



DONGGUAN NANJING ELECTRONICS LTD.,

SOT-23-6L Plastic-Encapsulate Transistors

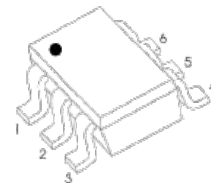
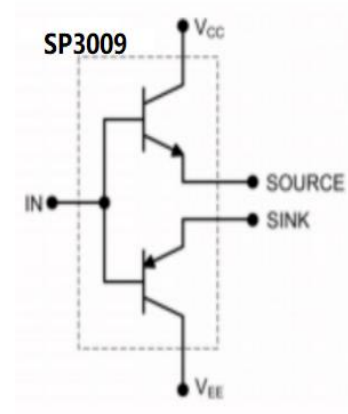
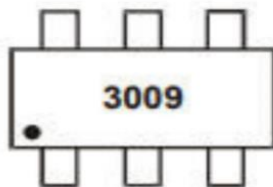
SP3009 Dual 40V complementary transistors

FEATURES

40V complementary device

- High h_{FE}
Mounting cost and area can be cut in half

MARKING



SOT-23-6L

Tr1 NPN and Tr2 PNP Absolute Maximum Ratings ($T_a=25^{\circ}\text{C}$)

Symbol	Parameter	Value		Unit
		NPN	PNP	
V_{CB0}	Collector-Base Voltage	50	-50	V
V_{CEX}	Collector-Emitter Voltage	40	-40	V
V_{CE0}	Collector-Emitter Voltage	30	-30	V
V_{EB0}	Emitter-Base Voltage	5	-5	V
I_c	Collector Current-Continuous	2	-2	A
I_{cM}	Collector Current-Peak	5	-5	A
P_c	Collector Power Dissipation	750	750	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	357	357	$^{\circ}\text{C}/\text{W}$
T_j	Junction Temperature	150		$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55~+150		$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS

Tr1 NPN(Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V (BR) CBO	I _c =100 μA, I _e =0	50			V
Collector-emitter breakdown voltage	V (BR) CEO*	I _c =10mA, I _g =0	30			V
Collector-emitter breakdown voltage	V (BR) CEX	I _c =1 μA, V _{BE} (off)=-0.5V	40			V
Emitter-base breakdown voltage	V (BR) EBO	I _e =100 μA, I _c =0	5			V
Collector cut-off current	I _c B0	V _{CB} =32V, I _e =0			20	nA
Collector cut-off current	I _{CER}	V _{CE} =16V, R≤1kΩ			20	nA
Emitter cut-off current	I _E B0	V _{EB} =5V, I _c =0			20	nA
DC current gain	h _{FE} *	V _{CE} =2V, I _c =500mA	100		320	
Collector-emitter saturation voltage	V _{CE} (sat)*	I _c =1A, I _B =100mA			1	V
Base-emitter saturation voltage	V _{BE} (sat)*				1.2	V

Tr2 PNP(Ta=25°C unless otherwise specified)

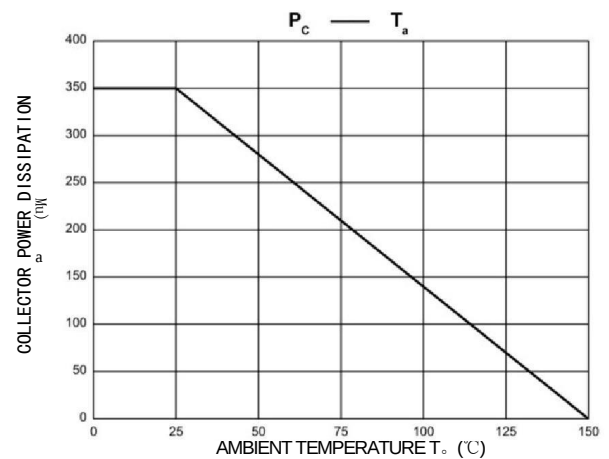
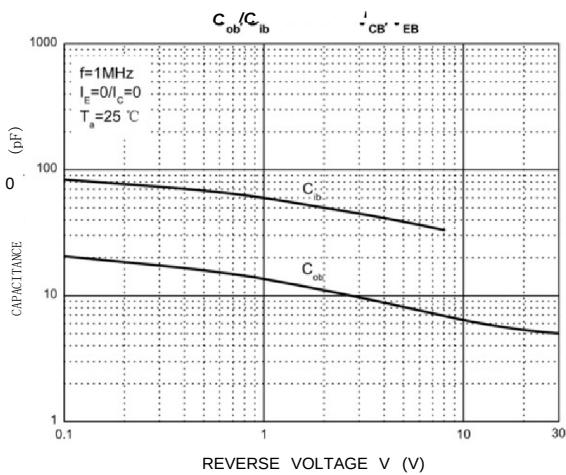
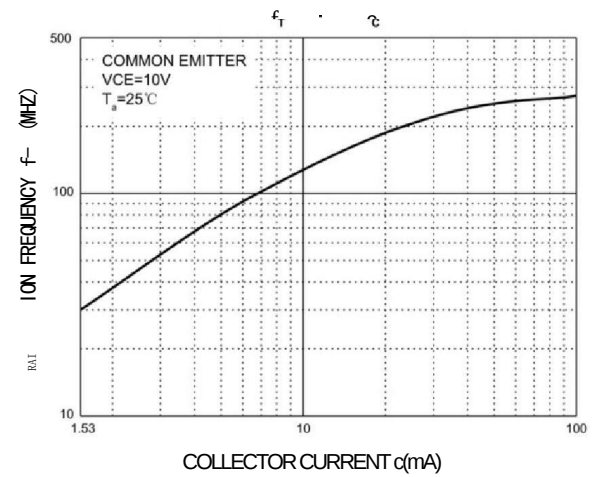
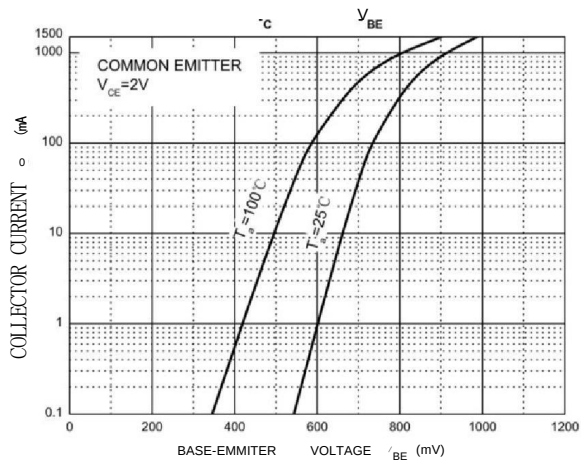
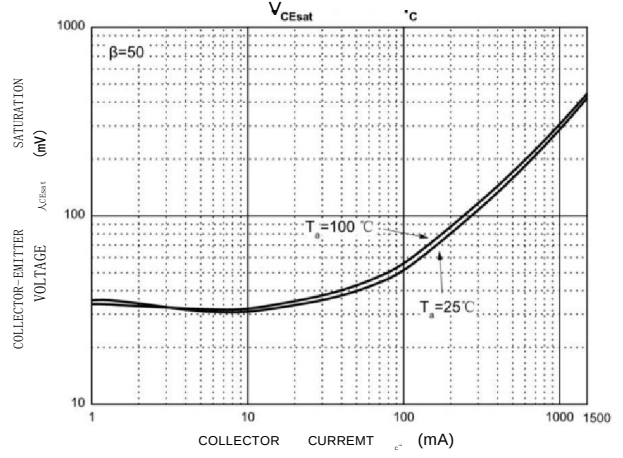
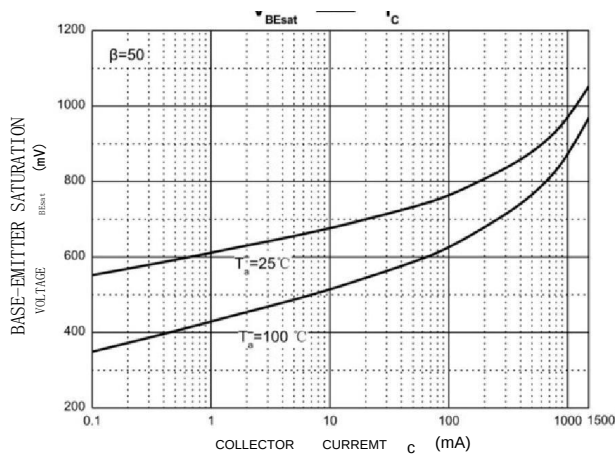
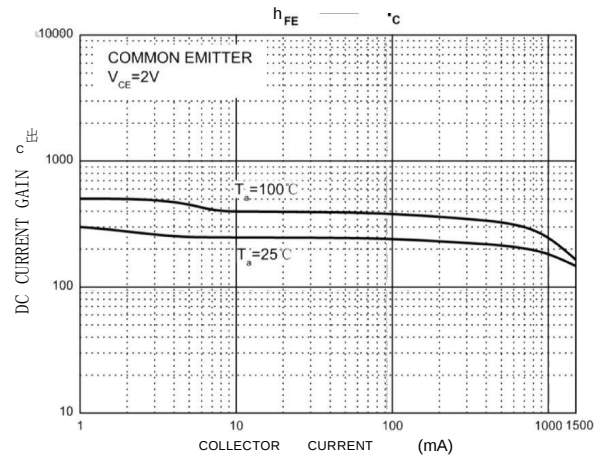
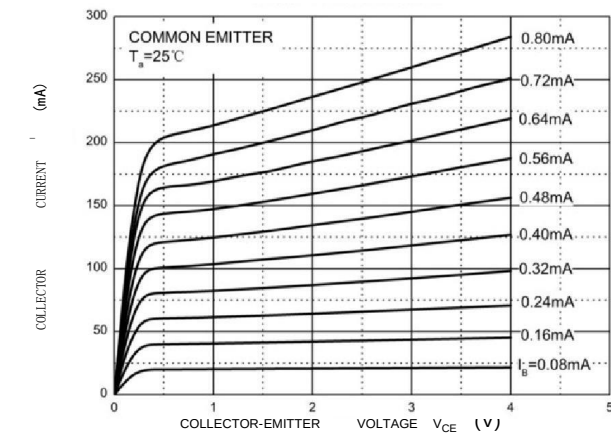
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V (BR) CBO	I _c =-100 μA, I _E =0	-50			V
Collector-emitter breakdown voltage	V (BR) CEO*	I _c =-10mA, I _g =0	-30			V
Collector-emitter breakdown voltage	V (BR) CEX	I _c =-1 μA, V _{BE} (off)=0.5V	-40			V
Emitter-base breakdown voltage	V (BR) EBO	I _e =-100 μA, I _c =0	-5			V
Collector cut-off current	I _c B0	V _{CB} =-32V, I _e =0			-20	nA
Collector cut-off current	I _{CER}	V _{CE} =-16V, R≤1kΩ			-20	nA
Emitter cut-off current	I _E B0	V _{EB} =-5V, I _c =0			-20	nA
DC current gain	h _{FE} *	V _{CE} =-2V, I _c =-100mA	100		320	
Collector-emitter saturation voltage	V _{CE} (sat)	I _c =-750mA, I _g =-15mA			-1	V
Base-emitter saturation voltage	V _{BE} (sat)				-1.2	V

Pulse Test: Pulse Width≤300 μs, Duty Cycle≤2%.

Typical Characteristics

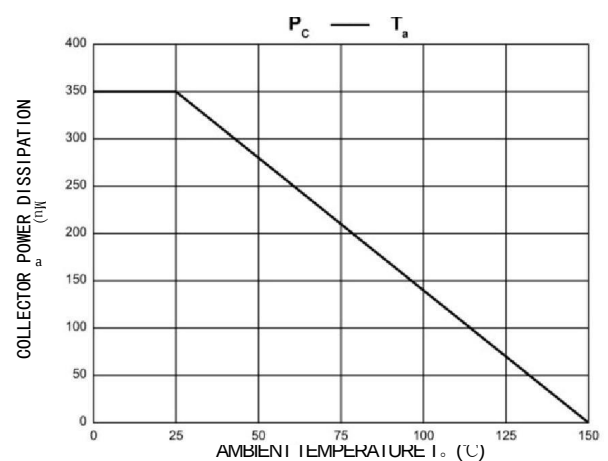
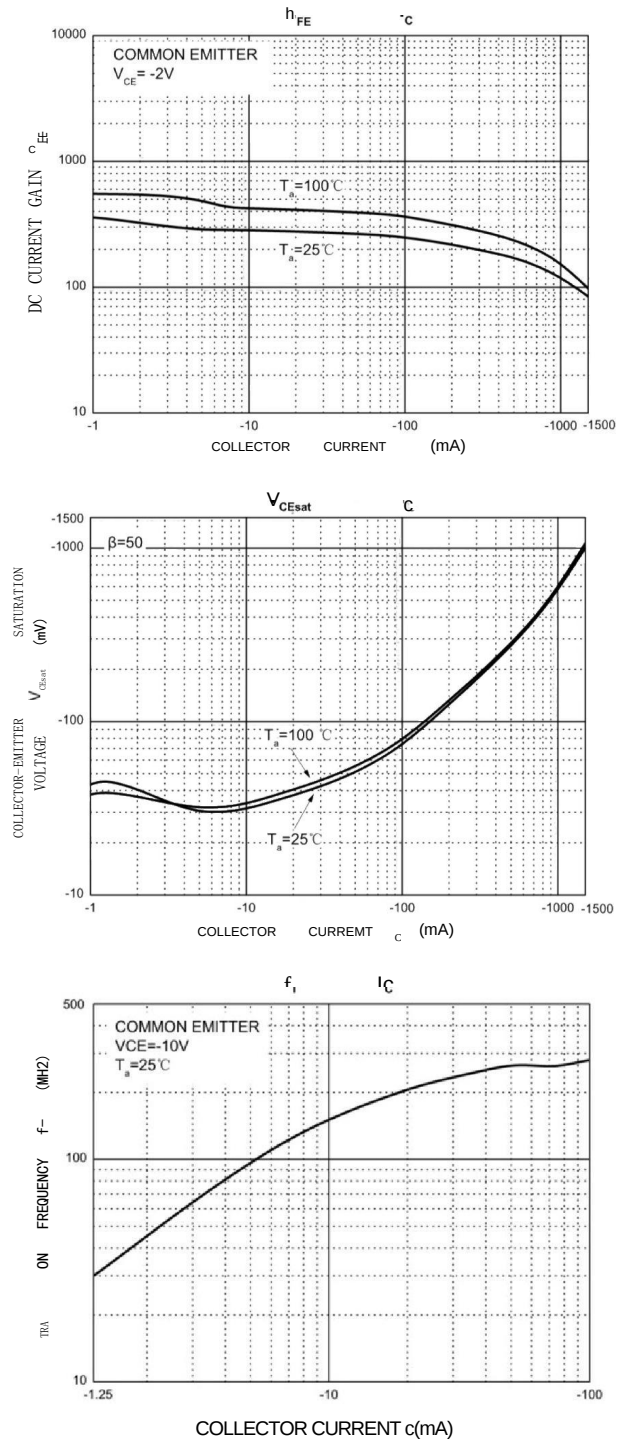
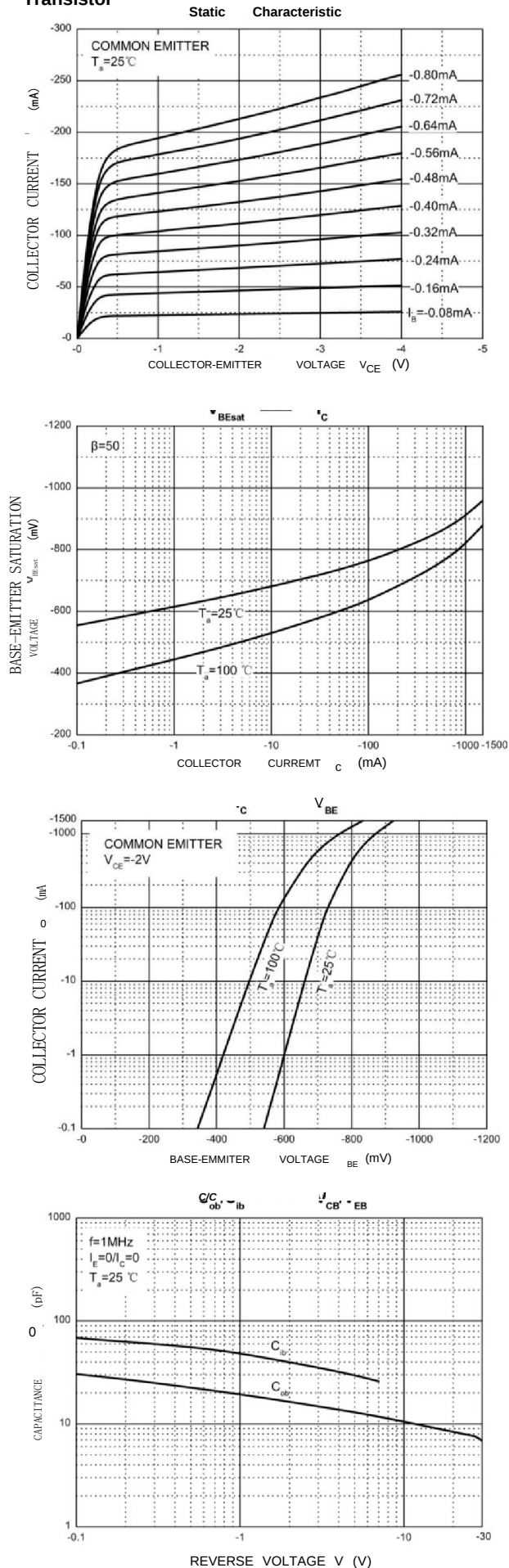
NPN Transistor

Static Characteristic

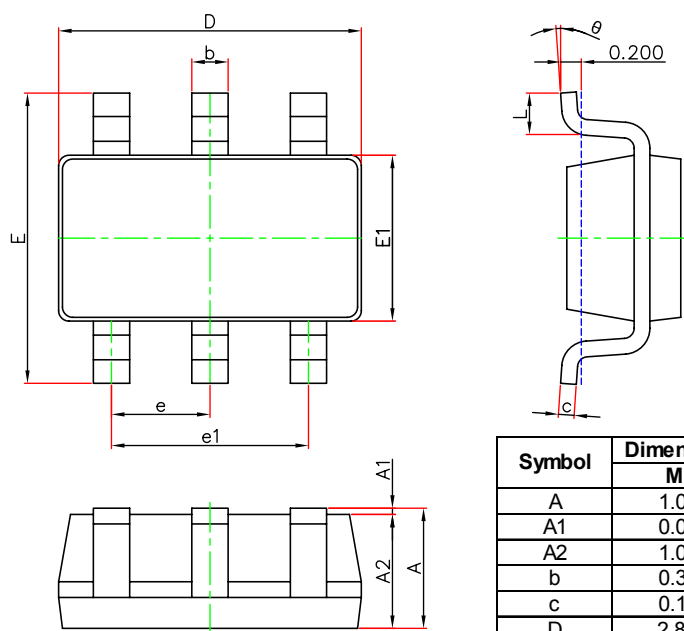


Typical Characteristics

PNP Transistor

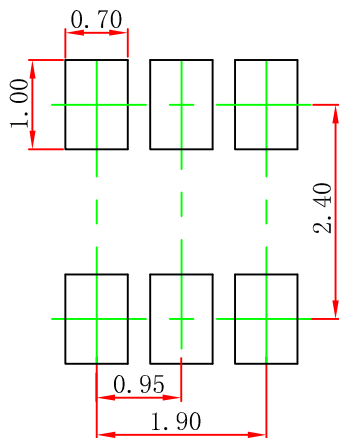


SOT-23-6L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

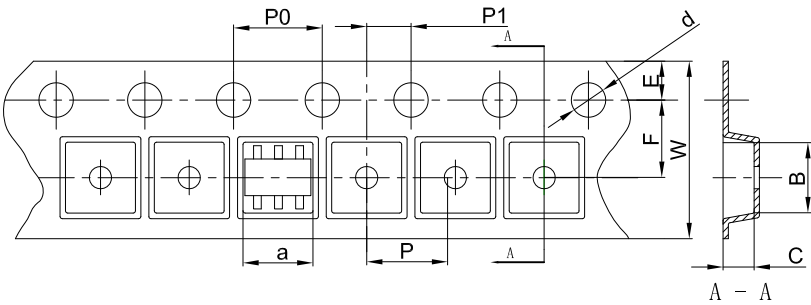
SOT-23-6L Suggested Pad Layout



Note:
1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

SOT-23-6L Tape and Reel

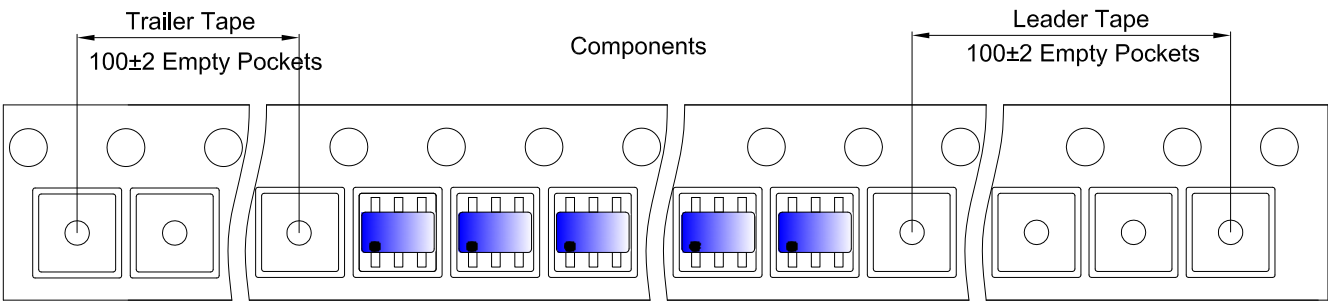
SOT-23-6L Embossed Carrier Tape



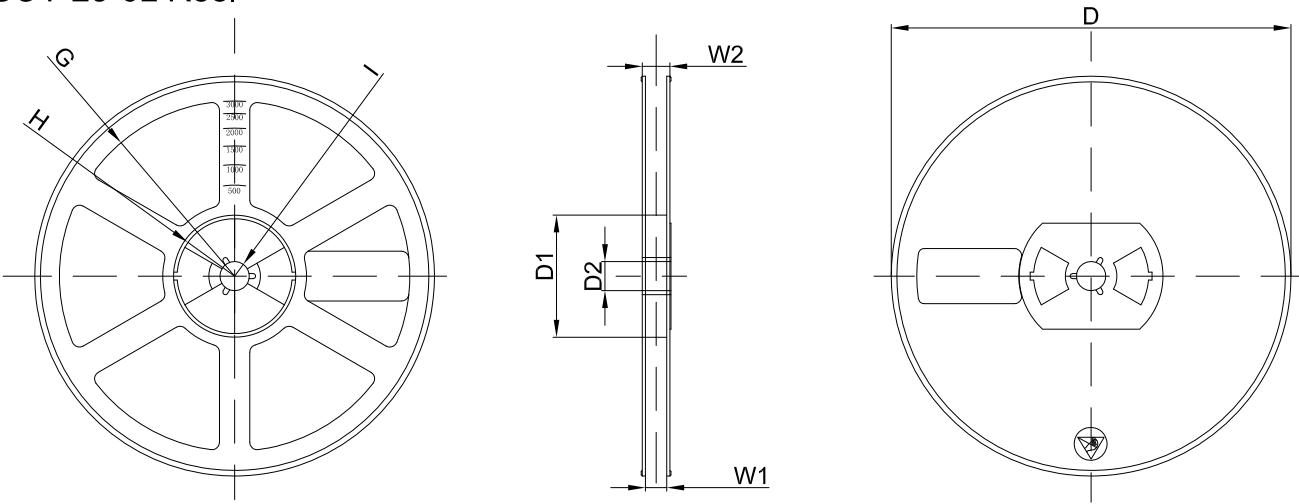
Packaging Description:
SOT-23-6L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 18.0cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
SOT-23-6L	3.17	3.23	1.37	Ø1.55	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23-6L Tape Leader and Trailer



SOT-23-6L Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø180.00	60.00	13.00	R78.00	R25.60	R6.50	9.50	13.10

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	30,000 pcs	203×203×195	120,000 pcs	438×438×220	