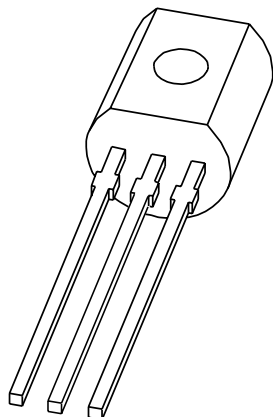


DATA SHEET



JC556; JC557; JC558 PNP general purpose transistors

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

1997 Jul 02

PNP general purpose transistors

JC556; JC557; JC558

FEATURES

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

APPLICATIONS

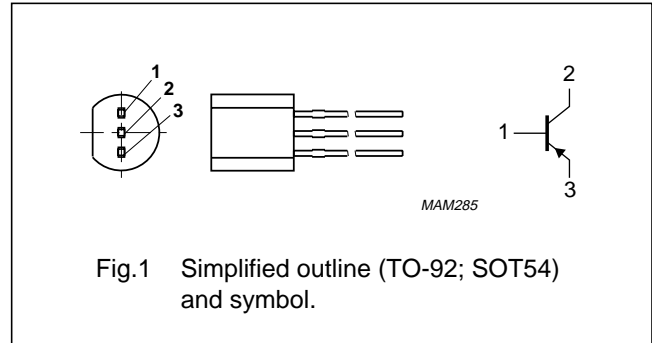
- General purpose switching and amplification.

DESCRIPTION

PNP transistor in a TO-92; SOT54 plastic package.
NPN complements: JC546, JC547 and JC548.

PINNING

PIN	DESCRIPTION
1	base
2	collector
3	emitter



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter			
	JC556		–	–80	V
	JC557		–	–50	V
	JC558		–	–30	V
V_{CEO}	collector-emitter voltage	open base			
	JC556		–	–65	V
	JC557		–	–45	V
	JC558		–	–30	V
I_{CM}	peak collector current		–	–200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$	–	500	mW
h_{FE}	DC current gain	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$			
	JC556		125	475	
	JC557; JC558		125	800	
f_T	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$	100	–	MHz

PNP general purpose transistors

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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			
	JC556		–	–80	V
	JC557		–	–50	V
	JC558		–	–30	V
V _{CEO}	collector-emitter voltage	open base			
	JC556		–	–65	V
	JC557		–	–45	V
	JC558		–	–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	T _{amb} ≤ 25 °C	–	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

JC556; JC557; JC558

CHARACTERISTICS

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

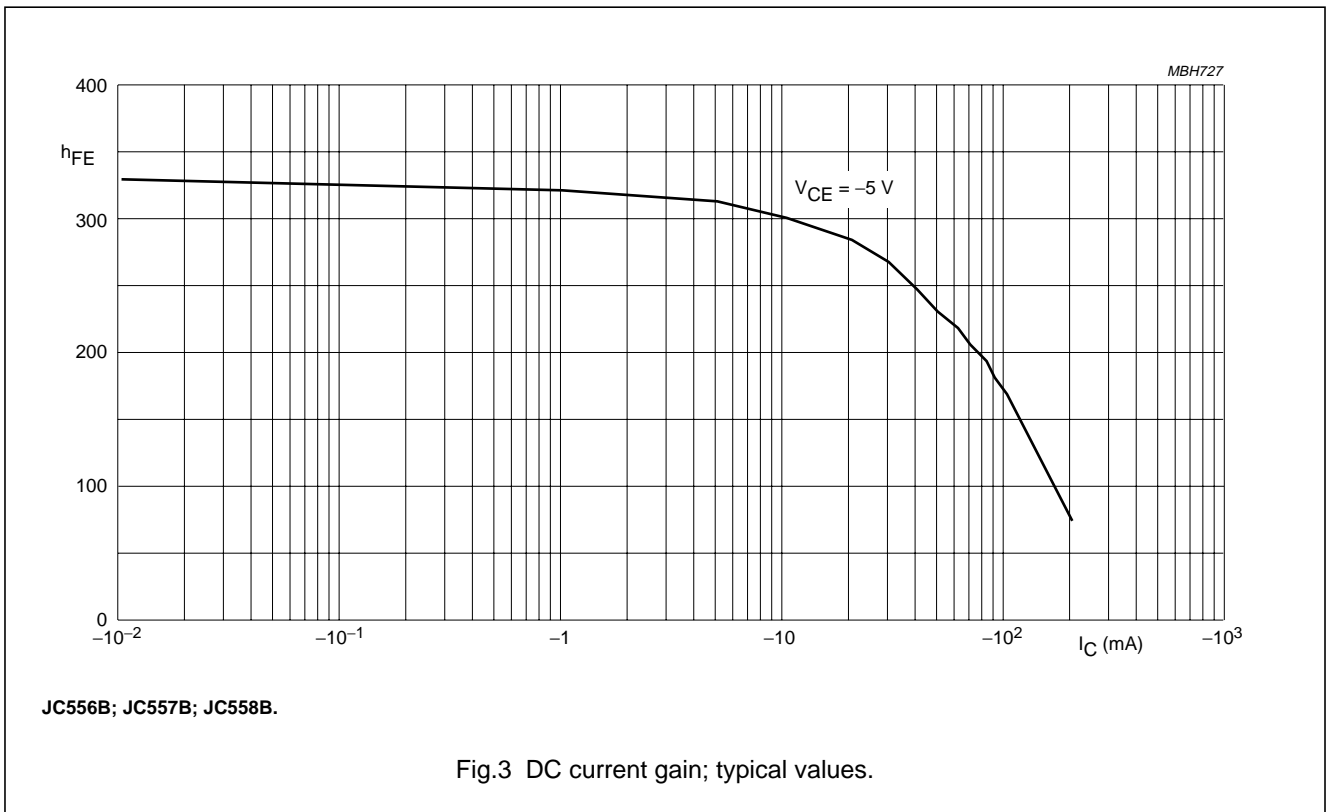
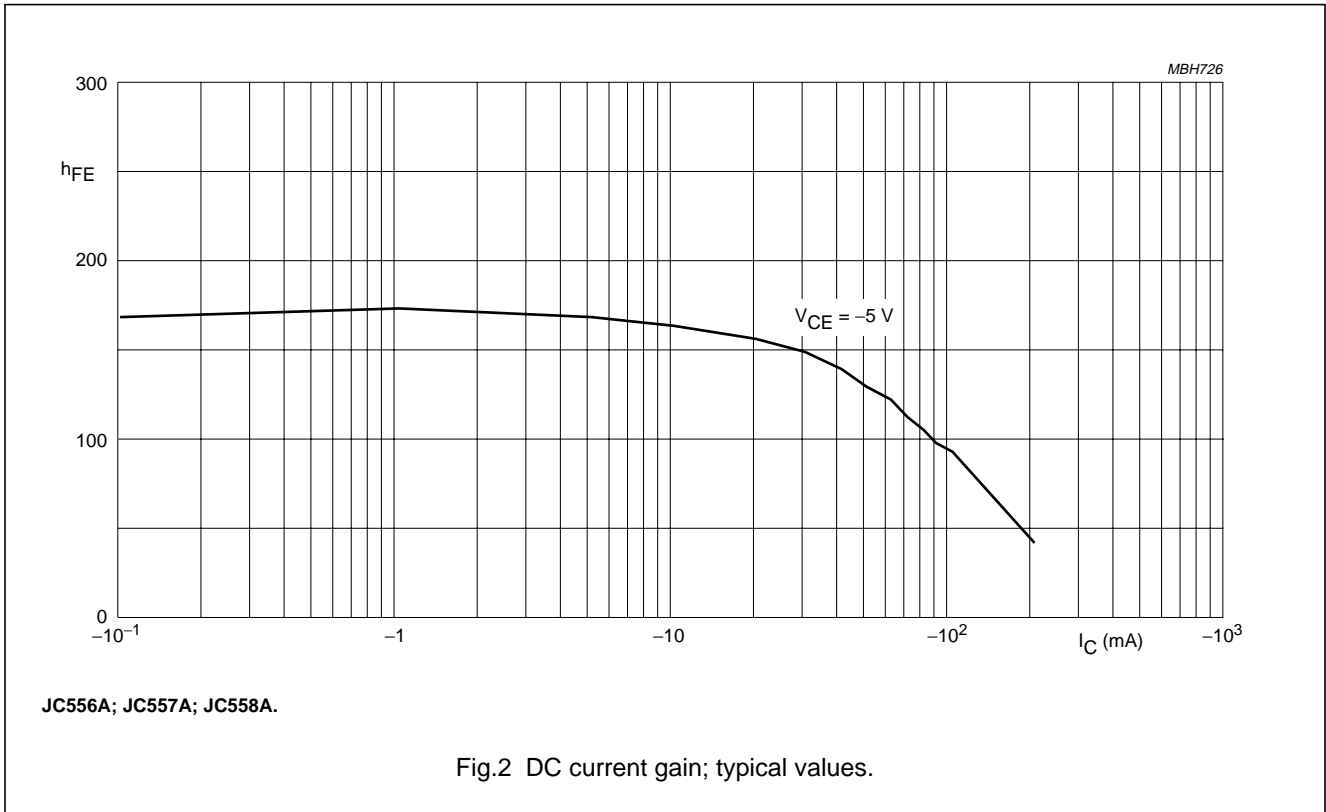
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = -30\text{ V}$	–	–1	–15	nA
		$I_E = 0; V_{CB} = -30\text{ V}; T_j = 150\text{ °C}$	–	–	–4	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = -5\text{ V}$	–	–	100	nA
h_{FE}	DC current gain JC556 JC557; JC558 JC556A; JC557A; JC558A JC556B; JC557B; JC558B JC557C; JC558C	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V};$ see Figs 2, 3 and 4				
			125	–	475	
			125	–	800	
			125	–	250	
			220	–	475	
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	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V};$ note 2	–600	–650	–750	mV
		$I_C = -10\text{ mA}; V_{CE} = -5\text{ V};$ note 2	–	–	–820	mV
C_c	collector capacitance	$I_E = i_e = 0; V_{CE} = -10\text{ V}; f = 1\text{ MHz}$	–	4	–	pF
C_e	emitter capacitance	$I_C = i_c = 0; V_{EB} = -500\text{ mV}; f = 1\text{ MHz}$	–	10	–	pF
f_T	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$	100	–	–	MHz
F	noise figure	$I_C = -200\text{ }\mu\text{A}; V_{CE} = -5\text{ V}; R_S = 2\text{ k}\Omega;$ $f = 1\text{ kHz}; B = 200\text{ Hz}$	–	–	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

JC556; JC557; JC558



PNP general purpose transistors

JC556; JC557; JC558

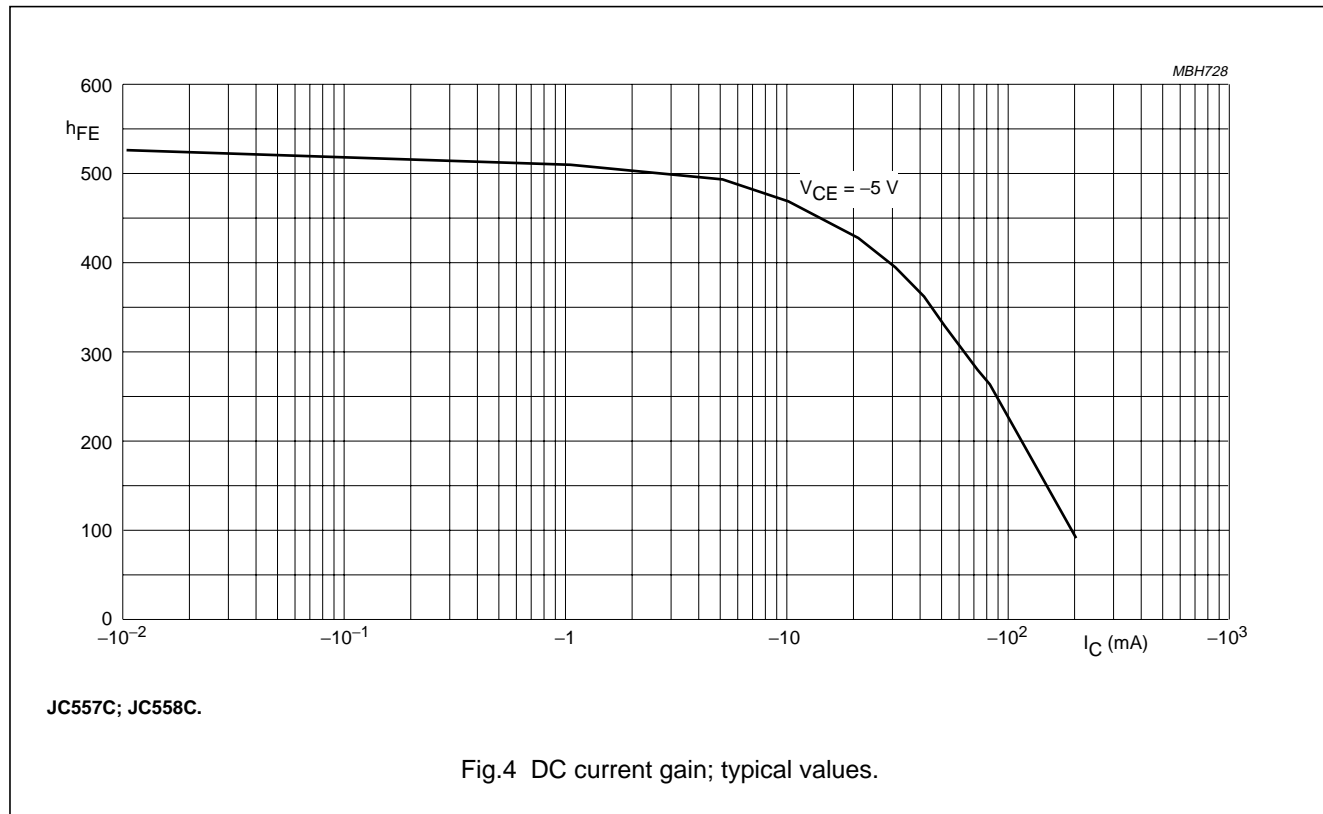


Fig.4 DC current gain; typical values.

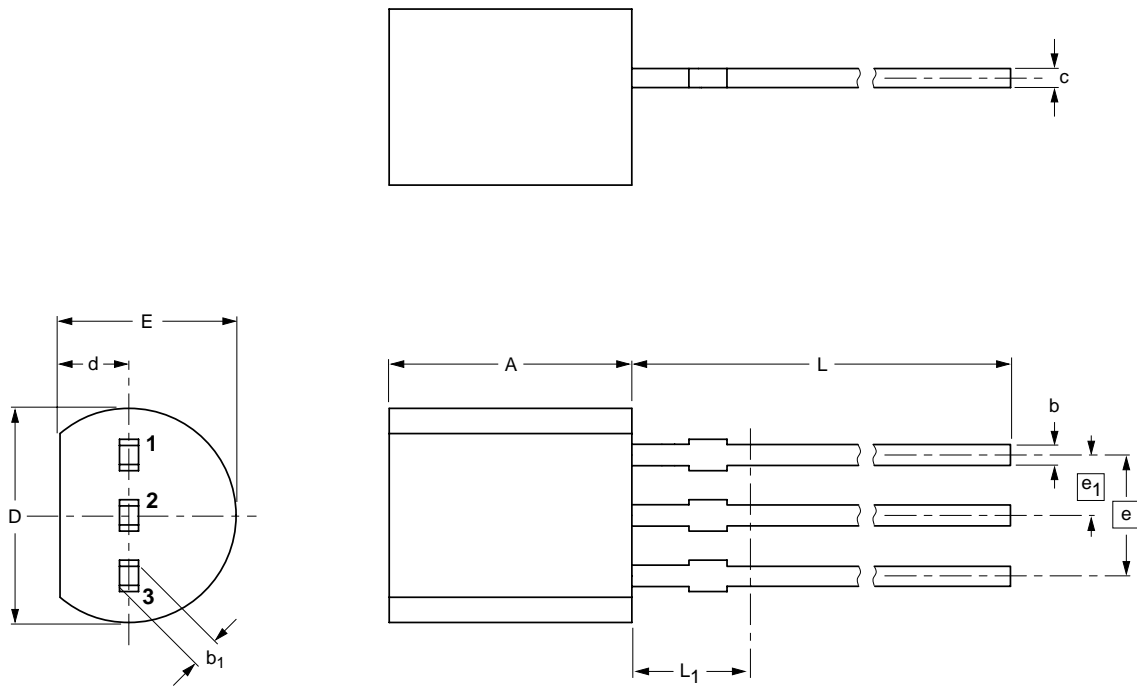
PNP general purpose transistors

JC556; JC557; JC558

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

PNP general purpose transistors

JC556; JC557; JC558

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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PNP general purpose transistors

JC556; JC557; JC558

NOTES

PNP general purpose transistors

JC556; JC557; JC558

NOTES

PNP general purpose transistors

JC556; JC557; JC558

NOTES

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