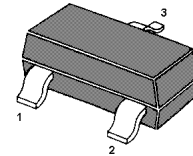


## NPN Silicon Epitaxial Planar Switching Transistor



1.Base 2.Emitter 3.Collector  
SOT-23 Plastic Package

### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	40	V
Collector Emitter Voltage	$V_{CES}$	40	V
Collector Emitter Voltage	$V_{CEO}$	15	V
Emitter Base Voltage	$V_{EBO}$	4.5	V
Collector Current	$I_C$	500	mA
Power Dissipation	$P_{tot}$	200	mW
Thermal Resistance Form junction to ambient in free air	$R_{thj-a}$	500	K/W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_s$	-55 to +150	$^\circ\text{C}$

### Characteristics at $T_{amb}=25\text{ }^{\circ}\text{C}$

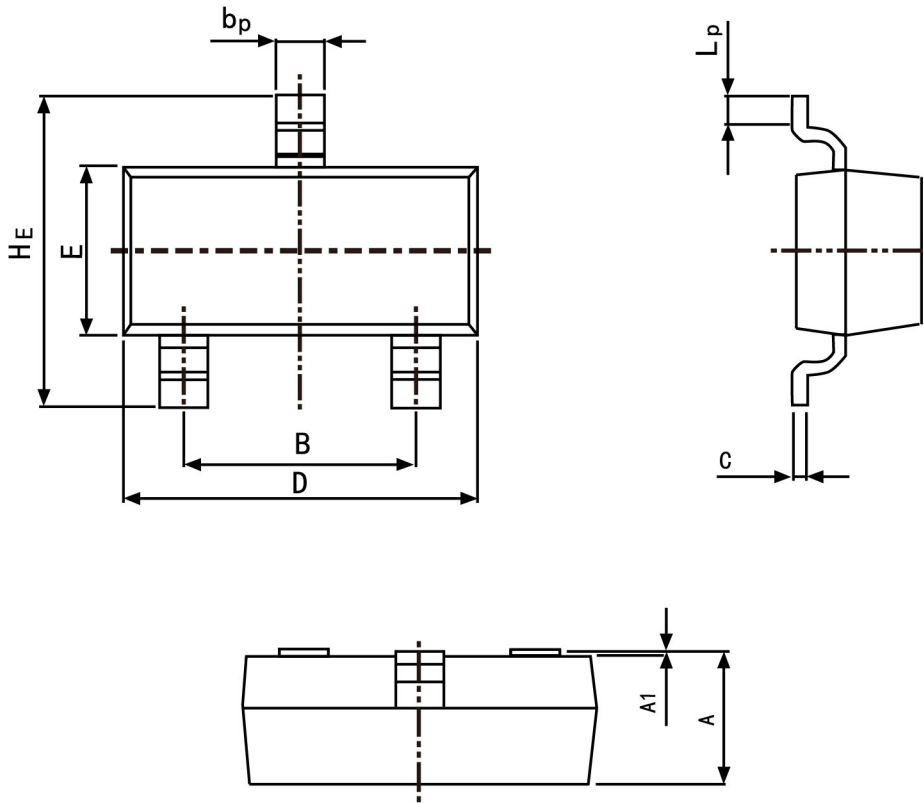
	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain					
at $V_{CE}=1\text{V}$ , $I_C=10\text{mA}$	$h_{FE}$	40	-	120	-
at $V_{CE}=1\text{V}$ , $I_C=10\text{mA}$ , $T_a=-55\text{ }^{\circ}\text{C}$	$h_{FE}$	20	-	-	-
at $V_{CE}=2\text{V}$ , $I_C=100\text{mA}$	$h_{FE}$	20	-	-	-
Small Signal Current Gain					
at $V_{CE}=10\text{V}$ , $I_C=1\text{mA}$ , $f=100\text{MHz}$	$h_{fe}$	5	-	-	-
Collector Cutoff Current					
at $V_{CB}=20\text{V}$	$I_{CBO}$	-	-	0.4	$\mu\text{A}$
at $V_{CB}=20\text{V}$ , $T_j=125\text{ }^{\circ}\text{C}$		-	-	30	$\text{mA}$
Collector Saturation Voltage					
at $I_C=10\text{mA}$ , $I_B=1\text{mA}$	$V_{CE(sat)}$	-	-	0.25	V
Base Saturation Voltage					
at $I_C=10\text{mA}$ , $I_B=1\text{mA}$	$V_{BE(sat)}$	0.7	-	0.85	V
Collector Emitter Breakdown Voltage					
at $I_C=10\text{mA}$	$V_{(BR)CEO}$	15	-	-	V
Collector Emitter Breakdown Voltage					
at $I_C=10\text{mA}$	$V_{(BR)CES}$	40	-	-	V
Collector Base Breakdown Voltage					
at $I_C=10\text{mA}$	$V_{(BR)CBO}$	40	-	-	V
Emitter Base Breakdown Voltage					
at $I_E=10\text{mA}$	$V_{(BR)EBO}$	4.5	-	-	V
Output Capacitance					
at $V_{CB}=5\text{V}$ , $f=1\text{MHz}$	$C_{ob}$	-	-	4	pF
Storage Time					
at $I_{Con}=I_{Bon}=-I_{Boff}=10\text{mA}$	$t_s$	-	5	13	ns
Turn-on Time					
at $I_C=10\text{mA}$ , $I_{Bon}=3\text{mA}$ , $V_{CC}=3\text{V}$	$t_{on}$	-	8	12	ns
Turn-off Time					
at $I_C=10\text{mA}$ , $I_{Bon}=3\text{mA}$ , $I_{Boff}=1.5\text{mA}$ , $V_{CC}=3\text{V}$	$t_{off}$	-	10	18	ns



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



Symbol	Dimension in Millimeters	
	Min	Max
A	0.95	1.40
B	1.78	2.04
bp	0.35	0.50
C	0.08	0.19
D	2.70	3.10
E	1.20	1.65
HE	2.20	3.00
A1	0.100	0.013
Lp	0.20	0.50