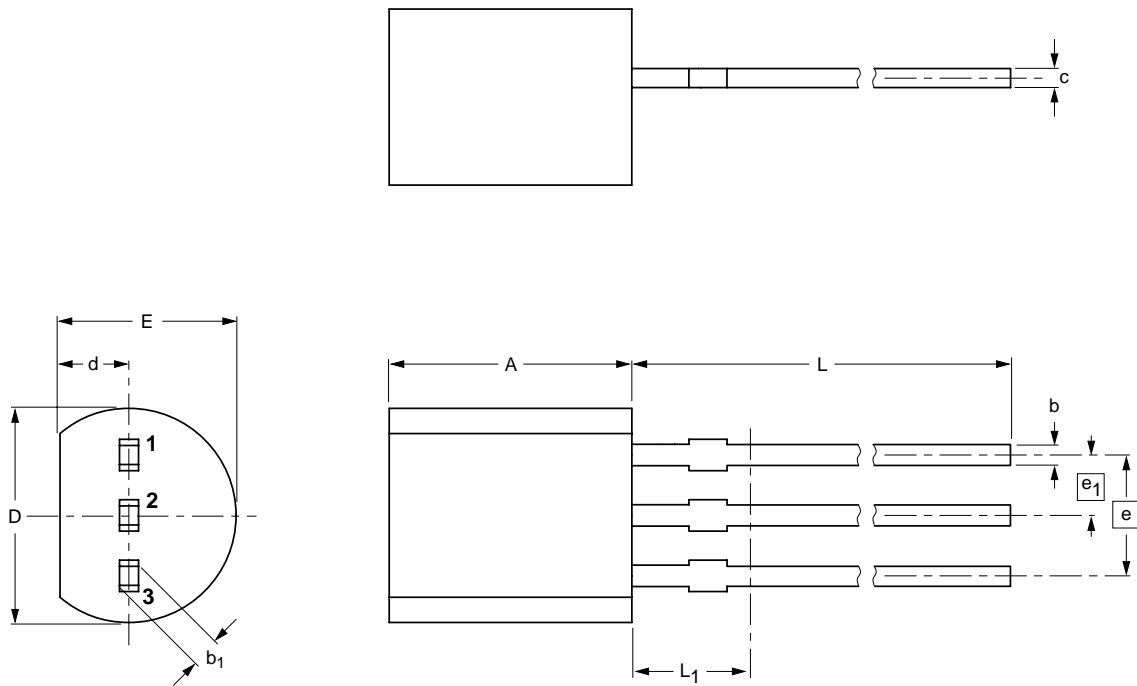
NPN general purpose transistor

ED1502

PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; 3 leads

SOT54



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b ₁	c	D	d	E	e	e ₁	L	L ₁ ⁽¹⁾
mm	5.2	0.48	0.66	0.45	4.8	1.7	4.2	2.54	1.27	14.5	2.5
	5.0	0.40	0.56	0.40	4.4	1.4	3.6				

Note

1. Terminal dimensions within this zone are uncontrolled to allow for flow of plastic and terminal irregularities.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT54		TO-92	SC-43			97-02-28

NPN general purpose transistor

ED1502

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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NOTES

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NOTES

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