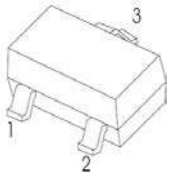
SOT-23 Plastic-Encapsulate Transistors

TRANSISTOR (NPN)

SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

■ Features

- Low current (max. 100 mA).
- Low voltage (max. 45 V).

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	45	V
Collector-emitter voltage	V_{CEO}	45	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
Collector dissipation	P_C	250	mW
Junction temperature	T_j	150	℃
Storage temperature	T_{stg}	-65 to +150	℃
Operating ambient temperature	T_{amb}	-65 to +150	℃
Thermal resistance from junction to ambient *	$R_{th(j-a)}$	500	K/W

* Transistor mounted on an FR4 printed-circuit board.

■ Electrical Characteristics Ta = 25℃

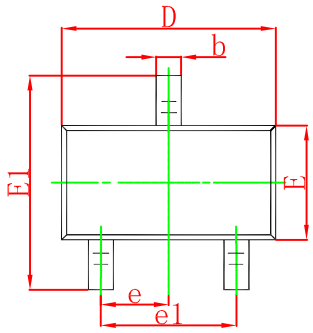
Parameter		Symbol	Testconditons	Min	Typ	Max	Unit
Collector cutoff current		I_{CBO}	I_E = 0; V_{CB} = 45 V			20	nA
		I_{CBO}	I_E = 0; V_{CB} = 45 V; T_j = 150 ℃			20	μA
Emitter cutoff current		I_{EBO}	I_C = 0; V_{EB} = 4 V			20	nA
	BCX70G	h_{FE}	I_C = 10 μA; V_{CE} = 5 V				
	BCX70H			40			
	BCX70J			30			
	BCX70K			100			
DC current gain	BCX70G	h_{FE}	I_C = 2 mA; V_{CE} = 5 V	120		220	
	BCX70H			180		310	
	BCX70J			250		460	
	BCX70K			380		630	
DC current gain	BCX70G	h_{FE}	I_C = 50 mA; V_{CE} = 1 V	50			
	BCX70H			70			
	BCX70J			90			
	BCX70K			100			
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C = 10 mA; I_B =0.25 mA	50		350	mV
			I_C = 50mA; I_B = 1.25 mA	100		550	mV
Base to emitter saturation voltage		$V_{BE(sat)}$	I_C = 10 mA; I_B =0.25 mA	600		850	mV
			I_C = 50mA; I_B = 1.25 mA	700		1050	mV
Base to emitter voltage		V_{BE}	I_C = 2 mA; V_{CE} = 5 V	550	650	750	mV
Collector capacitance		C_C	I_E = ie = 0; V_{CB} = 10 V; f = 1 MHz		1.7		pF
Emitter capacitance		C_e	I_C = ic = 0; V_{EB} = 0.5 V; f = 1 MHz		11		pF
Transition frequency *		f_T	I_C = 10 mA; V_{CE} = 5 V; f = 100 MHz	100	250		MHz
Noise figure		NF	I_C = 200 μA; V_{CE} = 5 V; R_S = 2 kΩ; f = 1 kHz; B = 200 Hz		2	6	dB

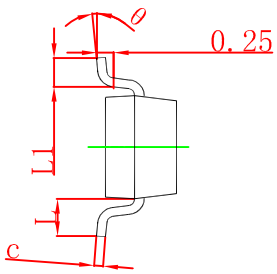
* Pulse test: tp ⩽ 300 μs; d ⩽ 0.02.

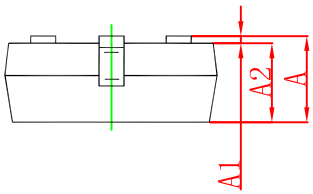
■ h_{FE} Classification

Type Number	BCX70G	BCX70H	BCX70J	BCX70K
Marking	AG	AH	AJ	AK

SOT-23 Package Outline Dimensions

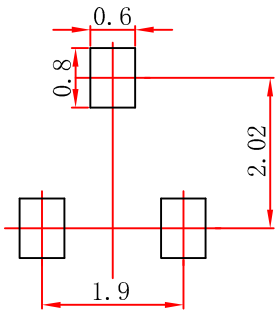






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

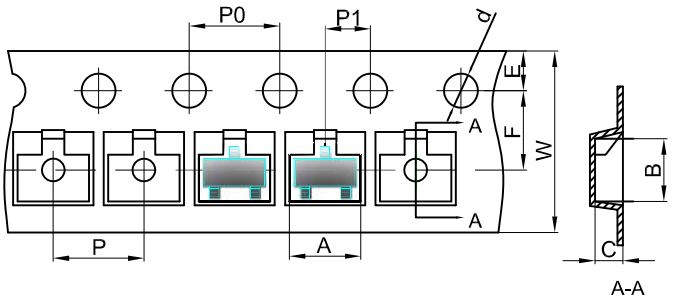
SOT-23 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only

SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

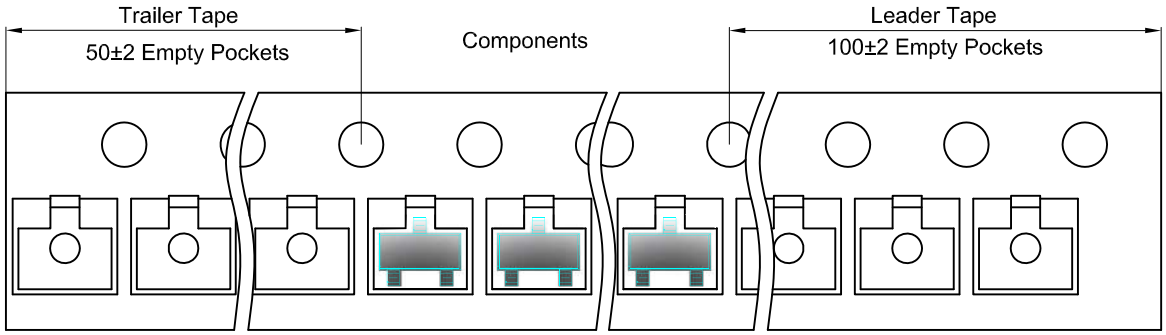


Packaging Description:

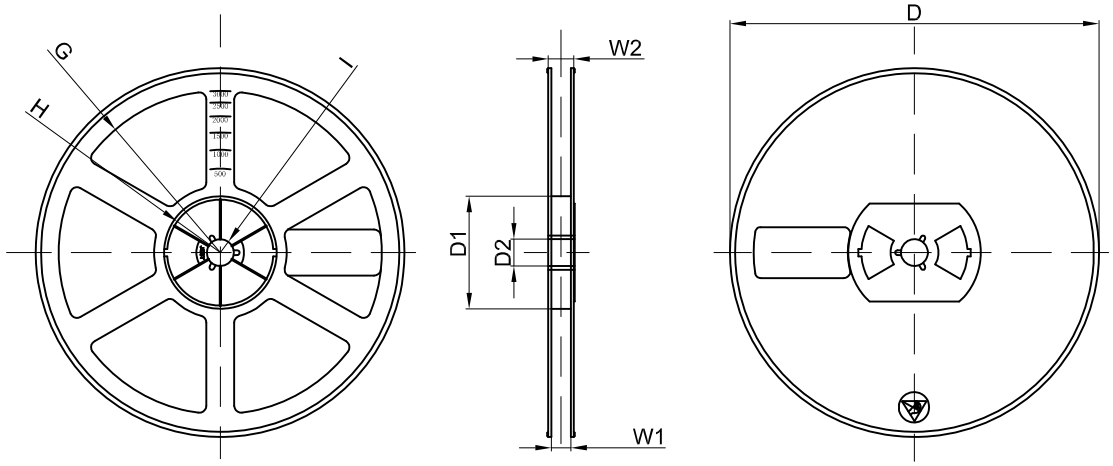
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm 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	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	