

### 40V; 2A NPN Low $V_{CE(sat)}$ (BISS) Transistor

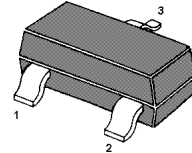
#### FEATURES

- Low collector-emitter saturation voltage
- High current capability
- Improved device reliability due to reduced heat generation.

#### APPLICATIONS

- Supply line switching circuits
- Battery management applications
- DC/DC converter applications
- Strobe flash units
- Heavy duty battery powered equipment (motor and lamp drivers).

SOT-23



1.Base 2.Emitter 3.Collector

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

		Symbol	Value	Unit
Collector Base Voltage		$V_{CBO}$	40	V
Collector Emitter Voltage		$V_{CEO}$	40	V
Emitter Base Voltage		$V_{EBO}$	5	V
Collector Current (DC)		$I_C$	2	A
Peak Collector Current		$I_{CM}$	3	A
Peak Base Current		$I_{BM}$	300	mA
Total Power Dissipation	$T_{amb} \leq 25\text{ }^\circ\text{C}$ <sup>1)</sup>	$P_{tot}$	200	mW
	$T_{amb} \leq 25\text{ }^\circ\text{C}$ <sup>2)</sup>		480	
Junction Temperature		$T_J$	150	$^\circ\text{C}$
Storage Temperature Range		$T_S$	-65 to +150	$^\circ\text{C}$
Thermal Resistance From Junction to Ambient	In free air <sup>1)</sup>	$R_{thj-a}$	417	K/W
	In free air <sup>2)</sup>		260	
Operating Ambient Temperature		$T_{amb}$	-65 to +150	$^\circ\text{C}$

<sup>1)</sup> Device mounted on a printed-circuit board; single sided copper; tinplated and standard footprint.

<sup>2)</sup> Device mounted on a printed-circuit board; single sided copper; tinplated; mounting pad for collector 1cm<sup>2</sup>.

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

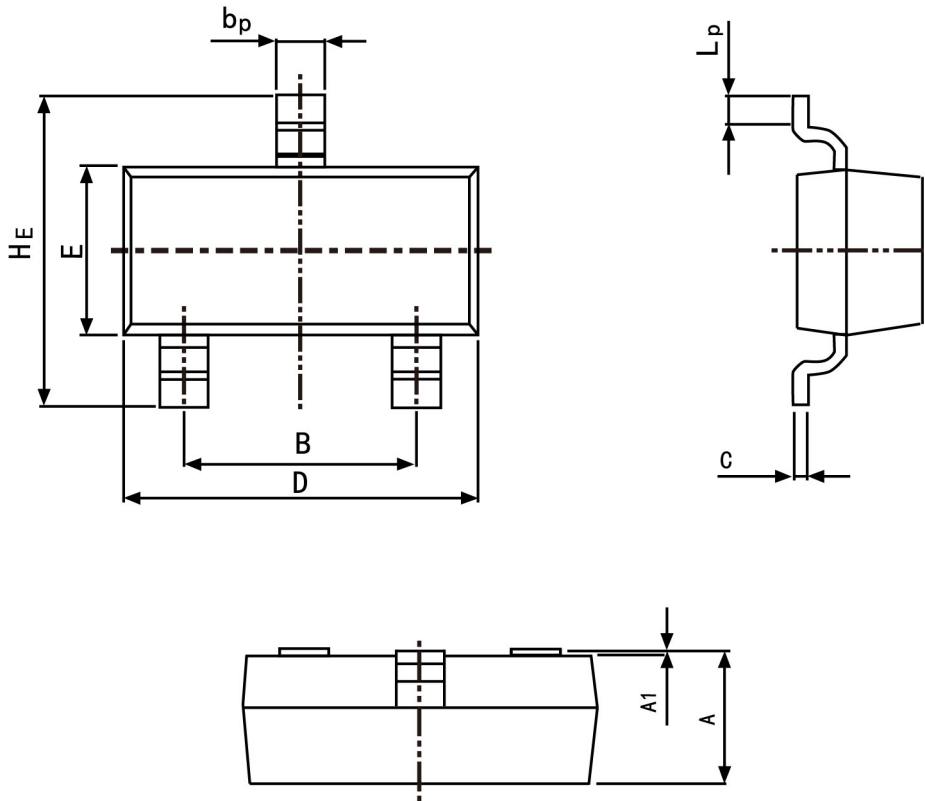
	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain					
at $V_{CE}=2\text{V}$ , $I_C=100\text{mA}$	$h_{FE}$	350	-	-	-
at $V_{CE}=2\text{V}$ , $I_C=500\text{mA}$	$h_{FE}$	300	-	-	-
at $V_{CE}=2\text{V}$ , $I_C=1\text{A}$	$h_{FE}$	250	-	-	-
at $V_{CE}=2\text{V}$ , $I_C=2\text{A}$	$h_{FE}$	80	-	-	-
Collector-Base Cutoff Current					
at $V_{CB}=30\text{V}$	$I_{CBO}$	-	-	100	nA
at $V_{CB}=30\text{V}$ , $T_{amb}=150\text{ }^{\circ}\text{C}$		-	-	50	$\mu\text{A}$
Emitter-Base Cutoff Current					
at $V_{EB}=4\text{V}$	$I_{EBO}$	-	-	100	nA
Collector-Emitter Saturation Voltage					
at $I_C=100\text{mA}$ , $I_B=1\text{mA}$	$V_{CE(sat)}$	-	-	70	mV
at $I_C=500\text{mA}$ , $I_B=50\text{mA}$		-	-	100	
at $I_C=750\text{mA}$ , $I_B=15\text{mA}$		-	-	180	
at $I_C=1\text{A}$ , $I_B=50\text{mA}$		-	-	180	
at $I_C=2\text{A}$ , $I_B=200\text{mA}$		-	-	320	
Equivalent on-Resistance					
at $I_C=500\text{mA}$ , $I_B=50\text{mA}$	$R_{CE(sat)}$	-	140	<200	$\text{m}\Omega$
Base-Emitter Saturation Voltage					
at $I_C=2\text{A}$ , $I_B=200\text{mA}$	$V_{BE(sat)}$	-	-	1.1	V
Base-Emitter Turn-on Voltage					
at $V_{CE}=2\text{V}$ , $I_C=100\text{mA}$	$V_{BE(on)}$	-	-	0.75	V
Transition Frequency					
at $V_{CE}=10\text{V}$ , $I_C=100\text{mA}$ , $f=100\text{MHz}$	$f_T$	100	230	-	MHz
Collector Capacitance					
at $V_{CB}=10\text{V}$ , $f=1\text{MHz}$	$C_C$	-	15	20	pF



## PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

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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