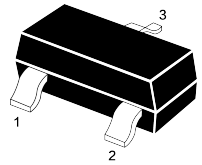
NPN Silicon Epitaxial Planar Transistors

for general purpose switching and amplification.



1. BASE
2. EMITTER
3. COLLECTOR

RoHS COMPLIANT

Pb-Free

These transistors are subdivided into three groups B, C and D, according to their current gain.

As complementary types the PNP transistors BCW61 are recommended.

Absolute Maximum Ratings (T_a = 25 °C)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	32	V
Collector-Emitter Voltage	V_{CEO}	32	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	100	mA
Peak Collector Current	I_{CM}	200	mA
Peak Base Current	I_{BM}	200	mA
Total Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_S	-65 to +150	°C

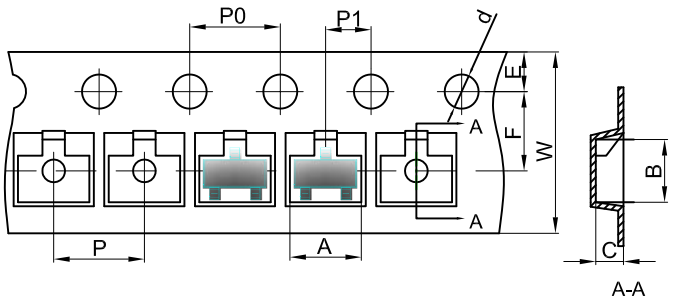
Characteristics at T_a =25 °C

Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain						
at V_{CE} = 5 V, I_C = 10 μA	BCW60B	h_{FE}	20	-	-	-
	BCW60C	h_{FE}	40	-	-	-
	BCW60D	h_{FE}	100	-	-	-
at V_{CE} = 5 V, I_C = 2 mA	BCW60B	h_{FE}	180	-	310	-
	BCW60C	h_{FE}	250	-	460	-
	BCW60D	h_{FE}	380	-	630	-
at V_{CE} = 1 V, I_C = 50 mA	BCW60B	h_{FE}	70	-	-	-
	BCW60C	h_{FE}	90	-	-	-
	BCW60D	h_{FE}	100	-	-	-
Collector Saturation Voltage at I_C = 10 mA, I_B = 0.25 mA		V_{CEsat}	0.05	-	0.35	V
Collector Saturation Voltage at I_C = 50 mA, I_B = 1.25 mA		V_{CEsat}	0.1	-	0.55	V
Base Saturation Voltage at I_C = 10 mA, I_B = 0.25 mA		V_{BEsat}	0.6	-	0.85	V
Base Saturation Voltage at I_C = 50 mA, I_B = 1.25 mA		V_{BEsat}	0.7	-	1.05	V
Base-Emitter Voltage at I_C = 2 mA, V_{CE} = 5V		$V_{BE(on)}$	0.55	-	0.75	V
Collector Base Cutoff Current						
at V_{CB} = 32 V		I_{CBO}	-	-	20	nA
at V_{CB} = 32 V， T_j =150 °C		I_{CBO}	-	-	20	μA
Emitter-Base Cutoff Current at V_{EB} = 4 V		I_{EBO}	-	-	20	nA
Gain -Bandwidth Product at V_{CE} = 5 V, I_C = 10 mA, f = 100 MHz		f_T	100	250	-	MHz
Collector-Base Capacitance at V_{CB} = 10 V, f = 1 MHz		C_{CBO}	-	1.7	-	pF
Emitter-Base Capacitance at V_{EB} = 0.5 V, f = 1 MHz		C_{EBO}	-	11	-	pF
Noise figure at I_C = 200 μA, V_{CE} = 5 V, R_S = 2 KΩ, f =1 KHz, Δf=200Hz		NF	-	2	6	dB
Thermal Resistance, Junction to Ambient		$R_{\theta JA}$	-	-	500 [1)]	K/W

(1) Transistor mounted on an FR4 printed-circuit board.

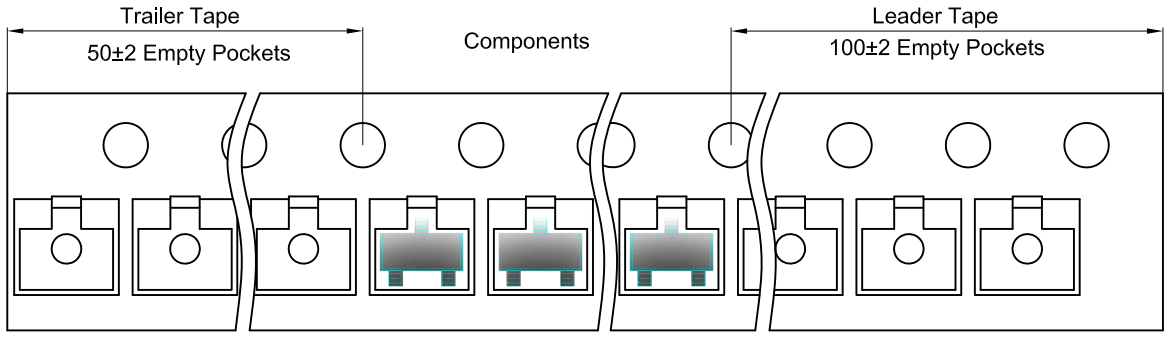
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

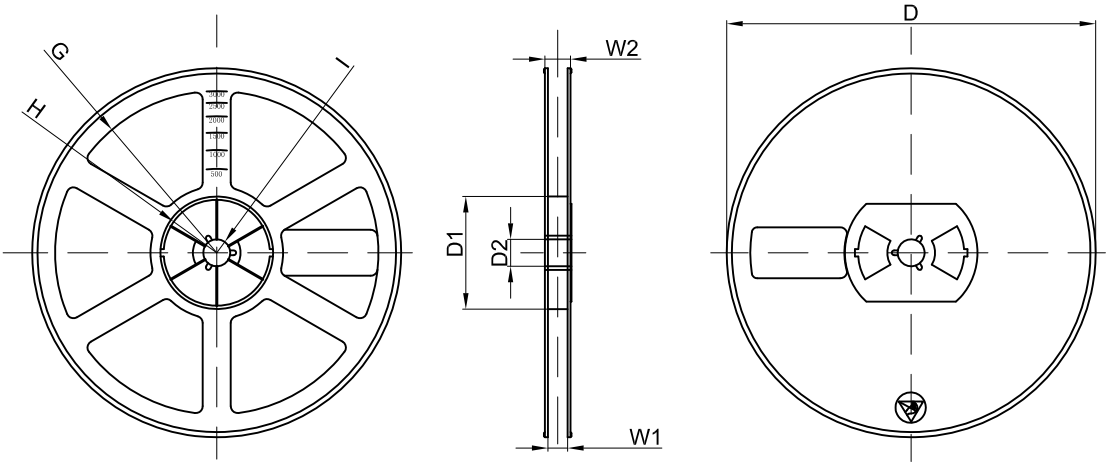


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer

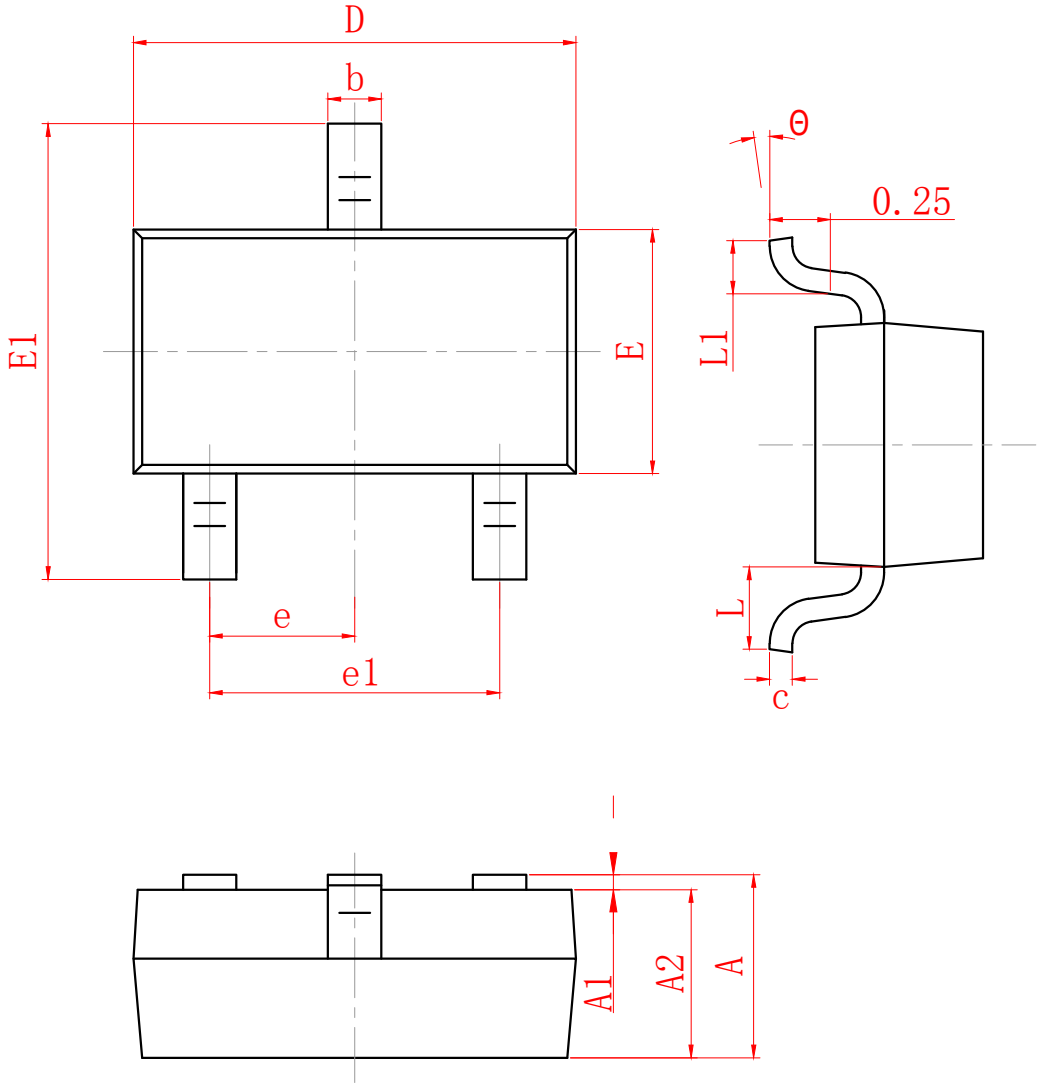


SOT-23 Reel



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
θ	0°	8°

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