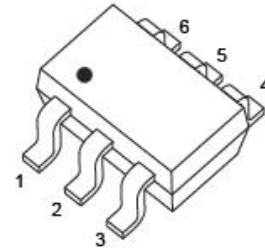
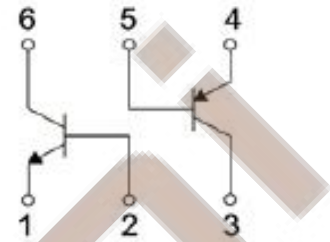


General Description

V_{CEO}	I_C	$V_{CE(sat)}$	f_T	T_{JMax}
65V	100mA	0.60V	100MHz	150°C



Features

- SOT363 Package
- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 3
- High temperature soldering guaranteed 260°C/10seconds
- at terminals

Package Marking and Ordering Information

Product ID	Package	Marking	Qty(PCS)
BC846BPN	SOT-363	.PJ	3000

Maximum Ratings TR1 (Ratings at 25°C ambient temperature unless otherwise specified.)

Parameter	Symbols	Value	Unit
Collector-Base Voltage	VCBO	80	V
Collector-Emitter Voltage	VCEO	65	V
Emitter -Base Voltage	VEBO	6	V
Collector Current-Continuous	I_C	100	mA
Collector Power Dissipation	PC	200	mW
Junction Temperature	T_J	150	°C
Storage Temperature	T_{stg}	-55-+150	°C
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	625	°C/W

Electrical Characteristics of TR1(NPN) (Ratings at 25°C ambient temperature unless otherwise specified)

Parameter	Symbol	Conditions	Limits			Unit
			Min	Typ	Max	
Collector-base breakdown voltage	V(BR)CBO	IC=10uA, IE=0	80			V
Collector-emitter breakdown voltage	V(BR)CEO	IC=10mA, IB=0	65			V
Emitter-base breakdown voltage	V(BR)EBO	IE=1uA, IC=0	6			V
Collector cut-off current	ICBO	VCB=30V, IE=0			15	nA
Emitter Cut-off current	IEBO	VEB=5V, IC=0			15	nA
DC current gain	hFE(1)*	VCE=5V, IC=2mA	200		450	
Collector-emitter saturation voltage	VCE(sat)	IC=10mA, IB=0.5mA			0.25	V
		IC=100mA, IB=5mA			0.60	V
Base -emitter saturation voltage	VBE(sat)	IC=10mA, IB=0.5mA		0.7		V
		IC=100mA, IB=5mA		0.9		V
Base-emitter voltage	VBE(on)	VCE=5V, IC=2mA	0.58		0.70	V
		VCE=5V, IC=10mA			0.72	V
Transition frequency	fT	VCE=5V, IC=10mA, f=100MHz	100			MHz
Collector output capacitance	Cob	VCB=10V, IE=0, f=1MHz			6	pF
Noise figure	NF	VCE=5V, IC=0.2mA, f=1kHz, Rg=2KΩ, Δf=200MHz			10	dB

*Pulse test: pulse width≤300us,duty cycle≤2.0%

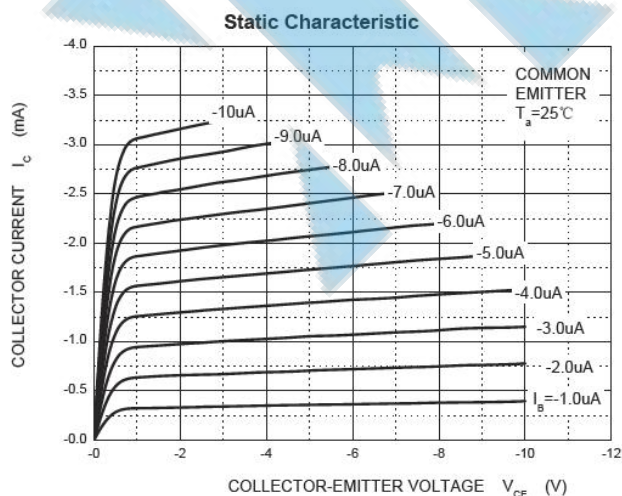
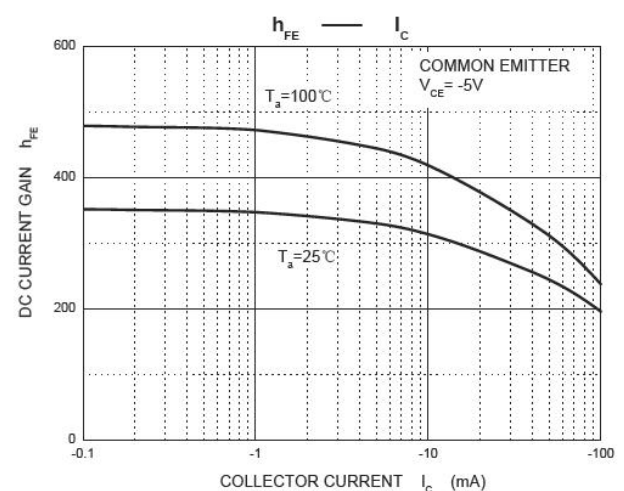
Maximum Ratings TR2 (Ratings at 25°C ambient temperature unless otherwise specified.)

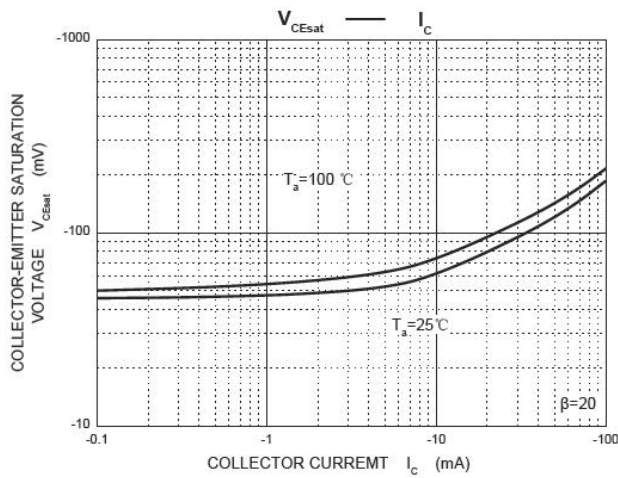
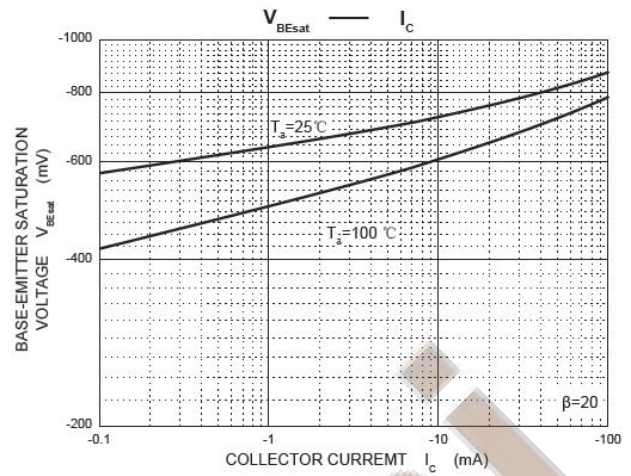
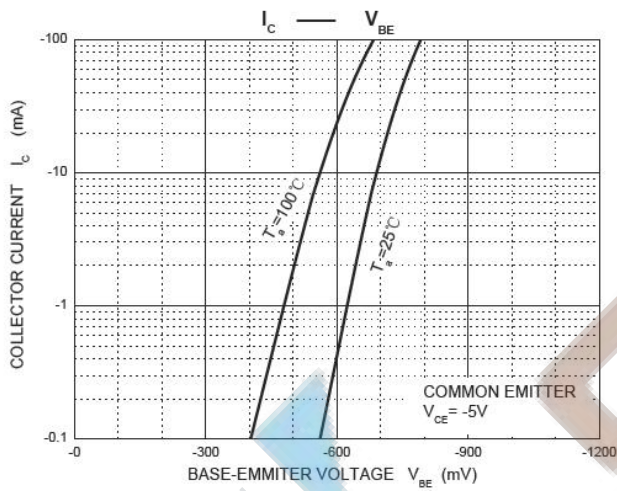
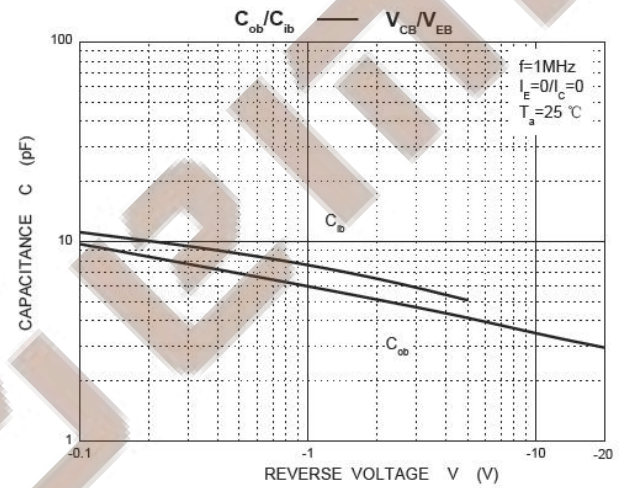
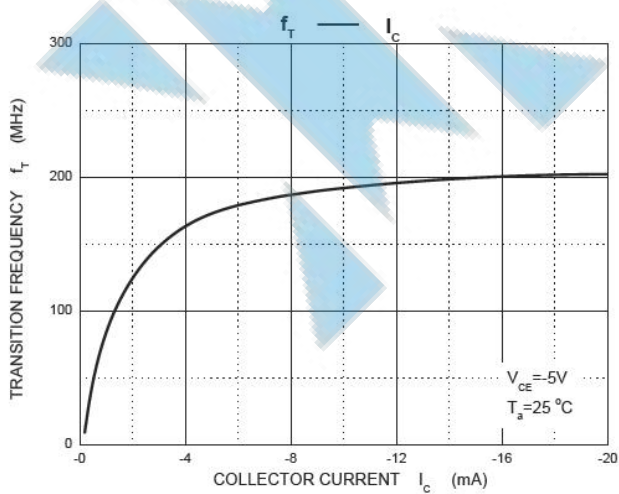
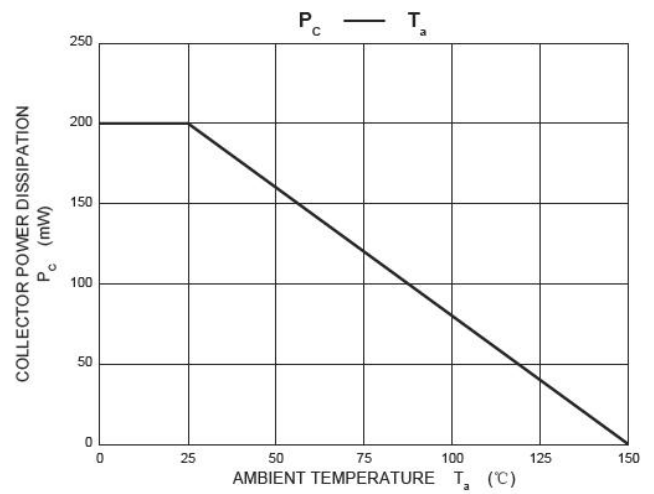
Parameters	Symbol	Value	Unit
Collector-Base Voltage	VCBO	-80	V
Collector-Emitter Voltage	VCEO	-65	V
Emitter -Base Voltage	VEBO	-6	V
Collector Current-Continuous	IC	-100	mA
Collector Power Dissipation	PC	200	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55-+150	°C
Thermal resistance From junction to ambient	RθJA	625	°C/W

Electrical Characteristics of TR2 (PNP) (Ratings at 25°C ambient temperature unless otherwise specified).

Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Collector-base breakdown voltage	V(BR)CBO	IC=-10uA, IE=0	-80			V
Collector-emitter breakdown voltage	V(BR)CEO	IC=-10mA, IB=0	-65			V
Emitter-base breakdown voltage	V(BR)EBO	IE=-1uA, IC=0	-6			V
Collector cut-off current	ICBO	VCB=-30V, IE=0			-15	nA
Emitter cut-off current	IEBO	VEB=-5V, IC=0			-15	nA
DC current gain	hFE	VCE=-5V, IC=-2mA	220		475	
Collector-emitter saturation voltage	VCE(sat)	IC=-10mA, IB=-0.5mA			-0.30	V
		IC=-100mA, IB=-5mA			-0.65	V
Base-emitter saturation voltage	VBE(sat)	IC=-10mA, IB=-0.5mA		-0.7		V
		IC=-100mA, IB=-5mA			-0.95	V
Base-emitter voltage	VBE(on)	VCE=-5V, IC=-2mA	-0.60		-0.75	V
		VCE=-5V, IC=-10mA			-0.82	V
Transition frequency	fT	VCE=-5V, IC=-10mA, f=100MHz	100			MHz
Collector output capacitance	Cob	VCB=-10V, IE=0, f=1MHz			6	pF
Noise figure	NF	VCE=-5V, IC=-0.2mA, f=1kHz, Rg=2KΩ, Δf=200MHz			10	dB

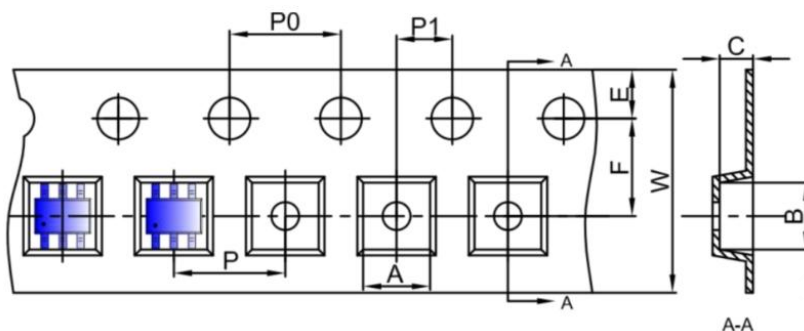
*Pulse test: pulse width≤300us, duty cycle≤2.0%

Typical characteristics




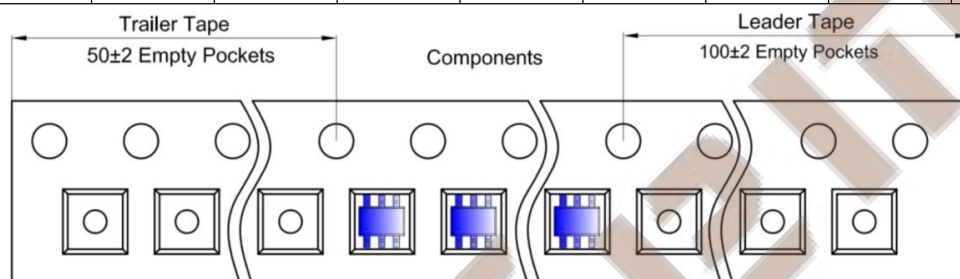
Package Information

Carrier Dimension(mm)

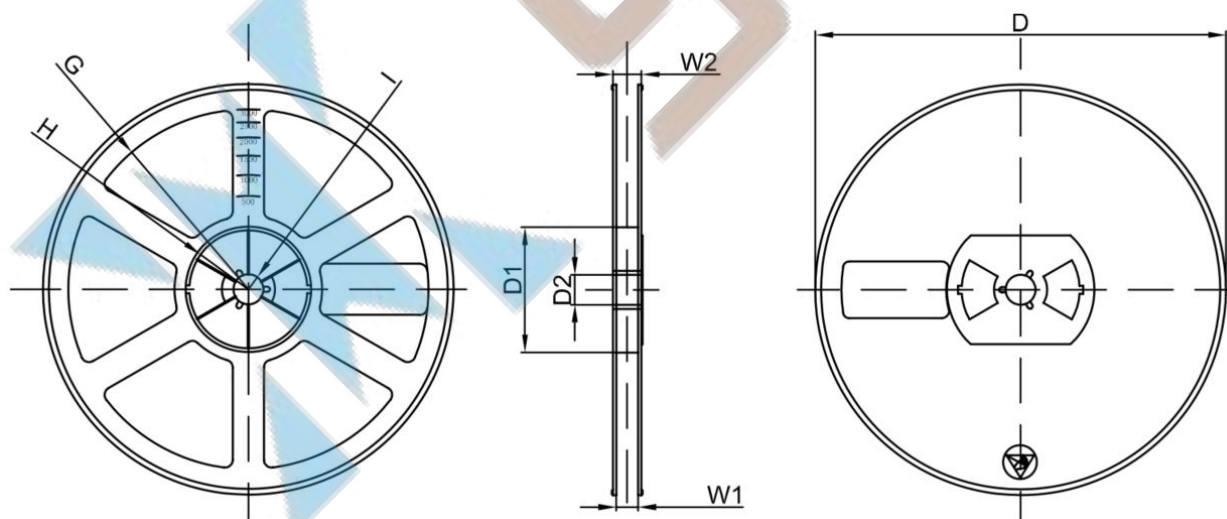


Dimensions are in millimeter

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



Reel Dimension(mm)



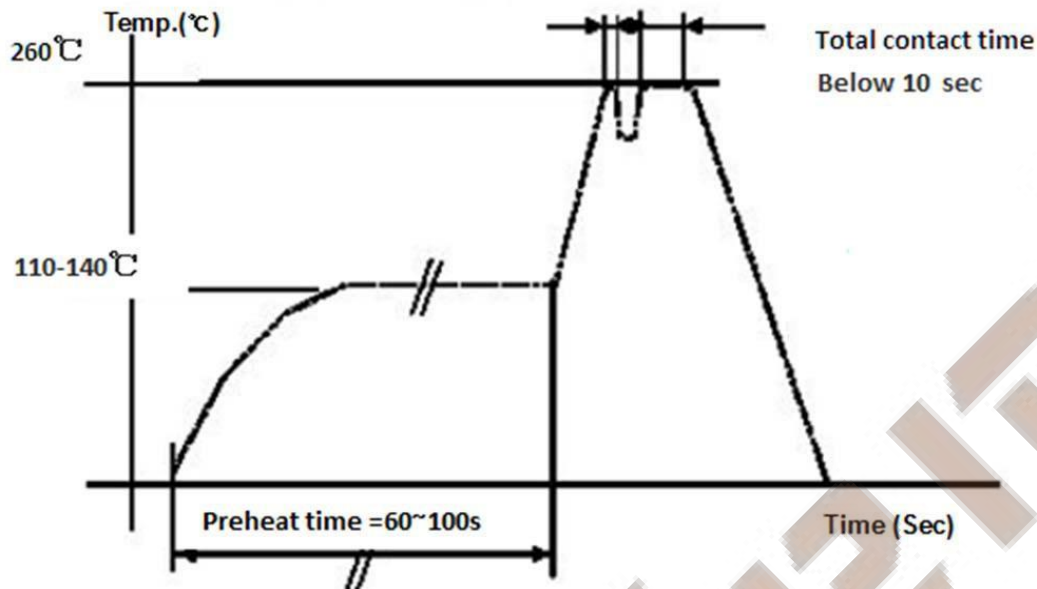
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Φ178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30
Tolerance	±2	±1	±1	±1	±1	±1	±1	±1

Package Specifications

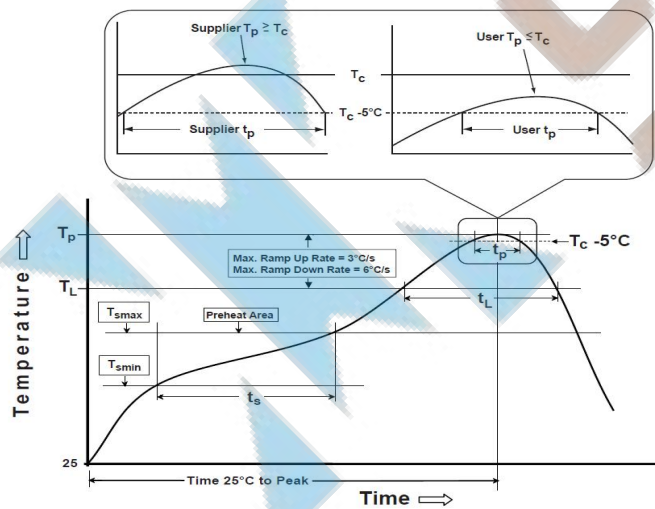
Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SOT363	7'	178	3	210*208*203	45	440*400*230	180

Recommended Soldering Profile for Rectifier Diodes (Pb Free)

a) Wave Soldering Profile



b) Reflow Soldering Profile (Pb Free Application), refer to IPC/JEDEC J-STD-020

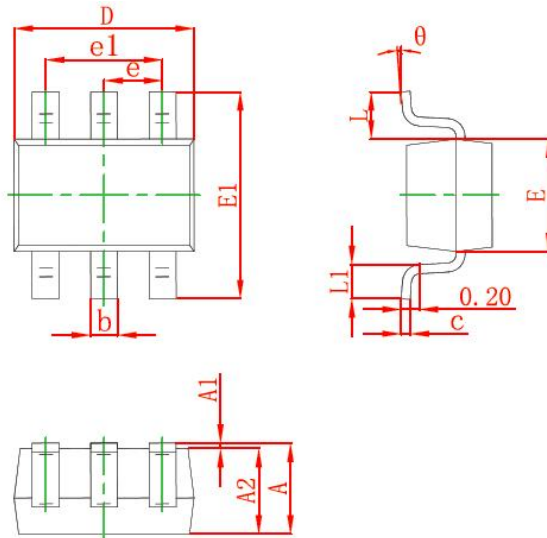


Preheat/Soak Temperature Min (T _{smin}) Temperature Max (T _{smax}) Time (t _s) from (T _{smin} to T _{smax})	50 °C 200 °C 60-120 seconds
Melting Point of Solder (Sn Ag Cu)	217°C
Ramp-up Rate to 217°C(Melting Point of Solder)	3°C/sec
Time at Temp.>217°C (Melting Point of Solder)	60~150 Sec
Peak Temperature	255±5°C
Time within 5°Cbelow Peak Temp.	20~40 Sec
Cooling Rate	6°C/sec (max)
Time from 25°C to Peak Temp.	8min (max)

c) Manual Soldering

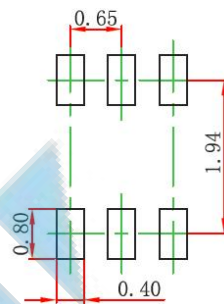
When using an electric soldering iron for manual soldering, it is recommended that the temperature does not exceed 300°C and the soldering time is less than 10 seconds.

Package Mechanical Data



Symbol	Dimensions In Millimeters	
	Min	Max
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.150	0.350
c	0.100	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.400
e	0.650 TYP	
e1	1.200	1.400
L	0.525 REF	
L1	0.260	0.460
θ	0°	8°

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.

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