

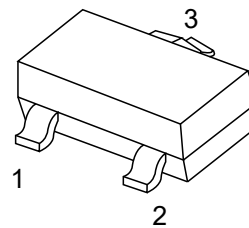
## 1.Features

- Low current (max. 100mA)
- Low voltage (max. 45V)

## 2.Pinning Information

Pin	Symbol	Description
1	B	BASE
2	E	EMITTER
3	C	COLLECTOR

**SOT-23**



## 3.Absolute Maximum Ratings $T_A = 25^{\circ}\text{C}$

Parameter	Symbol	Rating	Units
Collector-base voltage	$V_{CBO}$	50	V
Collector-emitter voltage	$V_{CEO}$	45	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current (DC)	$I_C$	100	mA
Peak collector current	$I_{CM}$	200	mA
Peak base current	$I_{BM}$	200	mA
Total power dissipation $T_{amb} \leq 25^{\circ}\text{C}$	$P_{tot}$	250	mW
Storage temperature	$T_{STG}$	-65 to 150	$^{\circ}\text{C}$
Junction temperature	$T_J$	150	$^{\circ}\text{C}$
Operating ambient temperature	$T_{amb}$	-65 to 150	$^{\circ}\text{C}$
Thermal resistance from junction to ambient	$R_{th(j-a)}$	150	K/W



#### 4. Electrical Characteristics $T_A = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Collector cut-off current	$I_{CBO}$	$I_E=0, V_{CB}=30V$			15	nA
		$I_E=0, V_{CB}=30V, T_J=150^\circ\text{C}$			5	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$I_C=0, V_{EB}=5V$			100	nA
DC current gain	$H_{FE}$	$I_C=2\text{mA}, V_{CE}=5V$	420	520	800	
Collector-emitter saturation voltage	$V_{CEsat}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$		90	250	mV
		$I_C=100\text{mA}, I_B=5\text{mA}$		200	600	mV
Base-emitter saturation voltage	$V_{BEsat}$	$I_C=10\text{mA}, I_B=0.5\text{mA}, *1$		700		mV
		$I_C=100\text{mA}, I_B=5\text{mA}, *1$		900		mV
Base-emitter voltage	$V_{BE}$	$I_C=2\text{mA}, V_{CE}=5V, *2$	580	660	700	mV
		$I_C=10\text{mA}, V_{CE}=5V, *2$			770	mV
Collector capacitance	$C_C$	$I_E=i_E=0, V_{CB}=10V, f=1\text{MHz}$		2.5		pF
Emitter capacitance	$C_e$	$I_C=i_C=0, V_{EB}=500\text{mV}, f=1\text{MHz}$		11		pF
Transition frequency	$f_T$	$I_C=10\text{mA}, V_{CE}=5V, f=100\text{MHz}$	100			MHz
Noise figure	F	$I_C=200\mu\text{A}, V_{CE}=5V$ $R_S=2\text{k}\Omega, f=10\text{Hz to } 15.7\text{kHz}$			4	dB
		$I_C=200\mu\text{A}, V_{CE}=5V$ $R_S=2\text{k}\Omega, f=1\text{kHz}, B=200\text{Hz}$			4	dB

\*1  $V_{BEsat}$  decreases by about 1.7 mV/K with increasing temperature.

\*2  $V_{BE}$  decreases by about 2 mV/K with increasing temperature.



5. Typical Characteristics

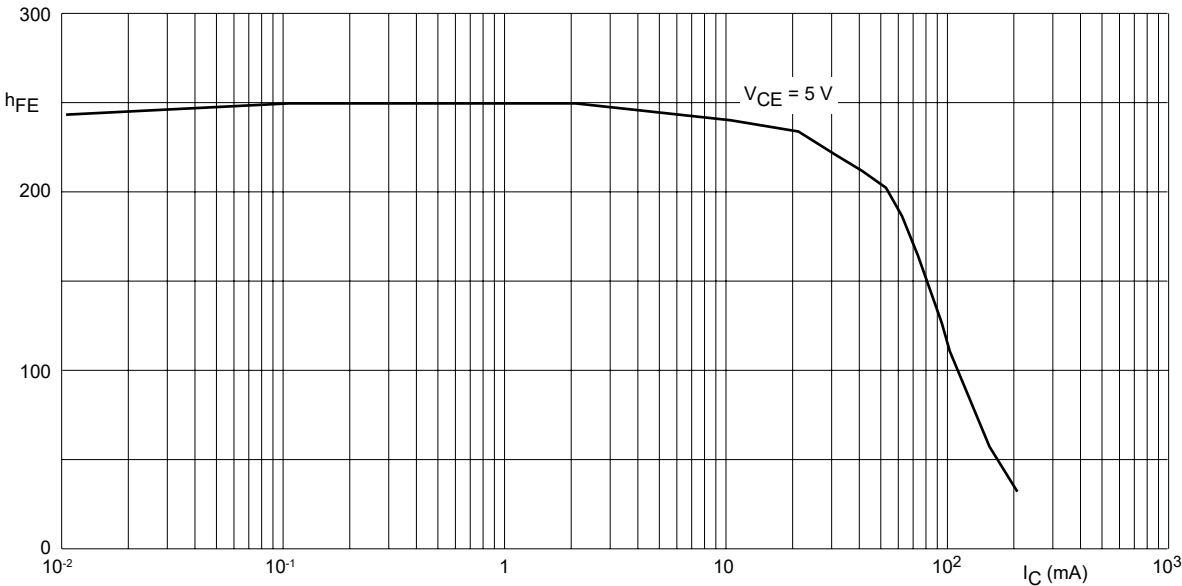


Figure 1: DC current gain; typical values

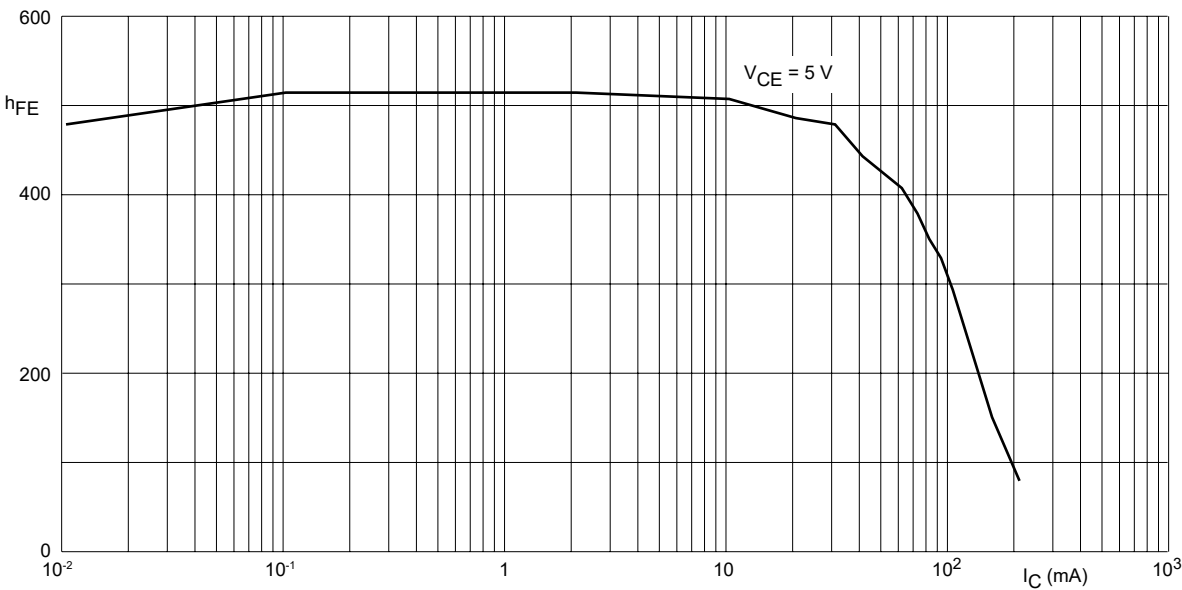
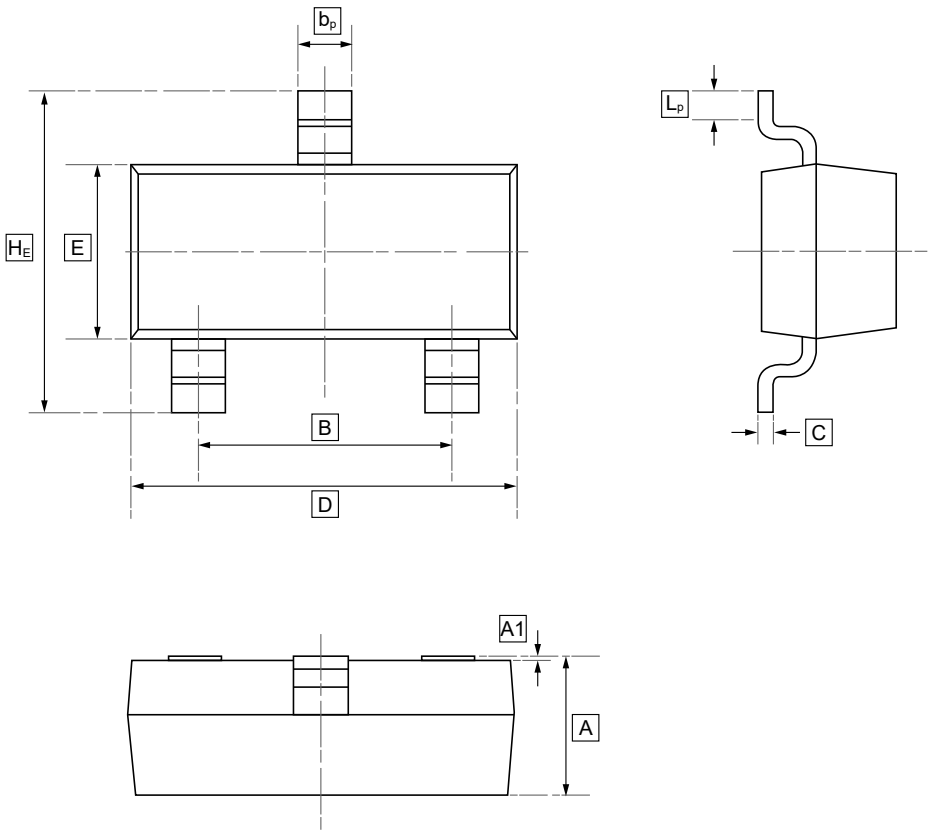


Figure 2: DC current gain; typical values



6.SOT-23 Package Outline Dimensions

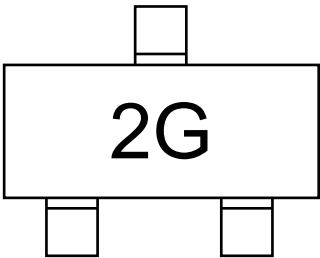


DIMENSIONS (mm are the original dimensions)

Symbol	A	B	b <sub>p</sub>	C	D	E	H <sub>E</sub>	A1	L <sub>p</sub>
Min	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20
Max	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50



7.Ordering information



Order Code	Package	Base QTY	Delivery Mode
UMW BC850C	SOT-23	3000	Tape and reel



## 8.Disclaimer

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