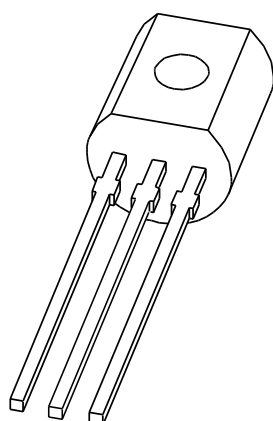


DATA SHEET



BC556; BC557; BC558 PNP general purpose transistors

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

1997 Mar 27

PNP general purpose transistors

BC556; BC557; BC558

FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 65 V).

APPLICATIONS

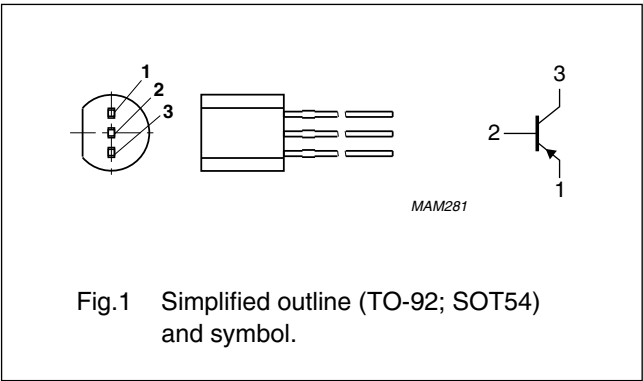
General purpose switching and amplification.

DESCRIPTION

PNP transistor in a TO-92; SOT54 plastic package.
NPN complements: BC546, BC547 and BC548.

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			
	BC556		—	−80	V
	BC557		—	−50	V
	BC558		—	−30	V
V_{CEO}	collector-emitter voltage	open base			
	BC556		—	−65	V
	BC557		—	−45	V
	BC558		—	−30	V
I_{CM}	peak collector current		—	−200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25^{\circ}C$	—	500	mW
h_{FE}	DC current gain	$I_C = 5\text{ V}$			
	BC556		125	475	
	BC557; BC558		125	800	
f_T	transition frequency	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f_{IC} = 100\text{ MHz}$		—	MHz

PNP general purpose transistors

BC556; BC557; BC558

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			
	BC556		–	–80	V
	BC557		–	–50	V
	BC558		–	–30	V
V_{CEO}	collector-emitter voltage	open base			
	BC556		–	–65	V
	BC557		–	–45	V
	BC558		–	–30	V
V_{EBO}	emitter-base voltage	open collector	–	–5	V
I_C	collector current (DC)		–	–100	mA
I_{CM}	peak collector current		–	–200	mA
I_{BM}	peak base current		–	–200	mA
P_{tot}	total power dissipation 25°C	$T_{amb} \leq$	–	500	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

THERMAL CHARACTERISTICS

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

Note

1. Transistor mounted on an FR4 printed-circuit board.

PNP general purpose transistors

BC556; BC557; BC558

CHARACTERISTICS

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

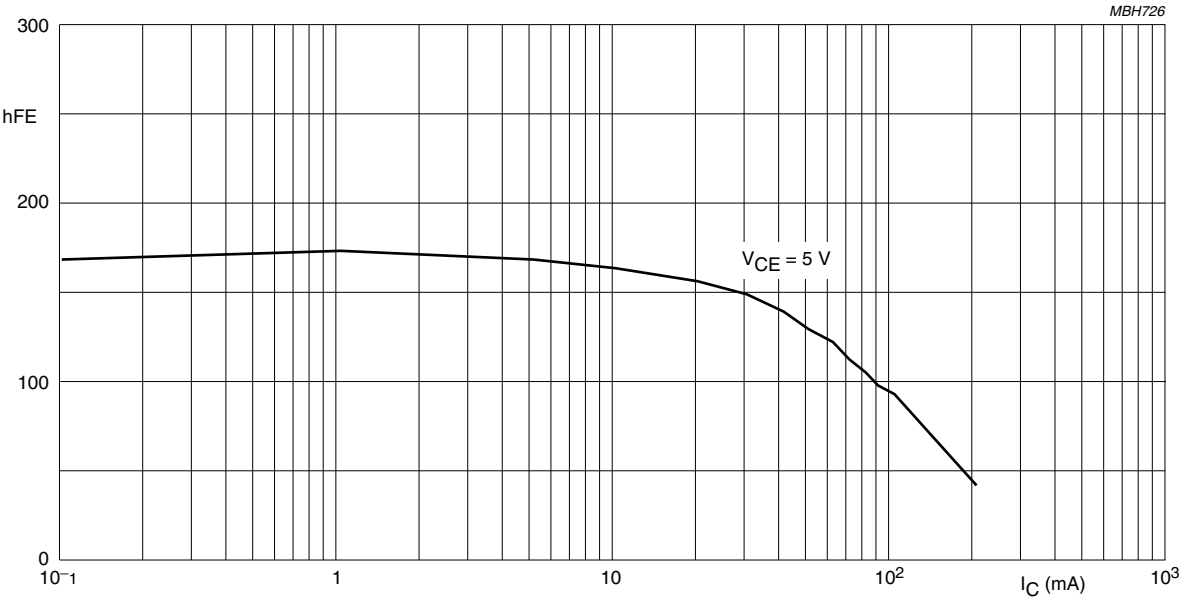
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current -30 V	$I_E = 0; V_{CB} =$	–	–1	–15	nA
		$I_E = 0; V_{CB} = -30\text{ V}; T_j = 150^{\circ}\text{C}$	–	–	–4	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 5\text{ V}$	–	–	–100	nA
h_{FE}	DC current gain; $V_{CE} =$ BC556 BC557; BC558 BC556A; BC557A; BC558A BC556B; BC557B; BC558B BC557C; BC558C	$I_C = 5\text{ mA};$ see Figs 2, 3 and 4	125	–	475	
			125	–	800	
			125	–	250	
			220	–	475	
			420	–	800	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -10\text{ mA}; I_B = 0.5\text{ mA}$	–	–60	–300	mV
		$I_C = -100\text{ mA}; I_B = 5\text{ mA}$	–	–180	–650	mV
V_{BEsat}	base-emitter saturation voltage	$I_C = -10\text{ mA}; I_B = 0.5\text{ mA};$ note 1	–	–750	–	mV
		$I_C = -100\text{ mA}; I_B = 5\text{ mA};$ note 1	–	–930	–	mV
V_{BE}	base-emitter voltage	$I_C = -10\text{ mA}; V_{CE} = 5\text{ V};$ note 2	–600	–650	–750	mV
		$I_C = -10\text{ mA}; V_{CE} = 5\text{ V};$ note 2	–	–	–820	mV
C_c	collector capacitance	$I_E = I_C = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	–	3	–	pF
C_e	emitter capacitance	$I_C = I_E = 0; V_{EB} = 0.5\text{ V}; f = 1\text{ MHz}$	–	10	–	pF
f_T	transition frequency	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	–	–	–	MHz
F	noise figure	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}; R_S = 2\text{ k}\Omega;$ $f = 1\text{ kHz}; B = 200\text{ Hz}$	–	2	10	dB

Notes

- V_{BEsat} decreases by about 1.7 mV/K with increasing temperature.
- V_{BE} decreases by about 2 mV/K with increasing temperature.

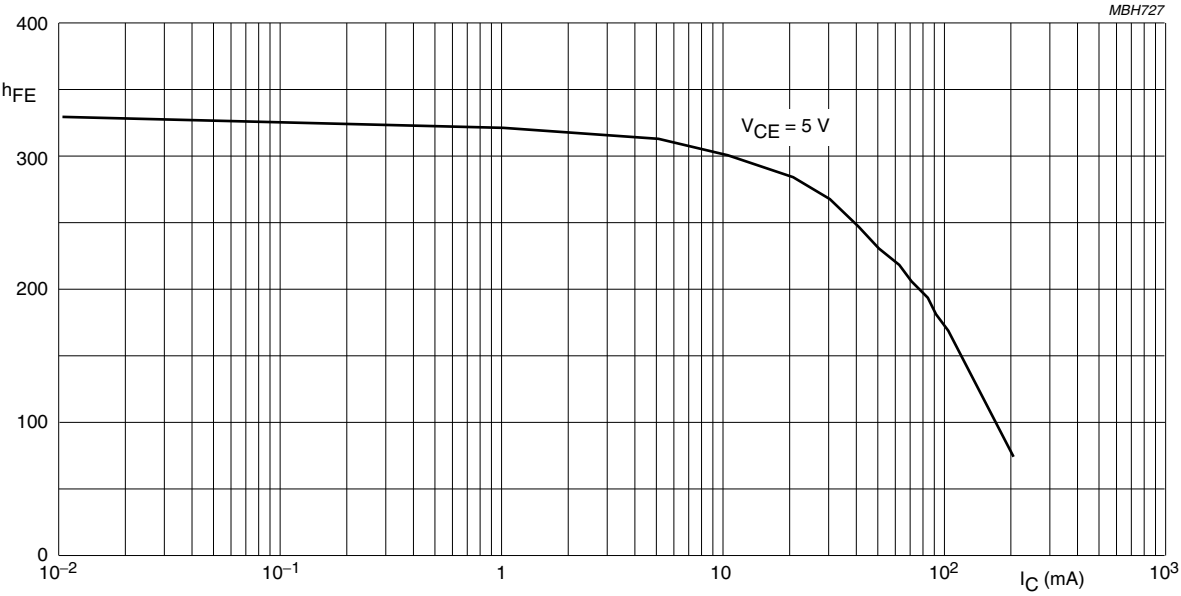
PNP general purpose transistors

BC556; BC557; BC558



BC556A; BC557A; BC558A.

Fig.2 DC current gain; typical values.

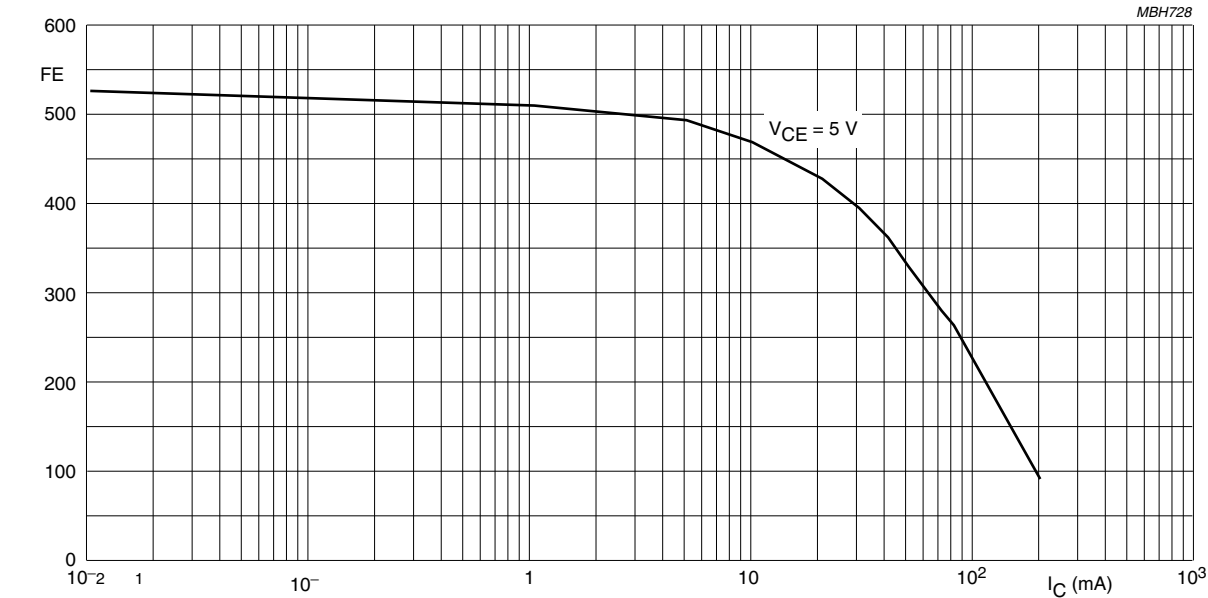


BC556B; BC557B; BC558B.

Fig.3 DC current gain; typical values.

PNP general purpose transistors

BC556; BC557; BC558



BC557C; BC558C.

Fig.4 DC current gain; typical values.

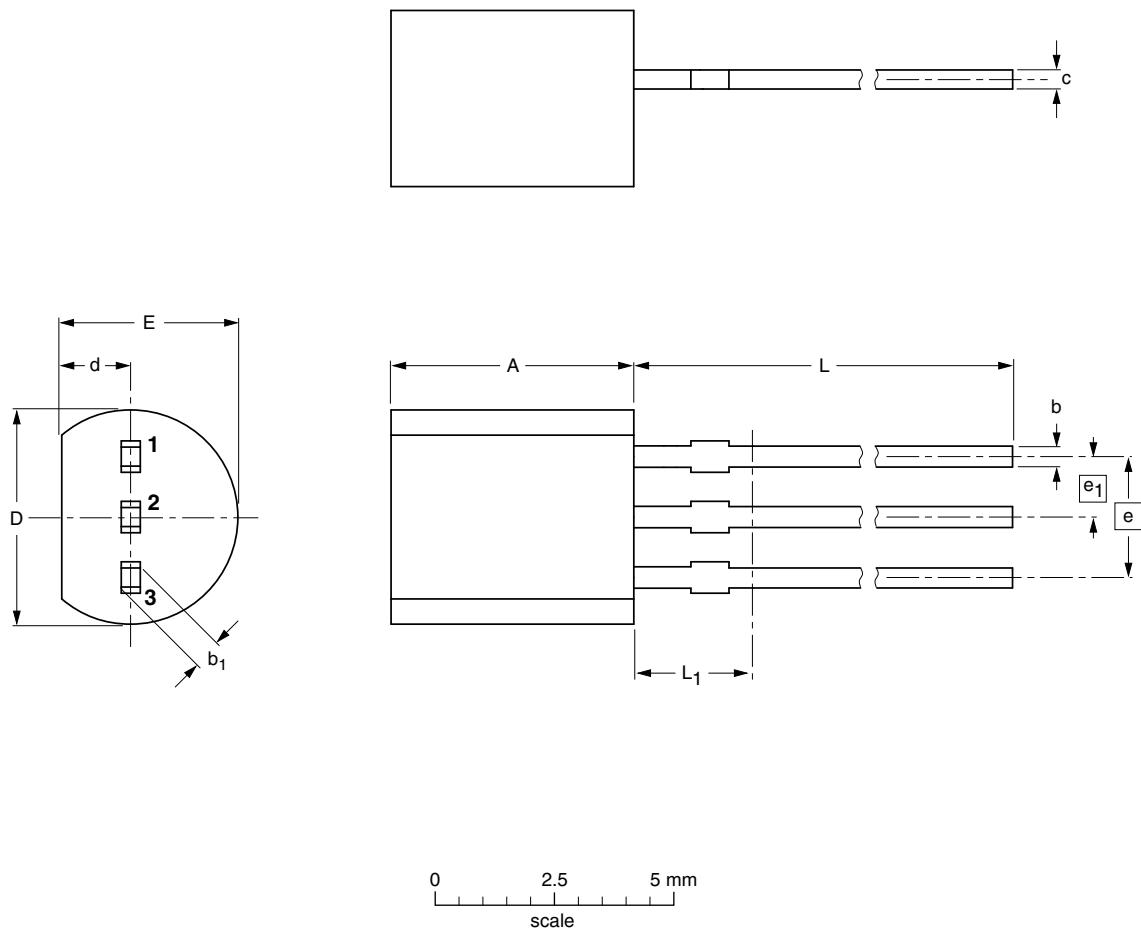
PNP general purpose transistors

BC556; BC557; BC558

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 5.0	0.48 0.40	0.66 0.56	0.45 0.40	4.8 4.4	1.7 1.4	4.2 3.6	2.54	1.27	14.5 12.7	2.5

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

PNP general purpose transistors

BC556; BC557; BC558

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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PNP general purpose transistors

BC556; BC557; BC558

NOTES

PNP general purpose transistors

BC556; BC557; BC558

NOTES

PNP general purpose transistors

BC556; BC557; BC558

NOTES

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