

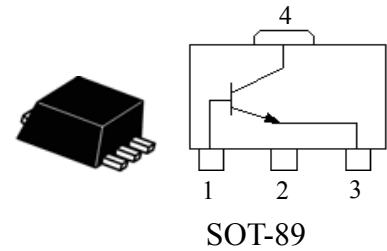
NPN-General Use Transistor 1W 1A 80V

## Feature

Marking: DF

## Application

Can be used for switching and amplifying in various electrical and electronic circuit.



## Maximum ratings

Parameters	Symbol	Rating	Unit
Collector-emitter voltage ( $I_B=0$ )	$V_{CEO}$	80	V
Collector-base voltage ( $I_E=0$ )	$V_{CBO}$	100	V
Emitter-base voltage ( $I_C=0$ )	$V_{EBO}$	5	V
Collector current	$I_C$	1	A
Total dissipation power ( $T_A=25^\circ\text{C}$ )*	$P_{tot}$	1	W
Junction temperature	$T_{jm}$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55~150	$^\circ\text{C}$

\* Device should be mounted on a printed circuit board.

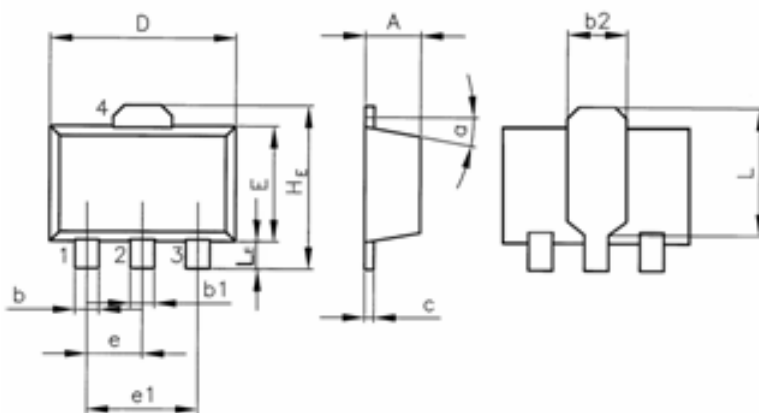
## Electrical characteristics (Unless otherwise specified, $T_A=25^\circ\text{C}$ )

Parameters	Symbol	Test condition	Min.	typ	Max.	Unit	
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}$ $I_B=0$	80	—	—	V	
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}$ $I_E=0$	100	—	—	V	
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}$ $I_C=0$	5	—	—	V	
Forward current transfer ratio <sup>a</sup>	$h_{FE}$	$V_{CE}=2\text{V}$ $I_C=150\text{mA}$	Q	120	—	270	
			R	180	—	390	
Collector-base current	$I_{CBO}$	$V_{CB}=30\text{V}$	—	—	100	nA	
Collector-emitter saturation voltage <sup>a</sup>	$V_{CE(sat)}$	$I_C=500\text{mA}$ $I_B=50\text{mA}$	—	—	0.5	V	
Characteristic frequency	$f_T$	$I_C=10\text{mA}$ $V_{CE}=5\text{V}$ $f=100\text{MHz}$	—	130	—	MHz	

<sup>a</sup> Pulse method:  $t_w:300\mu\text{s}$ ,  $D \leq 2\%$ .

## Outline dimensions

Unit: mm



symbol	SOT-89		
	min	type	max
A	1.4		1.6
b	0.35		0.55
b1	0.4		0.65
b2		1.6	
c	0.35		0.45
D	4.4		4.6
E	2.35		2.55
e		1.5	
e1		3	
HE		4.15	
L		2.7	
LE		1.0	
$\alpha$		50	

Fig.1 outline dimensions

## Typical curve

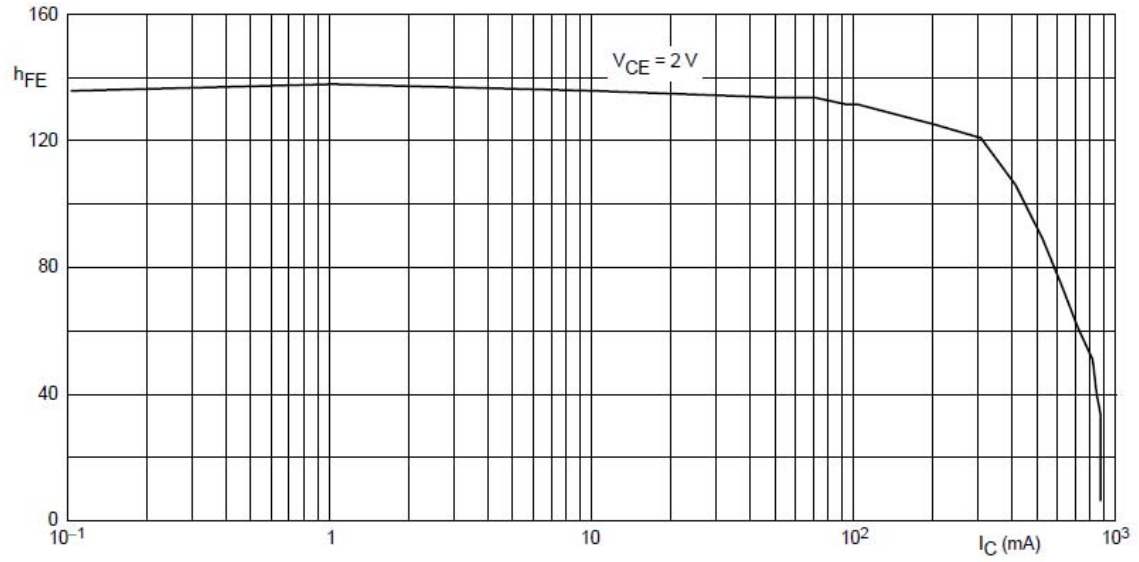


Fig.2 DC current gain, typical value