NPN medium power transistor   **BC368**

FEATURES

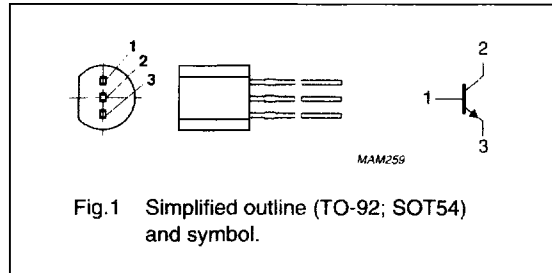- High current (1 A)
- Low voltage (20 V).

APPLICATIONS

- General purpose switching and amplification
- Power applications such as audio output stages.

DESCRIPTION

NPN medium power transistor in a TO-92; SOT54 plastic package. PNP complement: BC369.

PINNING

PIN	DESCRIPTION
1	base
2	collector
3	emitter

Fig.1   Simplified outline (TO-92; SOT54) and symbol.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	32	V
V_{CEO}	collector-emitter voltage	open base	–	20	V
I_{CM}	peak collector current		–	2	A
P_{tot}	total power dissipation	$T_{amb} \leq 25\ °C$	–	0.83	W
h_{FE}	DC current gain	$I_C = 500\ mA$; $V_{CE} = 1\ V$	85	375	
f_T	transition frequency	$I_C = 10\ mA$; $V_{CE} = 5\ V$; $f = 100\ MHz$	40	–	MHz

NPN medium power transistor

BC368

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	–	32	V
V_{CEO}	collector-emitter voltage	open base	–	20	V
V_{EBO}	emitter-base voltage	open collector	–	5	V
I_C	collector current (DC)		–	1	A
I_{CM}	peak collector current		–	2	A
I_{BM}	peak base current		–	200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\ °C$; note 1	–	0.83	W
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

Note

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

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.

NPN medium power transistor

BC368

CHARACTERISTICS

$T_j = 25 °C$ unless otherwise specified.

| SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0$; $V_{CB} = 25$ V	–	100	nA
		$I_E = 0$; $V_{CB} = 25$ V; $T_j = 150 °C$	–	10	μA
I_{EBO}	emitter cut-off current	$I_C = 0$; $V_{EB} = 5$ V	–	100	nA
h_{FE}	DC current gain	$I_C = 5$ mA; $V_{CE} = 10$ V	50	–	
		$I_C = 500$ mA; $V_{CE} = 1$ V; see Fig.2	85	375	
		$I_C = 1$ A; $V_{CE} = 1$ V; see Fig.2	60	–	
h_{FE}	DC current gain BC368-16 BC368-25	$I_C = 500$ mA; $V_{CE} = 1$ V; see Fig.2	 100 160	 250 –	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 1$ A; $I_B = 100$ mA	–	500	mV
V_{BE}	base-emitter voltage	$I_C = 5$ mA; $V_{CE} = 10$ V	–	700	mV
		$I_C = 1$ A; $V_{CE} = 1$ V	–	1	V
f_T	transition frequency	$I_C = 10$ mA; $V_{CE} = 5$ V; $f = 100$ MHz	40	–	MHz
$\dfrac{h_{FE1}}{h_{FE2}}$	DC current gain ratio of the complementary pairs	$|I_C| = 500$ mA; $|V_{CE}| = 1$ V	–	1.6	
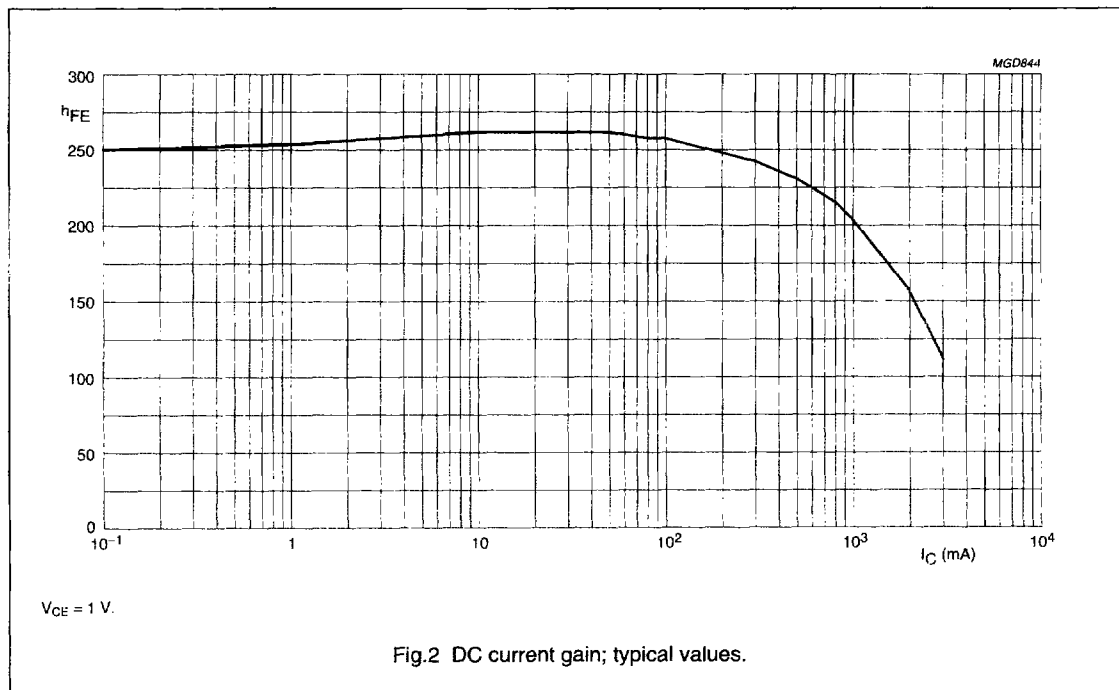
Fig.2 DC current gain; typical values.