



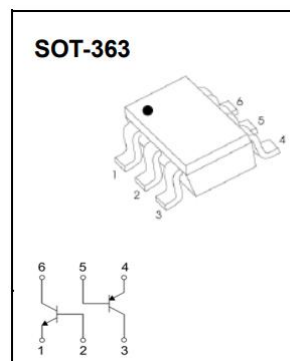
AD-BC847PN Plastic-Encapsulated Transistor

AD-BC847PN

Dual transistor (NPN + PNP)

FEATURES

- Epitaxial die construction
- Two isolated NPN and PNP (AD-BC847W-B + AD-BC857W-B) transistors in one package
- AEC-Q101 qualified



MARKING

7P

MAXIMUM RATINGS OF NPN TRANSISTOR ($T_j = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	50	V
Collector-emitter voltage	V_{CEO}	45	V
Emitter-base voltage	V_{EBO}	6	V
Collector continuous current	I_C	0.1	A
Collector power dissipation	P_C	200	mW
Operating junction and storage temperature range	T_j, T_{stg}	-55 ~ 150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS OF NPN TRANSISTOR ($T_j = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0\text{A}$	50	-	-	V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0\text{A}$	45	-	-	V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 1\mu\text{A}, I_C = 0\text{A}$	6	-	-	V
Collector cutoff current	I_{CBO}	$V_{CB} = 30\text{V}, I_E = 0\text{A}$	-	-	15	nA
Emitter cutoff current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0\text{A}$	-	-	15	nA
DC current gain	h_{FE}	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$	200	-	450	-
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$	-	-	0.25	V
		$I_C = 100\text{mA}, I_B = 5\text{mA}$	-	-	0.6	
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$	-	0.7	-	V
		$I_C = 100\text{mA}, I_B = 5\text{mA}$	-	0.9	-	
Base-emitter voltage	$V_{BE(on)}$	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$	580	-	700	mV
		$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	-	-	720	
Transition frequency	f_T	$V_{CE} = 5\text{V}, I_C = 10\text{mA}, f = 100\text{MHz}$	100	-	-	MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{V}, I_E = 0\text{A}, f = 1\text{MHz}$	-	-	6.0	pF
Noise figure	NF	$V_{CE} = 5\text{V}, I_C = 0.2\text{mA}, f = 1\text{KHz}, R_s = 2\text{K}\Omega, BW = 200\text{Hz}$	-	-	10	dB

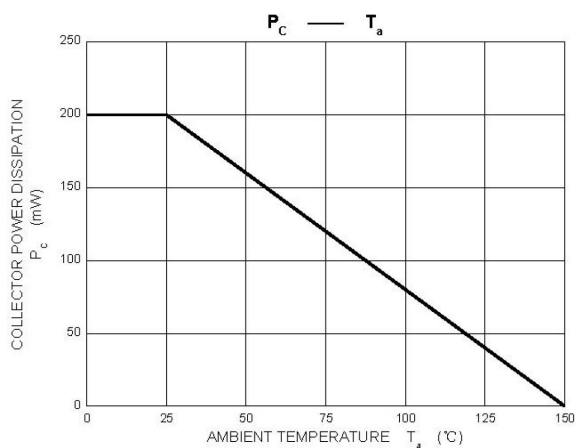
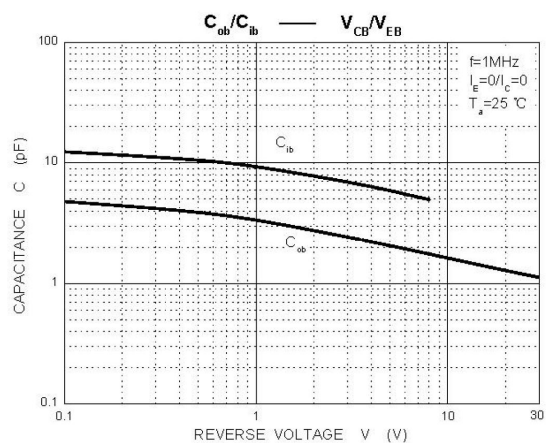
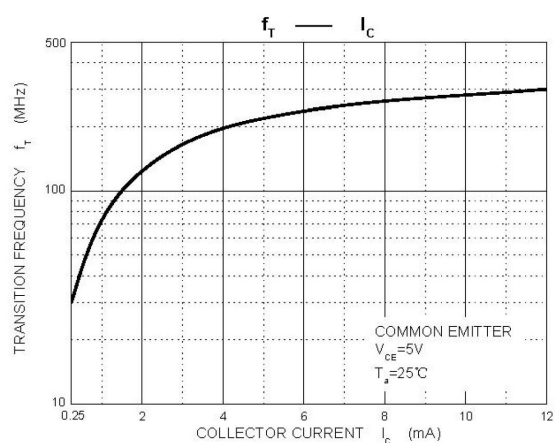
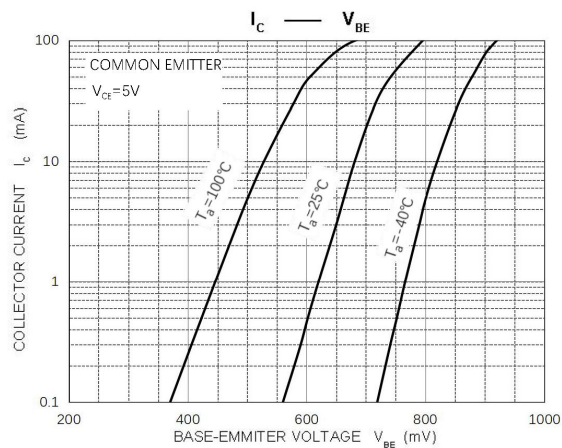
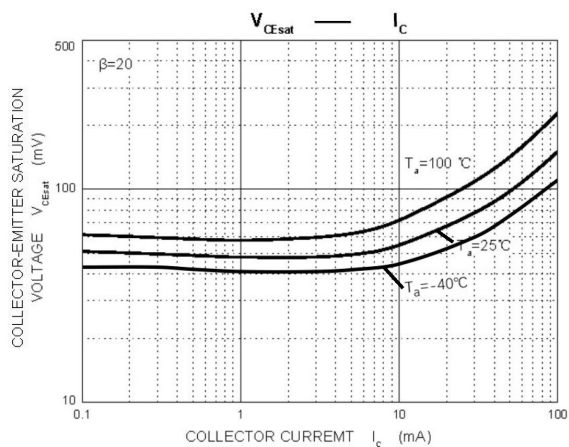
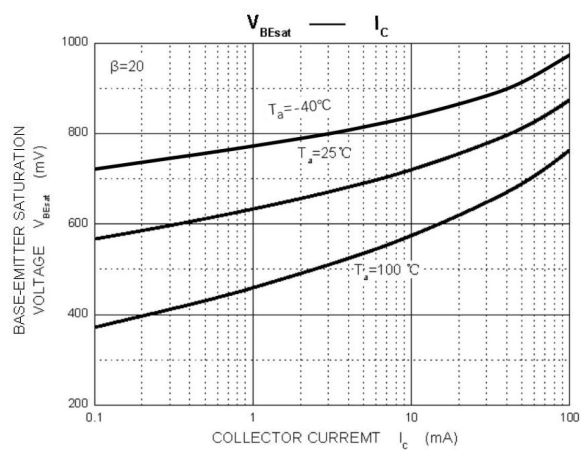
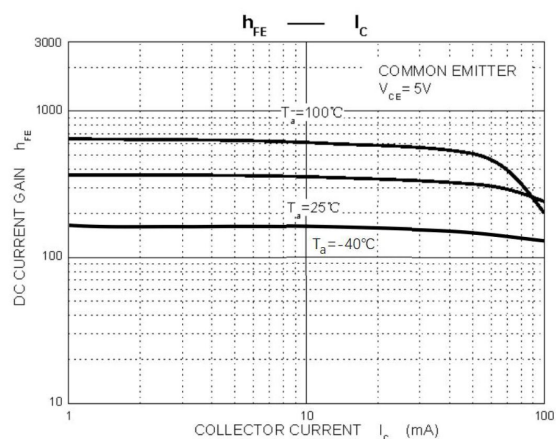
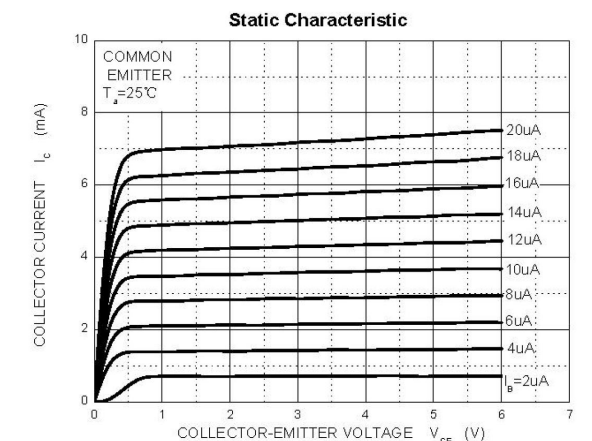
MAXIMUM RATINGS OF PNP TRANSISTOR ($T_j = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	-50	V
Collector-emitter voltage	V_{CEO}	-45	V
Emitter-base voltage	V_{EBO}	-5	V
Collector continuous current	I_C	-0.1	A
Collector power dissipation	P_C	200	mW
Operating junction and storage temperature range	T_j, T_{stg}	-55 ~ 150	$^\circ\text{C}$

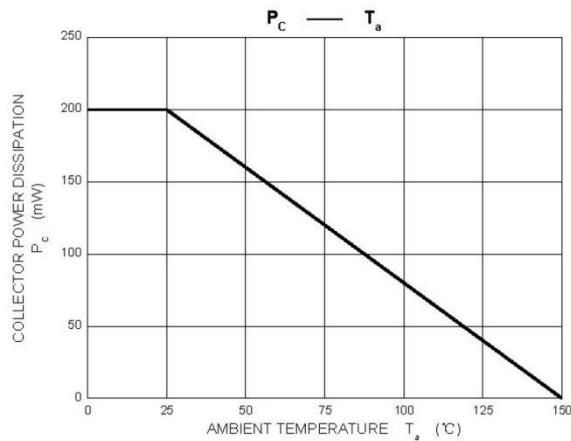
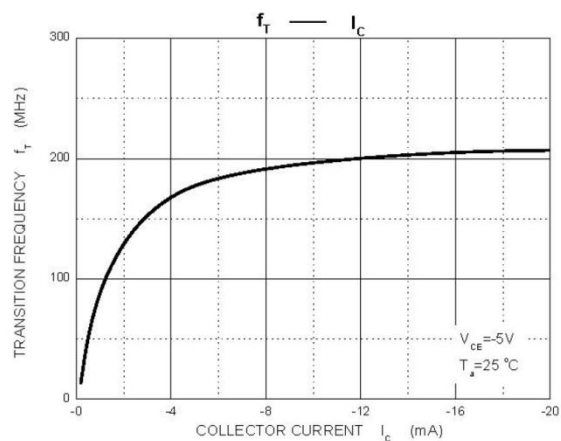
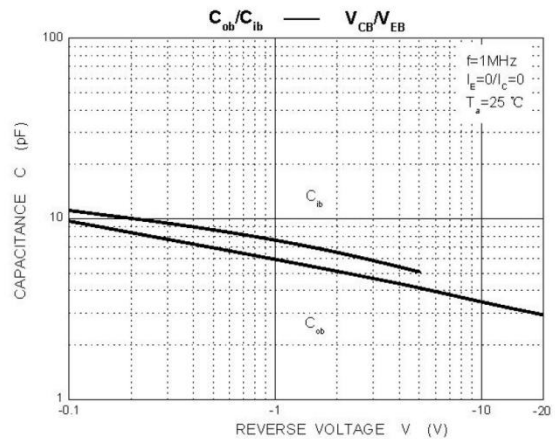
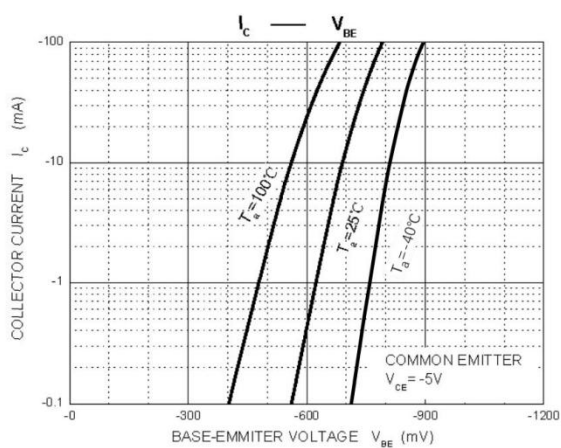
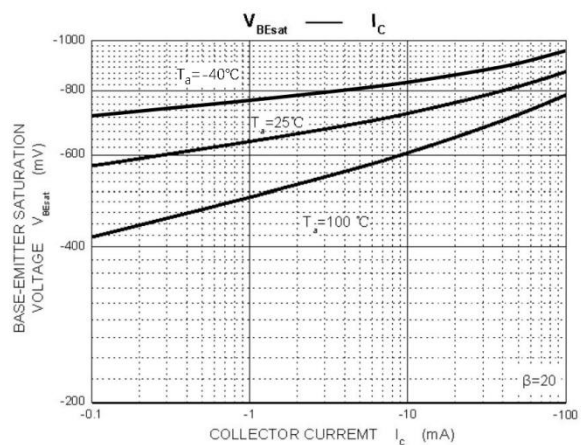
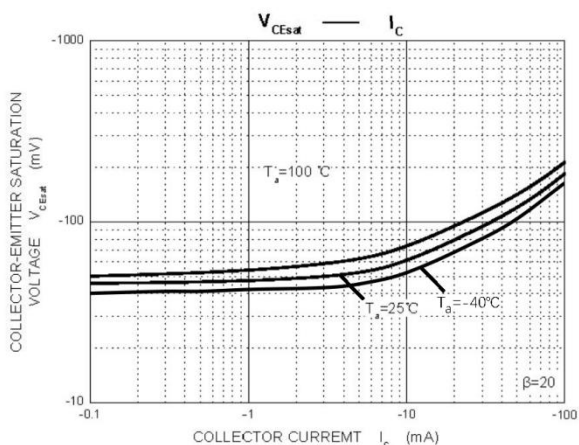
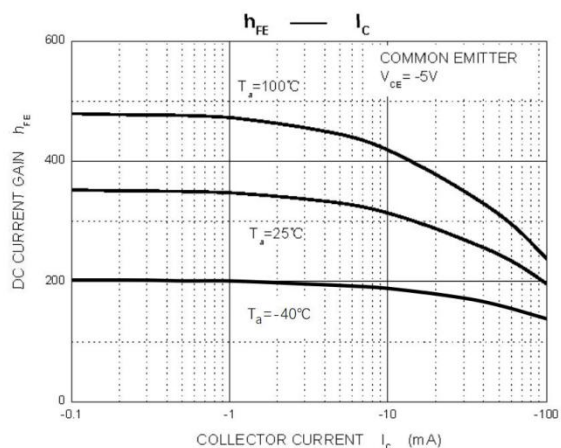
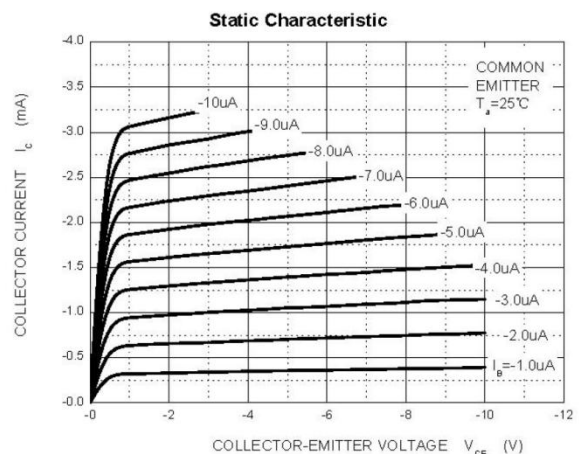
ELECTRICAL CHARACTERISTICS OF PNP TRANSISTOR ($T_j = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -10\mu\text{A}, I_E = 0\text{A}$	-50	-	-	V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -10\text{mA}, I_B = 0\text{A}$	-45	-	-	V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -1\mu\text{A}, I_C = 0\text{A}$	-5	-	-	V
Collector cutoff current	I_{CBO}	$V_{CB} = -30\text{V}, I_E = 0\text{A}$	-	-	-15	nA
Emitter cutoff current	I_{EBO}	$V_{EB} = -5\text{V}, I_C = 0\text{A}$	-	-	-15	nA
DC current gain	h_{FE}	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	220	-	475	-
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$	-	-	-0.3	V
		$I_C = -100\text{mA}, I_B = -5\text{mA}$	-	-	-0.65	
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$	-	-0.7	-	V
		$I_C = -100\text{mA}, I_B = -5\text{mA}$	-	-	-0.95	
Base-emitter voltage	$V_{BE(on)}$	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	-600	-	-750	mV
		$V_{CE} = -5\text{V}, I_C = -10\text{mA}$	-	-	-820	
Transition frequency	f_T	$V_{CE} = -5\text{V}, I_C = -10\text{mA}, f = 100\text{MHz}$	100	-	-	MHz
Collector output capacitance	C_{ob}	$V_{CB} = -10\text{V}, I_E = 0\text{A}, f = 1\text{MHz}$	-	-	4.5	pF
Noise figure	NF	$V_{CE} = -5\text{V}, I_C = -0.2\text{mA}, f = 1\text{KHz}, R_S = 2\text{K}\Omega, BW = 200\text{Hz}$	-	-	10	dB

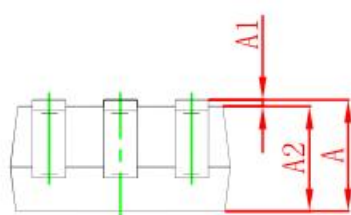
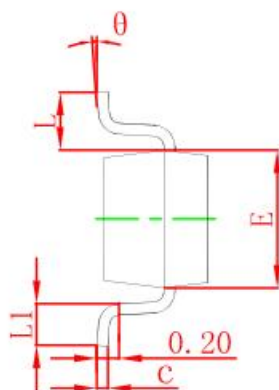
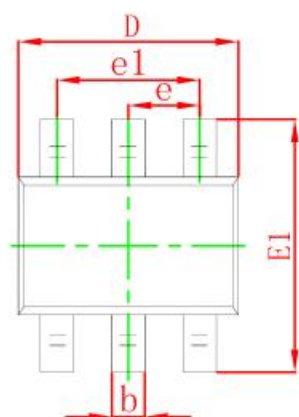
TYPICAL CHARACTERISTICS OF NPN TRANSISTOR



TYPICAL CHARACTERISTICS OF PNP TRANSISTOR

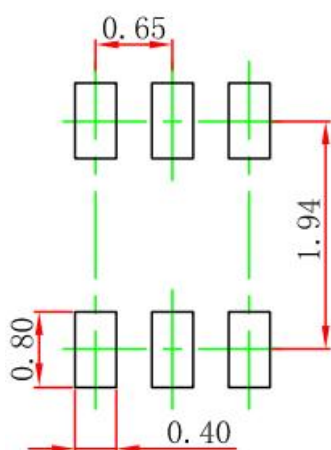


SOT-363 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.100	0.150	0.004	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-363 SUGGESTED PAD LAYOUT

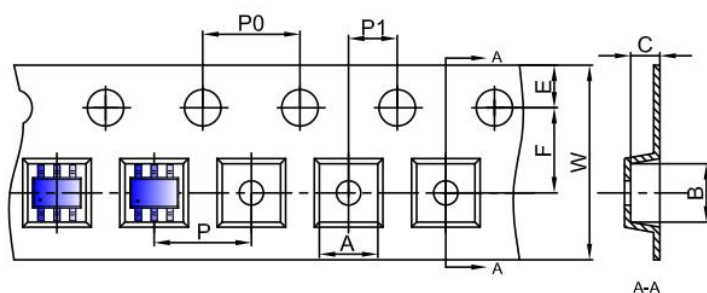


Note:

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

SOT-363 TAPE AND REEL

SOT-363 Embossed Carrier Tape

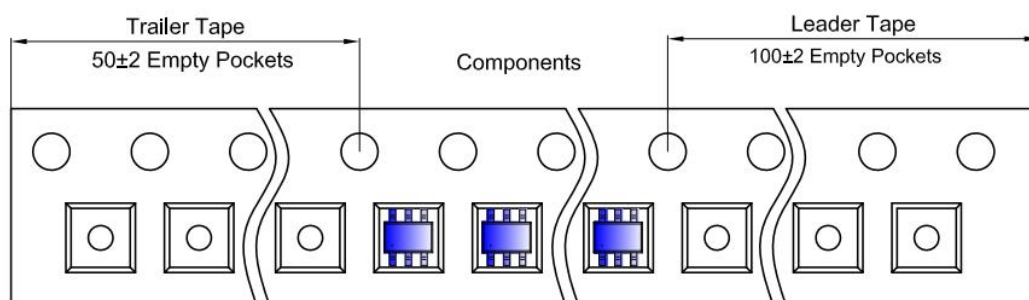


Packaging Description:

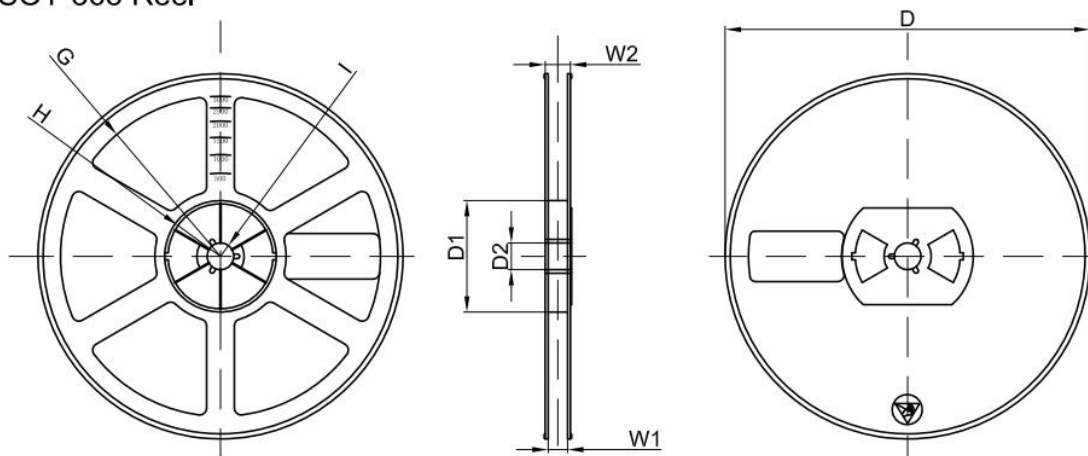
SOT-363 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts 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-363	2.25	2.55	1.20	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-363 Tape Leader and Trailer



SOT-363 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	

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