

NPN Epitaxial Planar Transistor

BD679A

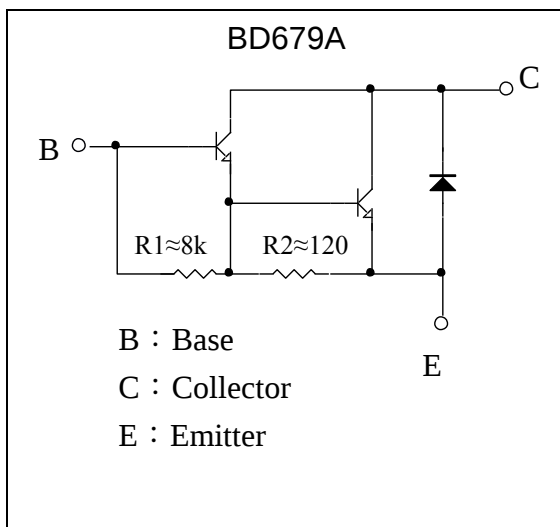
Description

The BD679A is a NPN Darlington transistor, designed for general purpose amplifier and low speed switching application.

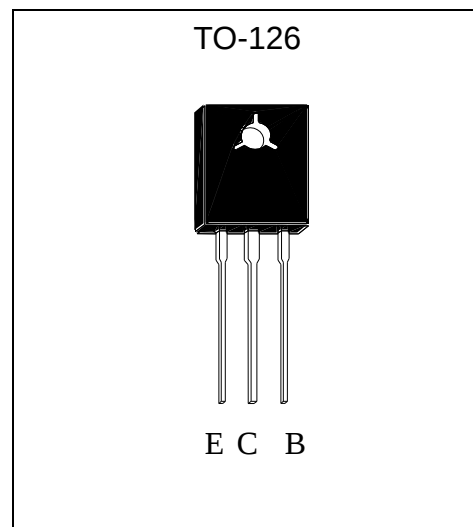
Features:

- High BV_{CEO}
- Low $V_{CE(SAT)}$
- High current gain
- Monolithic construction with built-in base-emitter shunt resistors
- Pb-free lead plating package

Equivalent Circuit



Outline



**Absolute Maximum Ratings** (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V _{CBO}	80	V
Collector-Emitter Voltage	V _{CEO}	80	V
Emitter-Base Voltage	V _{EBO}	5	V
Collector Current	I _{C(DC)}	4	A
Base Current	I _B	1	A
Power Dissipation	Pd(T _A =25°C)	1	W
	Pd(T _C =25°C)	40	
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55~+150	°C

Note : *1. Single Pulse Pw=100ms

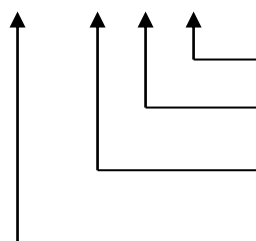
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CBO}	80	-	-	V	I _C =100μA, I _E =0
BV _{CEO}	80	-	-	V	I _C =50mA, I _B =0
I _{CEO}	-	-	200	μA	V _{CE} =50V, I _E =0
I _{CBO}	-	-	200	μA	V _{CB} =80V, I _E =0
I _{EBO}	-	-	2	mA	V _{EB} =5V, I _C =0
*V _{CE(sat)} 1	-	-	2.5	V	I _C =1.5A, I _B =30mA
*V _{CE(sat)} 2	-	-	2.8	V	I _C =2A, I _B =40mA
*V _{BE(on)} 1	-	-	2.5	V	V _{CE} =3V, I _C =1.5A
*V _{BE(on)} 2	-	-	2.5	V	V _{CE} =3V, I _C =2A
*V _{FEC}	-	-	3	V	I _C =5A
*h _{FE} 1	750	-	-	-	V _{CE} =3V, I _C =1.5A
*h _{FE} 2	750	-	-	-	V _{CE} =3V, I _C =2A

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

Ordering Information

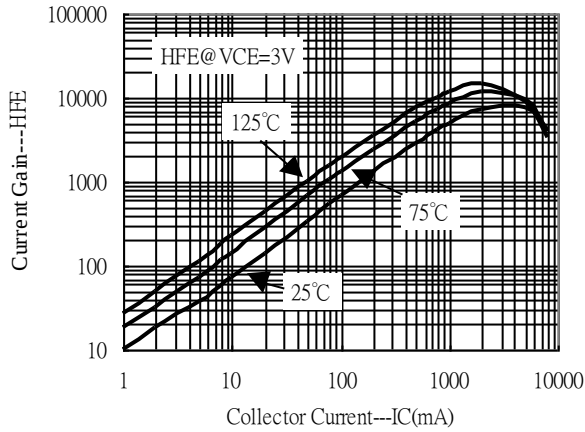
Device	Package	Shipping
BD679A-0-BL-X	TO-126 (Pb-free lead plating package)	200 pcs / bag, 3,000 pcs/box 30,000 pcs/carton
BD679A-0-UC-X		60 pcs/ tube, 32 tubes/box



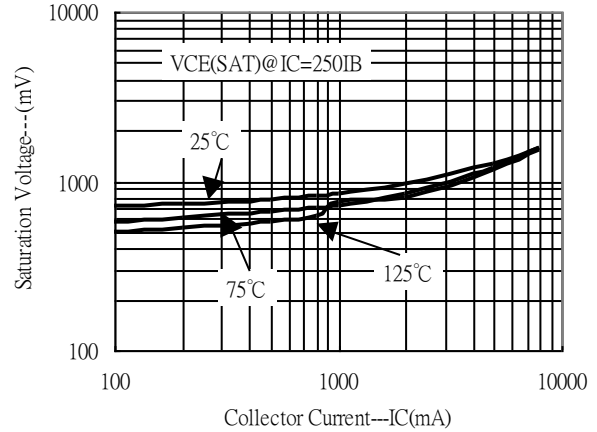
Environment friendly grade : S for RoHS compliant products, G for RoHS compliant and green compound products
Packing spec, BL: bulk, 200 pcs/bag, 15 bags/box, 10 boxes/carton ; UC : tube, 60 pcs/tube, 32 tubes/box
Product rank, zero for no rank products
Product name

Typical Characteristics

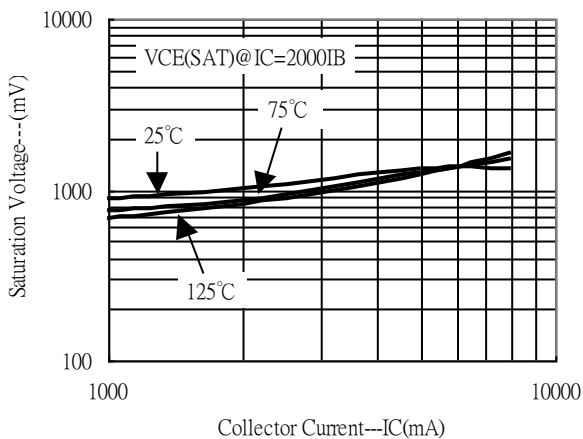
Current Gain vs Collector Current



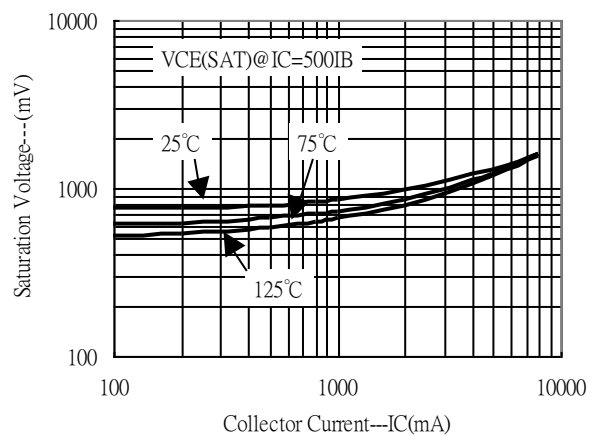
Saturation Voltage vs Collector Current



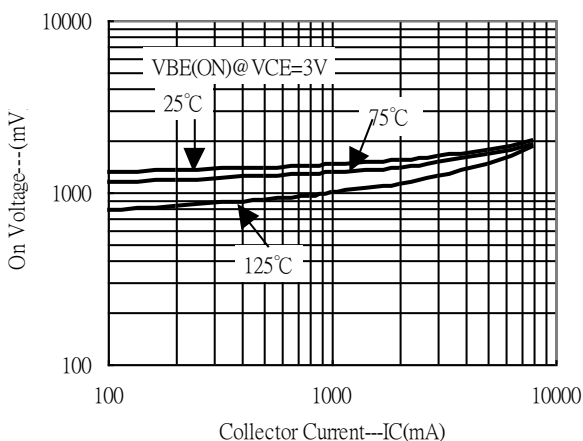
Saturation Voltage vs Collector Current



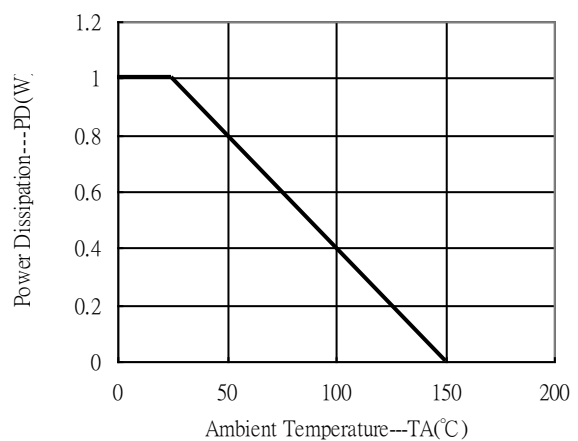
Saturation Voltage vs Collector Current



Saturation Voltage vs Collector Current

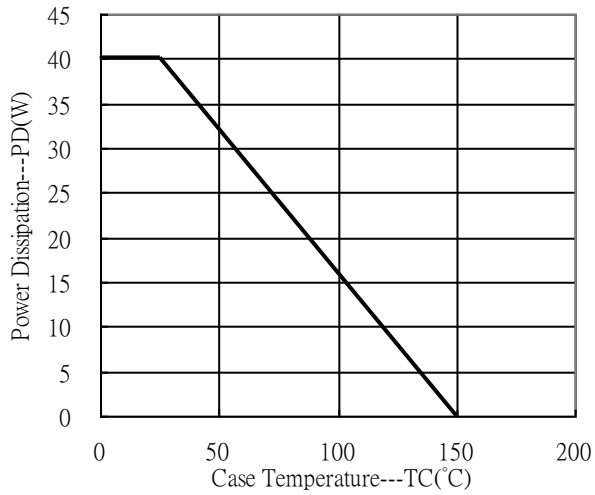


Power Derating Curve

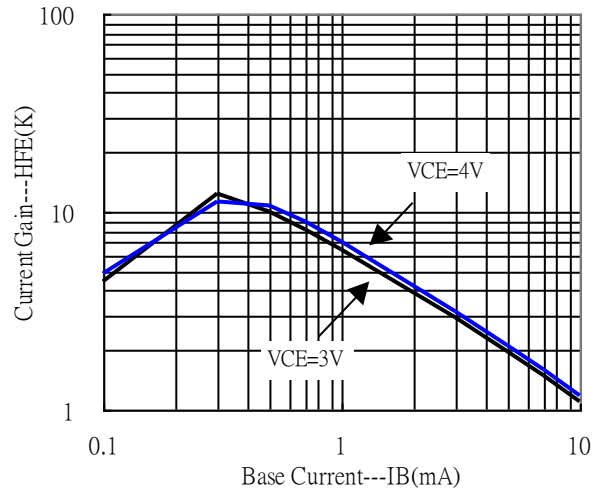


Typical Characteristics(Cont.)

Power Derating Curve



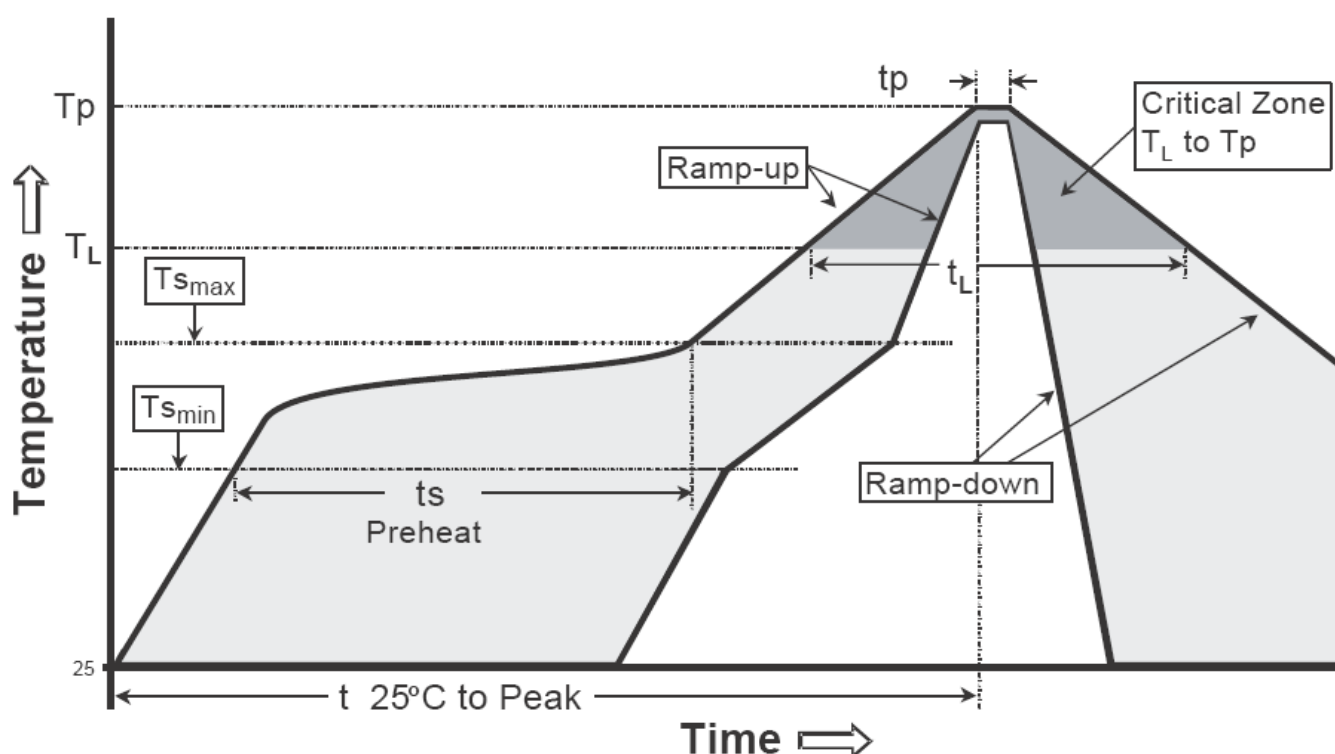
Current Gain vs Base Current



Recommended wave soldering condition

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

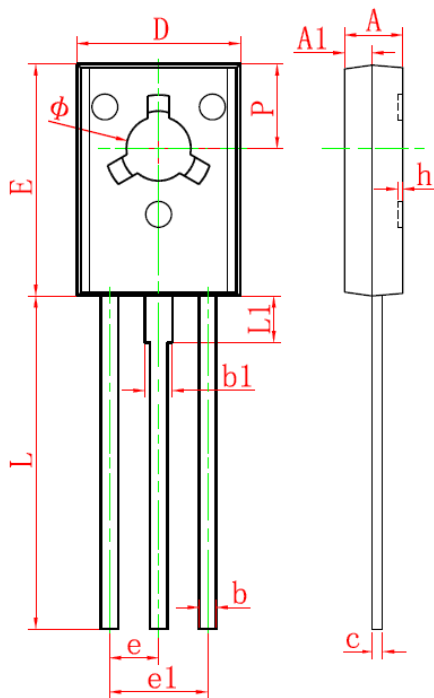
Recommended temperature profile for IR reflow



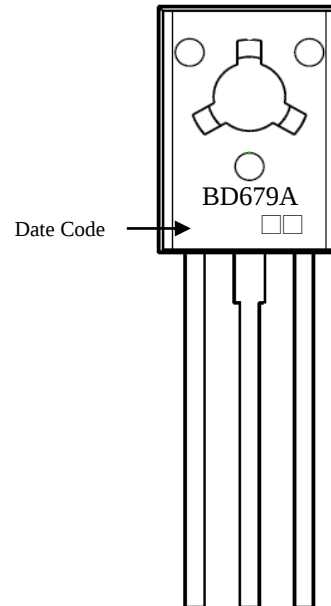
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(Ts min)	100°C	150°C
-Temperature Max(Ts max)	150°C	200°C
-Time(ts min to ts max)	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (Tl)	183°C	217°C
- Time (tL)	60-150 seconds	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.

Note : All temperatures refer to topside of the package, measured on the package body surface.

TO-126 Dimension



Marking:



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

*: Typical

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	2.500	2.900	0.098	0.114	e	*2.290		*0.090	
A1	1.100	1.500	0.043	0.059	e1	4.480	4.680	0.176	0.184
b	0.660	0.860	0.026	0.034	h	0.000	0.300	0.000	0.012
b1	1.170	1.370	0.046	0.054	L	15.300	15.700	0.602	0.618
c	0.450	0.600	0.018	0.024	L1	2.100	2.300	0.083	0.091
D	7.400	7.800	0.291	0.307	P	3.900	4.100	0.154	0.161
E	10.600	11.000	0.417	0.433	Φ	3.000	3.200	0.118	0.126

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: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

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