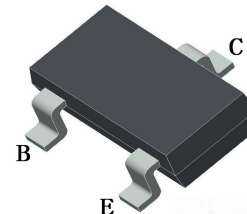


TRANSISTOR (NPN)

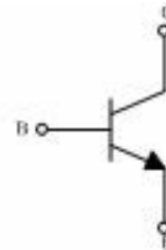
## FEATURES

- High breakdown voltage
- Excellent current characteristics
- Low  $V_{CE(sat)}$

## SOT-23



## ELECTRICAL SYMBOL



**MARKING: BR**

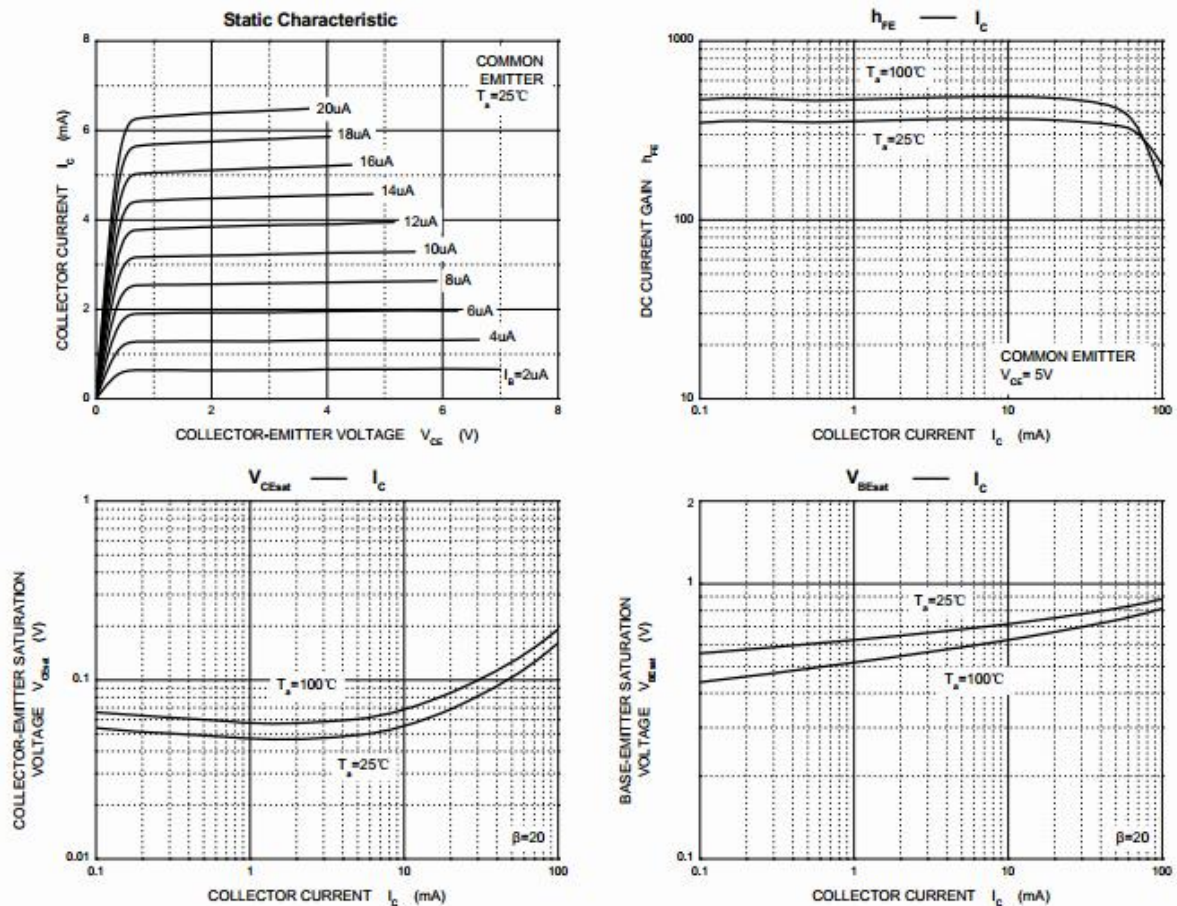
## MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted )

Parameter	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	50	V
Collector-Emitter Voltage	$V_{CEO}$	45	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_{CM}$	0.1	A
Power Dissipation	$P_D$	0.2	W
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-55~150	$^{\circ}\text{C}$

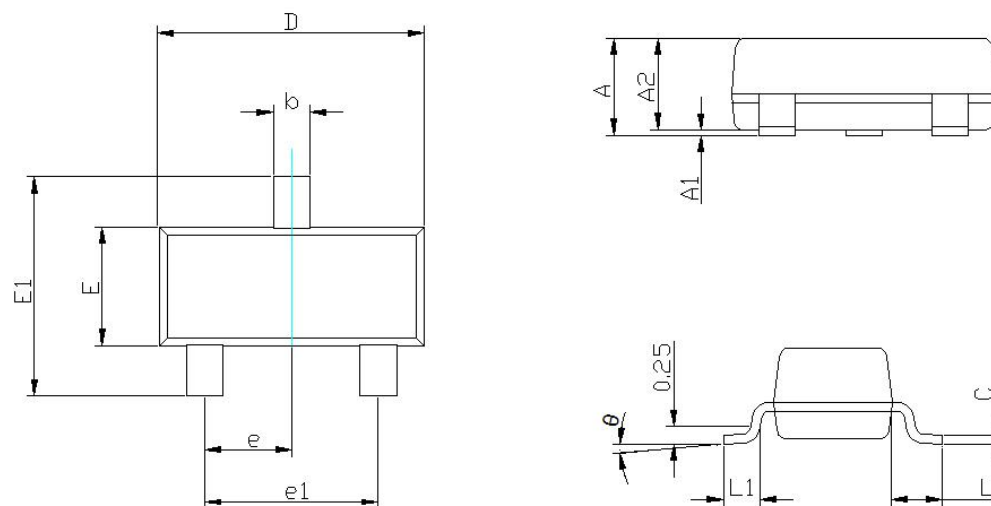
ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Max	Unit
Emitter-base breakdown voltage	$BV_{EBO}$	$I_E=100\mu A, I_C=0$	5		V
Collector-base breakdown voltage	$BV_{CBO}$	$I_C=100\mu A, I_E=0$	50		V
Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C=1mA, I_B=0$	45		V
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5V, I_C=0$		0.1	$\mu A$
Collector cut-off current	$I_{CBO}$	$V_{CB}=40V, I_E=0$		0.1	$\mu A$
Collector cut-off current	$I_{CEO}$	$V_{CE}=40V, I_B=0$		0.1	$\mu A$
Collector-emitter saturation voltage	$V_{CESAT}$	$I_C=100mA, I_B=5mA$		0.3	V
Base-emitter saturation voltage	$V_{BESAT}$	$I_C=100mA, I_B=5mA$		1.1	V
DC current gain	$h_{FE}$	$V_{CE}=5V, I_C=1mA$	300	400	
Transition frequency	$f_T$	$V_{CE}=5V, I_C=10mA$ $F=30MHZ$	150		MHZ

Typical Characteristics



SOT-23 Package Outline Dimensions



SYMBOL	MIN	MAX
A	0.900	1.15
A1	0.000	0.125
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF (0.4-0.6)	
L1	0.300	0.500
θ	0°	8°

unit: mm