

NPN medium power transistors

BC635; BC637; BC639

FEATURES

- High current (max. 1 A)
- Low voltage (max. 80 V).

APPLICATIONS

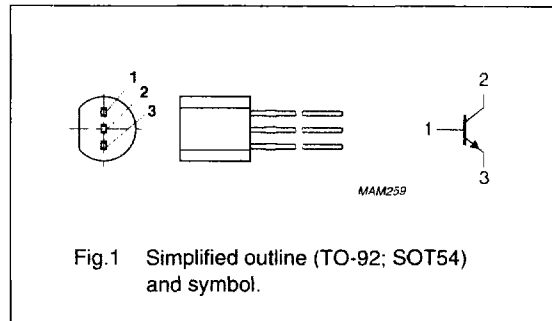
- Driver stages of audio/video amplifiers.

DESCRIPTION

NPN transistor in a TO-92; SOT54 plastic package.
PNP complements: BC636, BC638 and BC640.

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			
	BC635		–	45	V
	BC637		–	60	V
V_{CEO}	collector-emitter voltage	open base			
	BC635		–	45	V
	BC637		–	60	V
	BC639		–	80	V
I_{CM}	peak collector current		–	1.5	A
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$	–	0.83	W
h_{FE}	DC current gain	$I_C = 150\text{ mA}; V_{CE} = 2\text{ V}$	40	250	
f_T	transition frequency	$I_C = 50\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	100	–	MHz

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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			
	BC635		–	45	V
	BC637		–	60	V
	BC639		–	100	V
V_{CEO}	collector-emitter voltage	open base			
	BC635		–	45	V
	BC637		–	60	V
	BC639		–	80	V
V_{EBO}	emitter-base voltage	open collector	–	5	V
I_C	collector current (DC)		–	1	A
I_{CM}	peak collector current		–	1.5	A
I_{BM}	peak base current		–	200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^\circ\text{C}$	–	0.83	W
T_{stg}	storage temperature		–65	+150	$^\circ\text{C}$
T_j	junction temperature		–	150	$^\circ\text{C}$
T_{amb}	operating ambient temperature		–65	+150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	150	K/W

Note

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

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CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = 30\text{ V}$	–	100	nA
		$I_E = 0; V_{CB} = 30\text{ V}; T_j = 150\text{ }^\circ\text{C}$	–	10	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 5\text{ V}$	–	100	nA
h_{FE}	DC current gain	$V_{CE} = 2\text{ V}$; see Fig.2			
		$I_C = 5\text{ mA}$	40	–	
		$I_C = 150\text{ mA}$	40	250	
h_{FE}	DC current gain BC635-10; BC637-10; BC639-10 BC635-16; BC637-16; BC639-16	$I_C = 150\text{ mA}; V_{CE} = 2\text{ V}$; see Fig.2			
			63	160	
			100	250	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 500\text{ mA}; I_B = 50\text{ mA}$	–	500	mV
V_{BE}	base-emitter voltage	$I_C = 500\text{ mA}; V_{CE} = 2\text{ V}$	–	1	V
f_T	transition frequency	$I_C = 50\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	100	–	MHz
$\frac{h_{FE1}}{h_{FE2}}$	DC current gain ratio of the complementary pairs	$ I_C = 150\text{ mA}; V_{CE} = 2\text{ V}$	–	1.6	

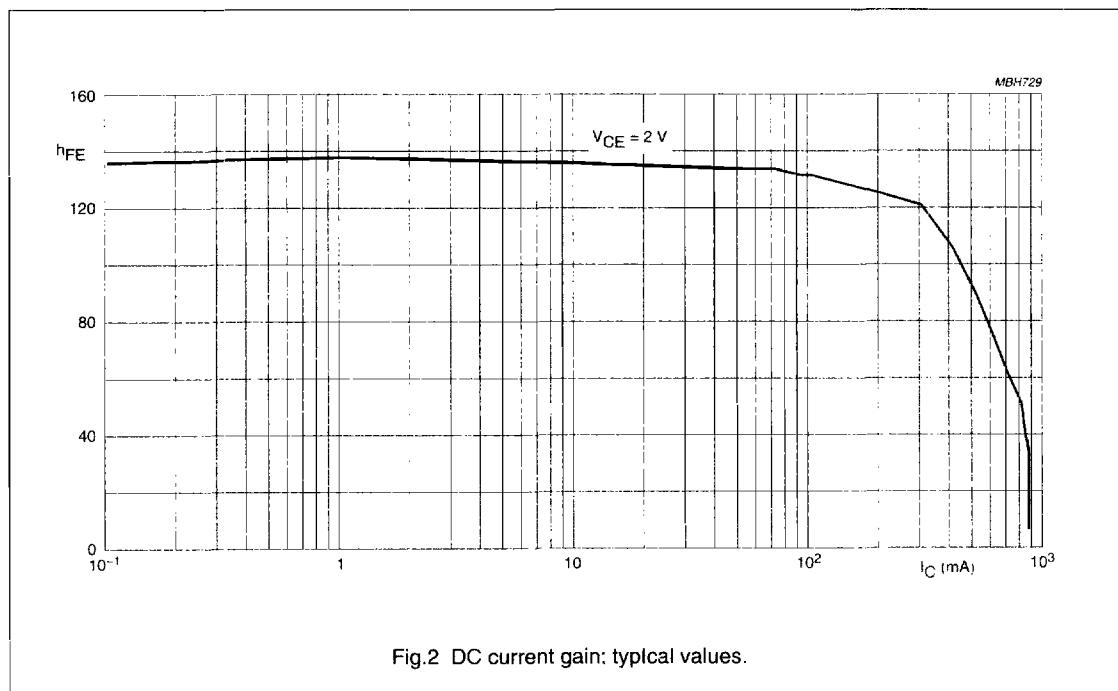


Fig.2 DC current gain: typical values.