

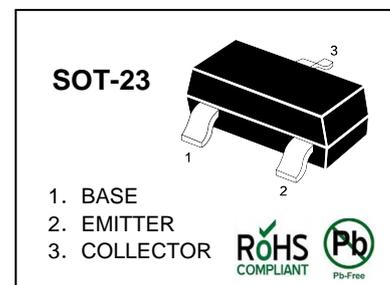
## 40V; 2A NPN Low $V_{CE(sat)}$ (BISS) Transistor

### 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).



### 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	$P_{tot}$	$T_{amb} \leq 25\text{ }^\circ\text{C}^{(1)}$	200
		$T_{amb} \leq 25\text{ }^\circ\text{C}^{(2)}$	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	$R_{th\ j-a}$	In free air <sup>1)</sup>	417
		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.

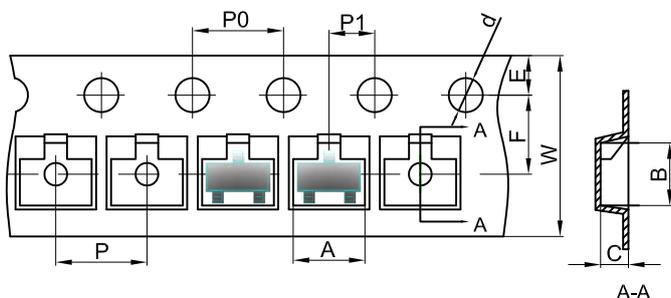
<sup>(2)</sup> Device mounted on a printed-circuit board; single sided copper; tinplated; mounting pad for collector 1cm<sup>2</sup>.

### 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	$\text{pF}$

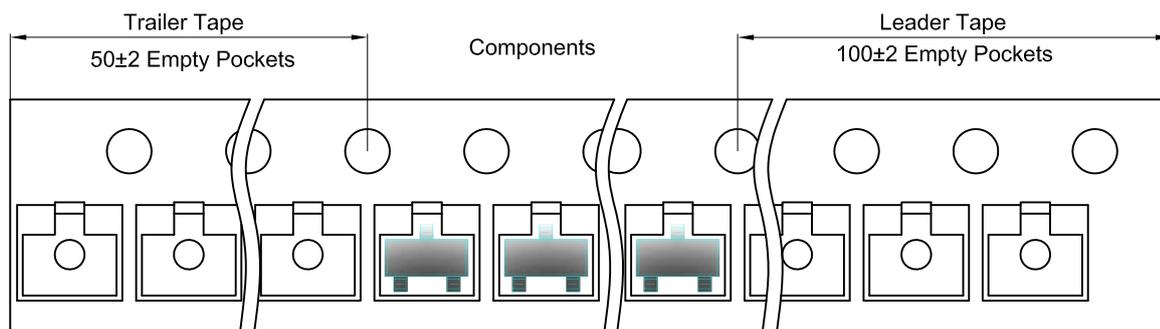
## SOT-23 Tape and Reel

### SOT-23 Embossed Carrier Tape

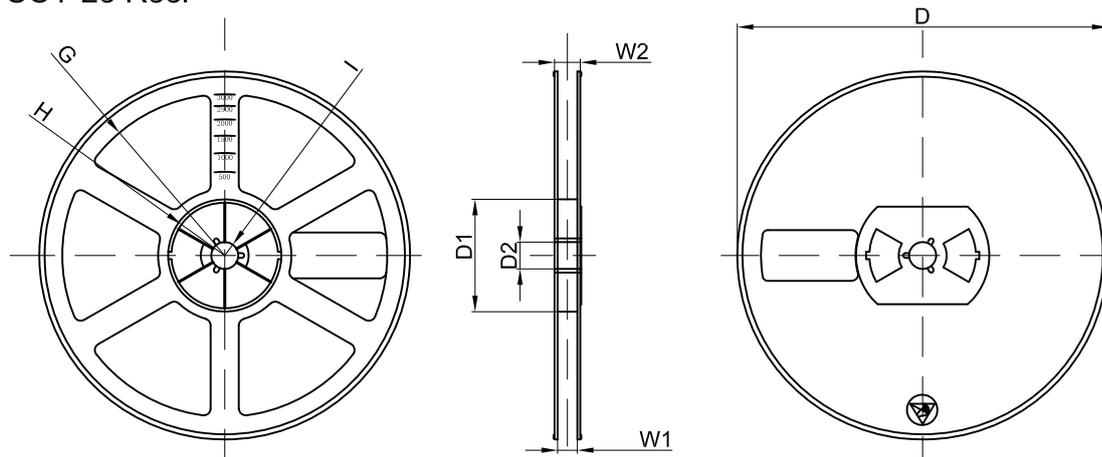


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

### SOT-23 Tape Leader and Trailer

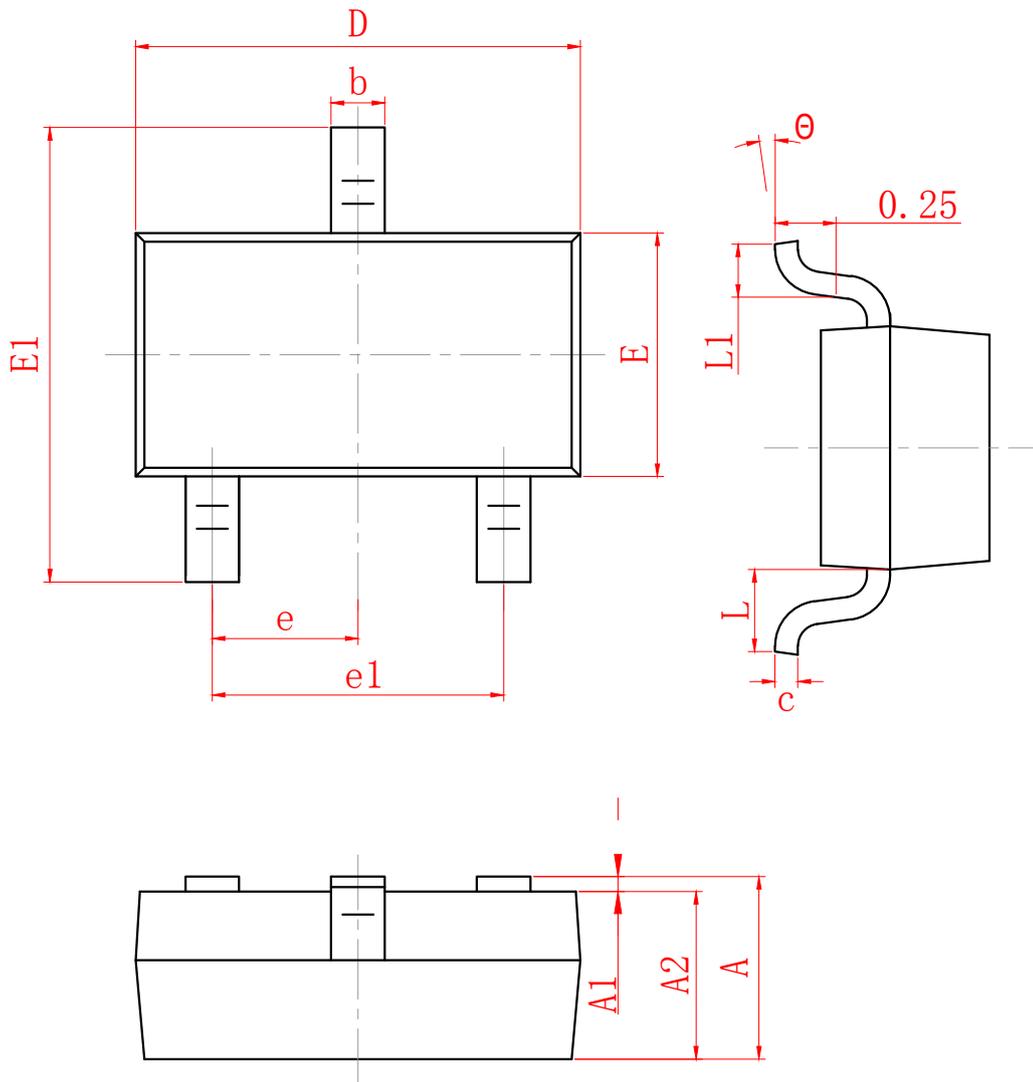


### SOT-23 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	



SYMBOL	MILLIMETER	
	MIN	MAX
A	0.900	1.150
A1	0.000	0.100
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	0.950 TYP	
e1	1.800	2.000
L	0.550 REF	
L1	0.300	0.500
$\theta$	0°	8°

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