

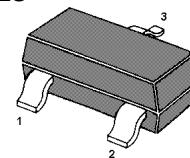
TRANSISTOR (NPN)

FEATURE

Ideally suited for automatic insertion
For Switching and AF Amplifier Applications

MARKING : 1A

SOT-23



1. BA
2. EMITTER
3. COLLECTOR

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	80	V
V_{CEO}	Collector-Emitter Voltage	65	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current –Continuous	0.1	A
P_{C^*}	Collector Power Dissipation	200	mW
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-65-150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	V_{CBO}	$I_C = 10\mu\text{A}$, $I_E = 0$	80			V
Collector-emitter breakdown voltage	V_{CEO}	$I_C = 10\text{mA}$, $I_B = 0$	65			V
Emitter-base breakdown voltage	V_{EBO}	$I_E = 10\mu\text{A}$, $I_C = 0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB} = 70\text{V}$, $I_E = 0$			0.1	μA
Collector cut-off current	I_{CEO}	$V_{CE} = 60\text{V}$, $I_B = 0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{V}$, $I_C = 0$			0.1	μA
DC current gain	h_{FE}	$V_{CE} = 5\text{V}$, $I_C = 2\text{mA}$	110		220	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 100\text{mA}$, $I_B = 5\text{mA}$			0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 100\text{mA}$, $I_B = 5\text{mA}$			1.1	V
Transition frequency	f_T	$V_{CE} = 5\text{V}$, $I_C = 10\text{mA}$ $f = 100\text{MHz}$	100			MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$			4.5	pF

Typical Characteristics

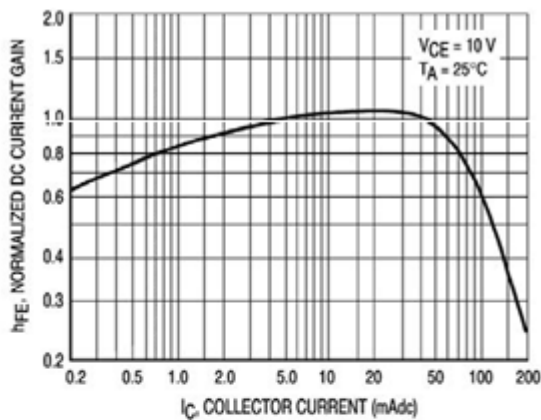


Figure 1. Normalized DC Current Gain

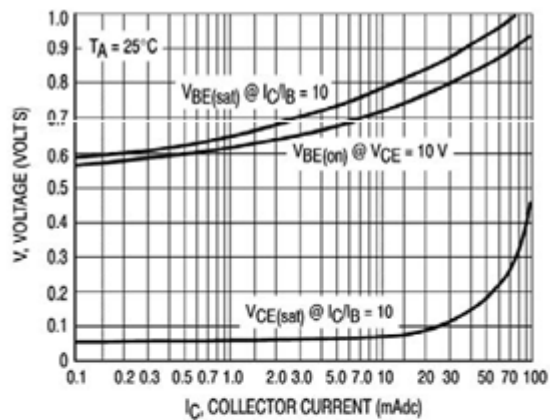


Figure 2. "Saturation" and "On" Voltages

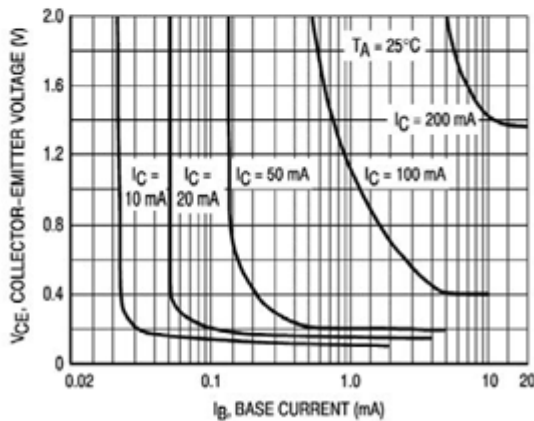


Figure 3. Collector Saturation Region

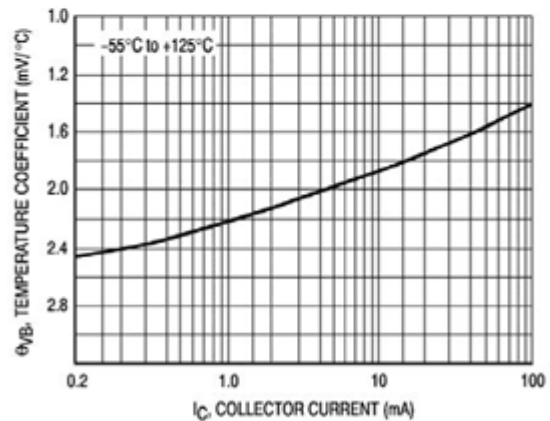


Figure 4. Base-Emitter Temperature Coefficient

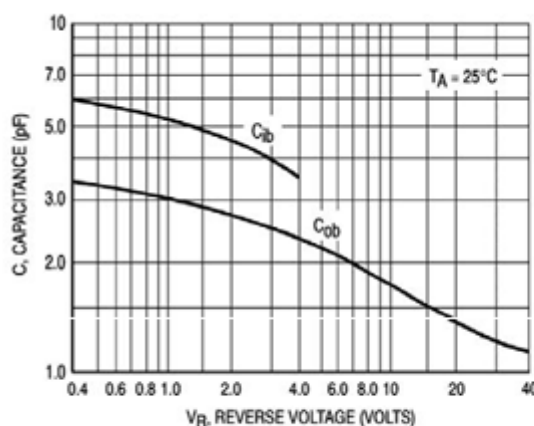


Figure 5. Capacitances

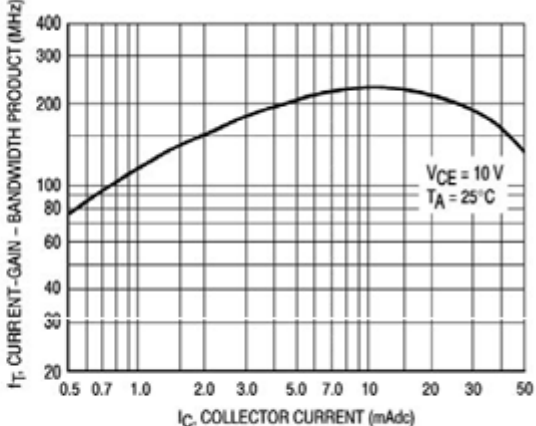
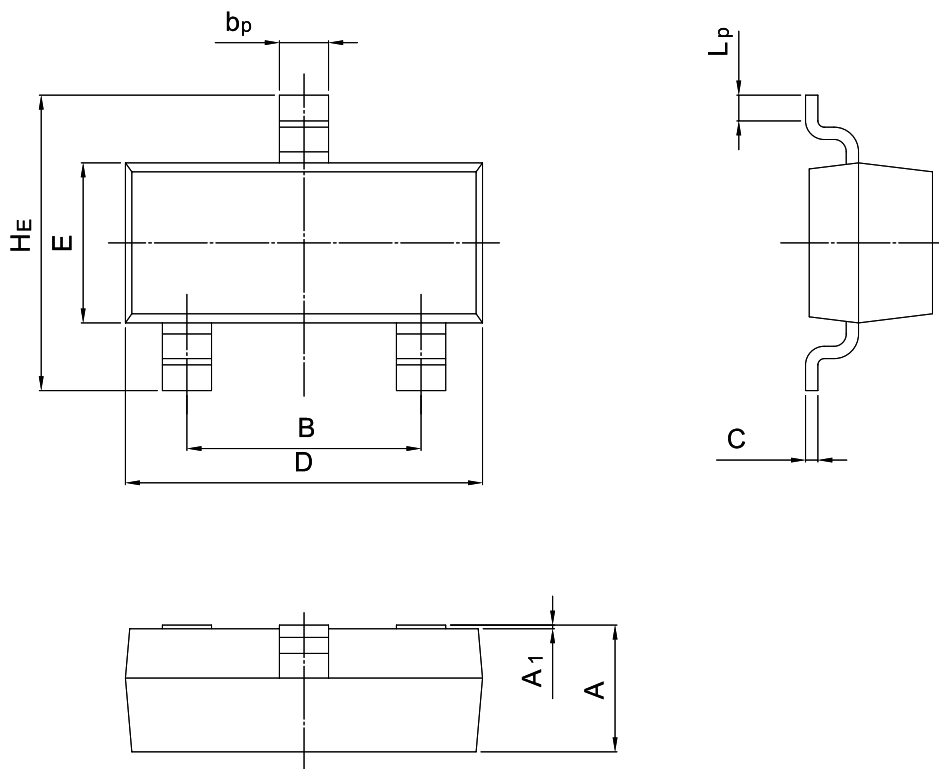


Figure 6. Current-Gain - Bandwidth Product

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20

