NPN Epitaxial Planar Transistor

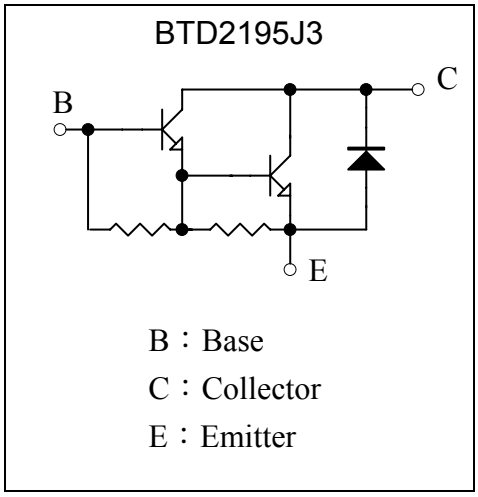
BTD2195J3

BV_{CEO}	120V
I_C	4A
R_{CESAT}	600mΩ

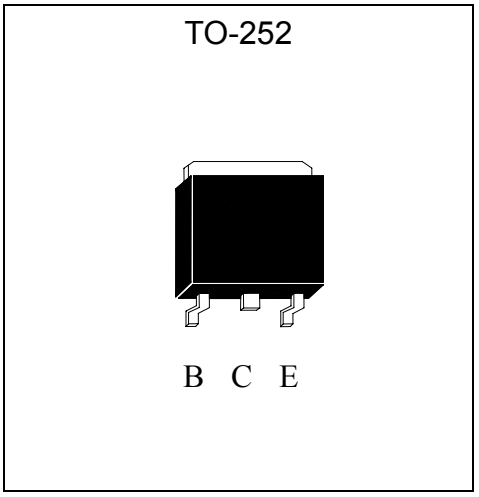
Description

The BTD2195J3 is a NPN Darlington transistor, designed for use in general purpose amplifier and low speed switching application. RoHS compliant package process is adopted.

Equivalent Circuit



Outline



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	130	V
Collector-Emitter Voltage	V_{CEO}	120	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	4	A
Collector Current (Pulse)	I_{CP}	6 (Note)	A
Power Dissipation	Pd(T_A=25℃)	1.5	W
	Pd(T_C=25℃)	20	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	83.3	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	6.25	°C/W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

Note : Single Pulse Pw≦350μs, Duty≦2%.

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CEO}	120	-	-	V	I_C=1mA, I_B=0
BV_{CBO}	130	-	-	V	I_C=100μA, I_E=0
I_{CBO}	-	-	1	mA	V_{CB}=100V, I_E=0
I_{CEO}	-	-	2	mA	V_{CE}=50V, I_E=0
I_{EBO}	-	-	2	mA	V_{EB}=5V, I_C=0
*$V_{CE(sat)}$	-	-	1.25	V	I_C=2A, I_B=8mA
*$V_{CE(sat)}$	-	-	1.5	V	I_C=2A, I_B=2mA
*$V_{BE(on)}$			2.2	V	V_{CE}=4V, I_C=2A
*$h_{FE}1$	600	-	-	-	V_{CE}=3V, I_C=1A
*$h_{FE}2$	1000	-	-	-	V_{CE}=3V, I_C=2A
*$h_{FE}3$	300	-	-	-	V_{CE}=3V, I_C=4A
Cob	-		200	pF	V_{CB}=10V, I_E=0A, f=1MHz

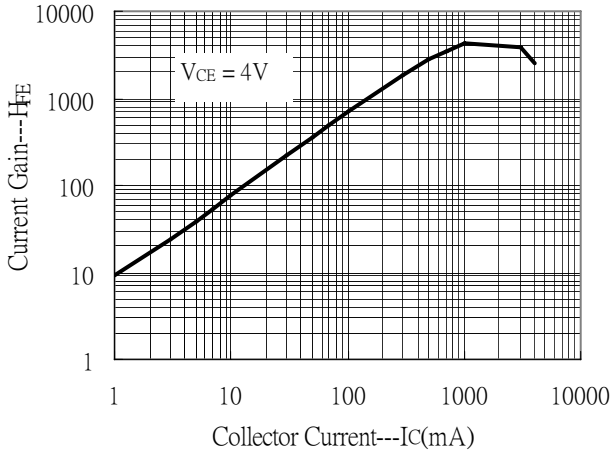
*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

Ordering Information

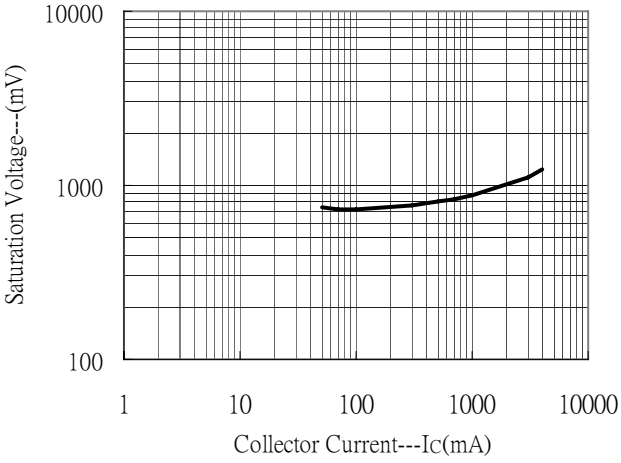
Device	Package	Shipping	Marking
BTD2195J3	TO-252 (RoHS compliant)	2500 pcs / Tape & Reel	D2195

Characteristic Curves

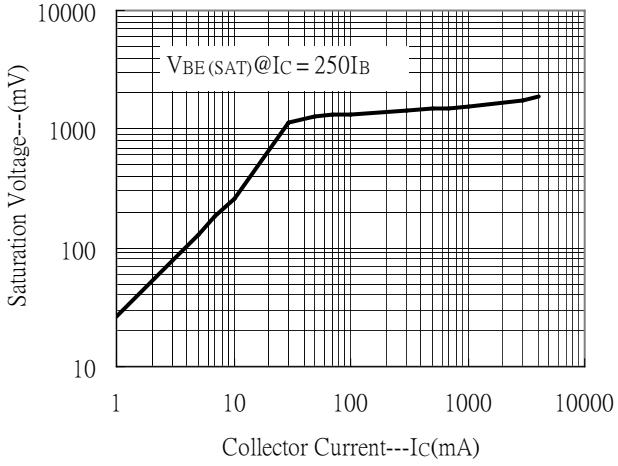
Current Gain vs Collector Current



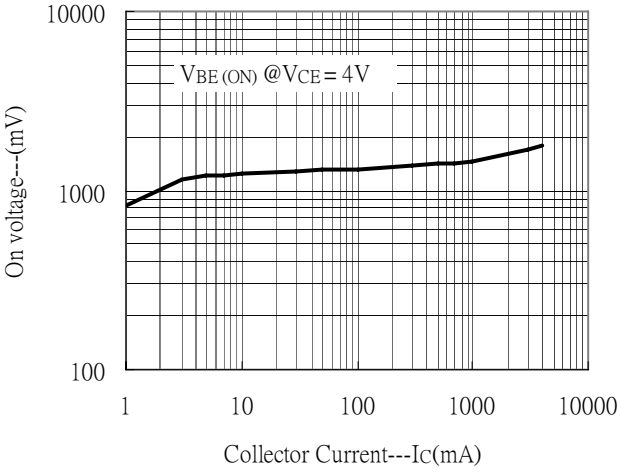
Saturation Voltage vs Collector Current



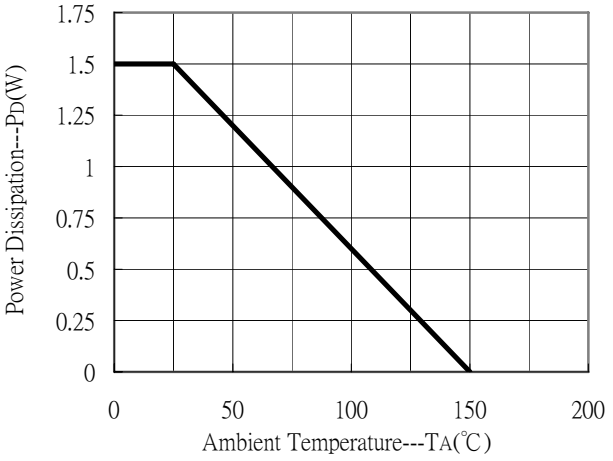
Saturation Voltage vs Collector Current



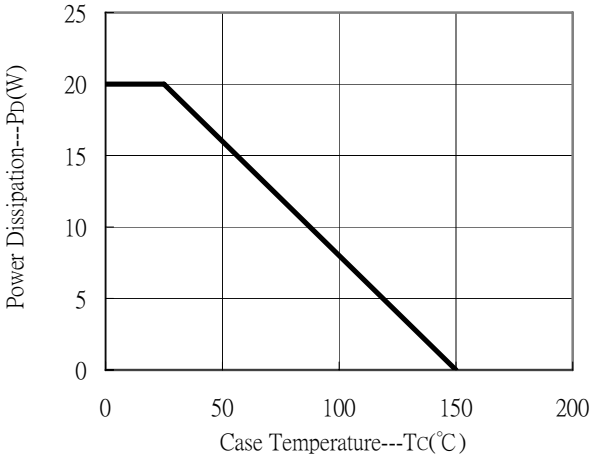
On voltage vs Collector Current



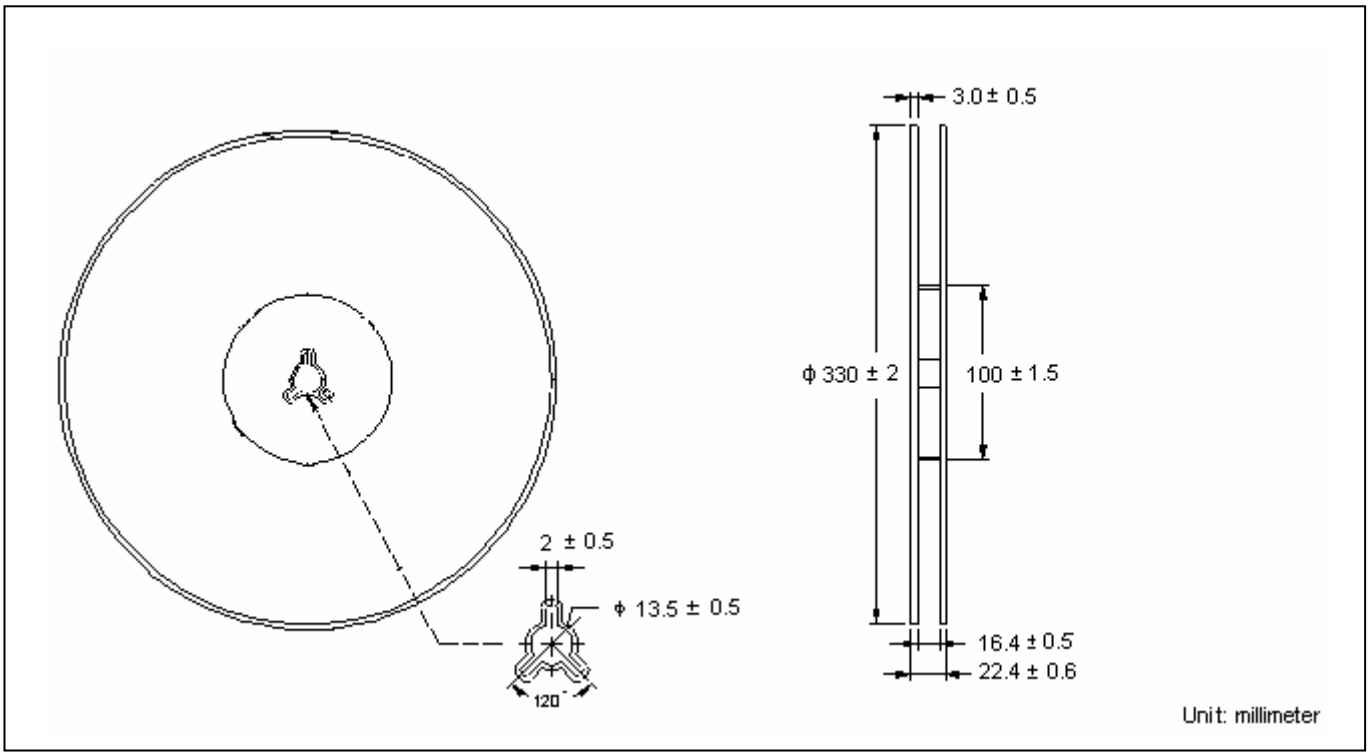
Power Derating Curve



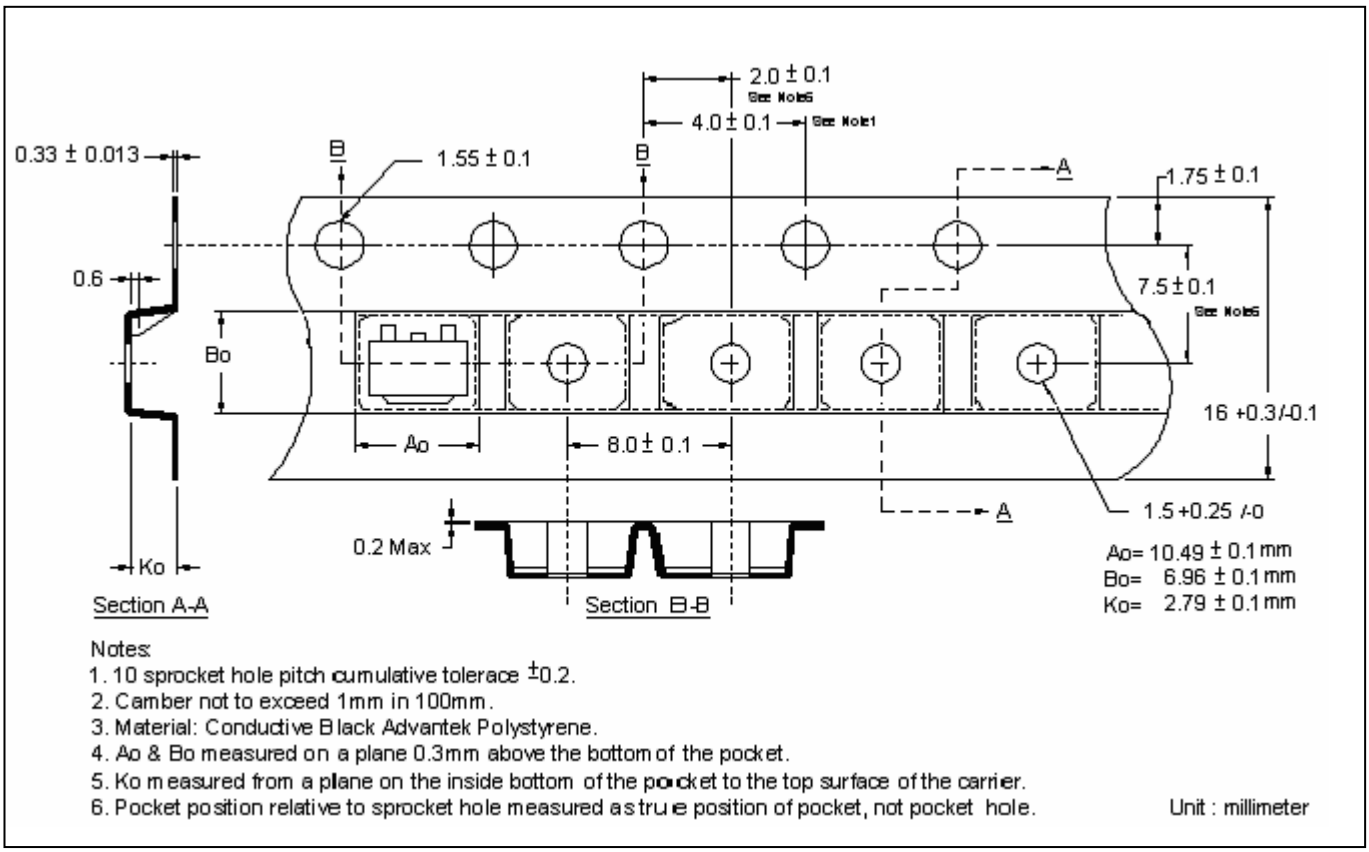
Power Derating Curve



Reel Dimension



Carrier Tape Dimension



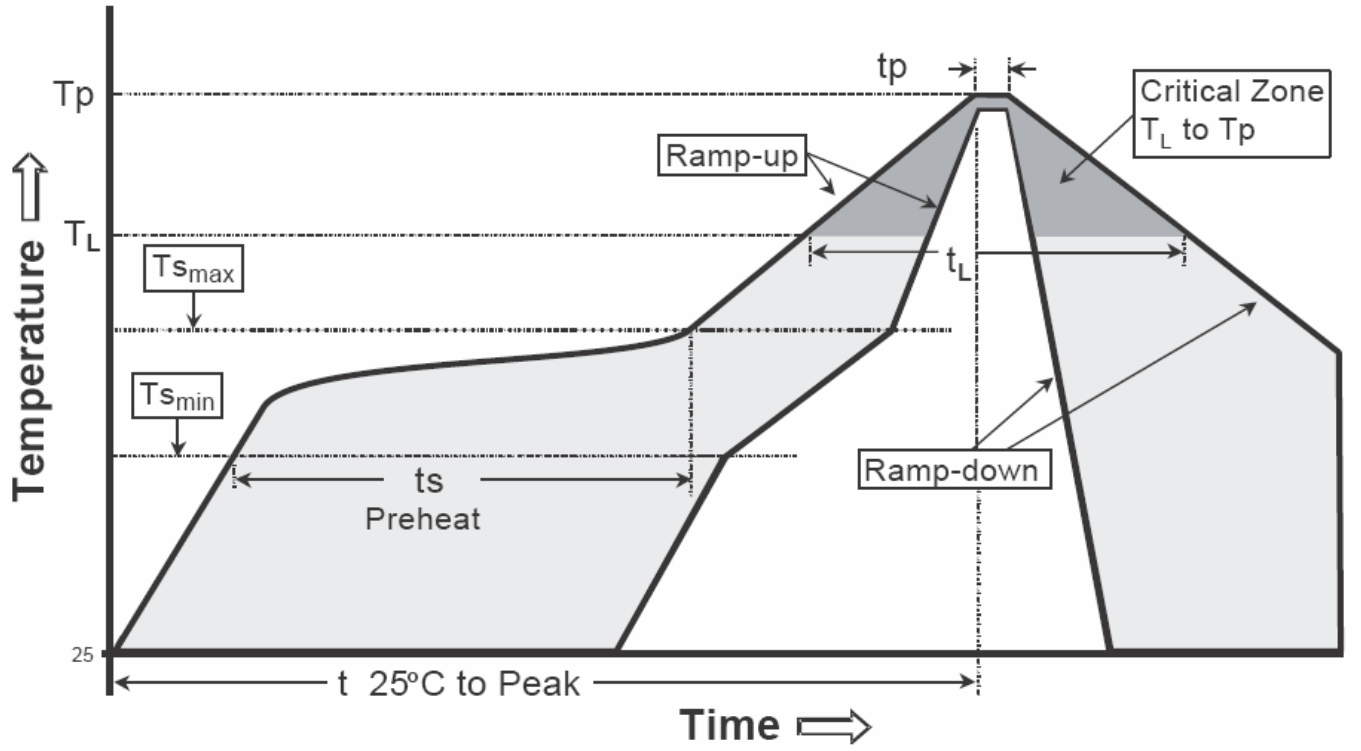
Notes:
1. 10 sprocket hole pitch cumulative tolerace ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: Conductive Black Advantek Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Unit : millimeter

Recommended wave soldering condition

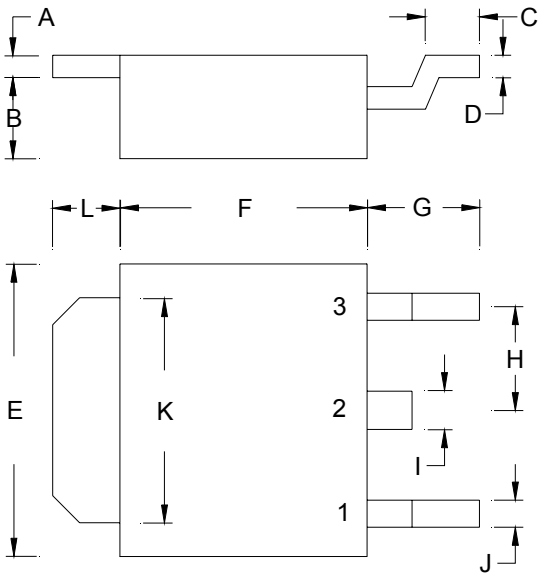
Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow

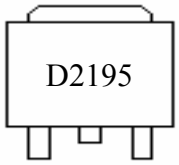


Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(Ts min) −Temperature Max(Ts max) −Time(ts min to ts max)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (TL) − Time (tL)	 183°C 60-150 seconds	 217°C 60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

TO-252 Dimension



Marking:



Style: Pin 1.Base 2.Collector 3.Emitter

3-Lead TO-252 Plastic Surface Mount Package
CYStek Package Code: J3

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0177	0.0217	0.45	0.55	G	0.0866	0.1102	2.20	2.80
B	0.0650	0.0768	1.65	1.95	H	-	*0.0906	-	*2.30
C	0.0354	0.0591	0.90	1.50	I	-	0.0449	-	1.14
D	0.0177	0.0236	0.45	0.60	J	-	0.0346	-	0.88
E	0.2441	0.2677	6.20	6.80	K	0.2047	0.2165	5.20	5.50
F	0.2125	0.2283	5.40	5.80	L	0.0551	0.0630	1.40	1.60

Notes: 1.Controlling dimension: millimeters.
2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead : KFC; pure tin plated
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0