Silicon NPN Epitaxial Planar Transistor

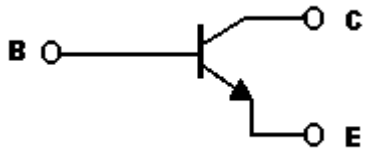
BTD1858T3

Description

- High BV_{CEO}
- High current capability
- Pb-free package

Symbol

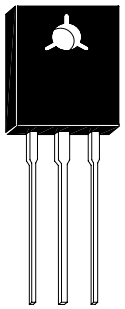
BTD1858T3



B：Base
C：Collector
E：Emitter

Outline

TO-126



B C E

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	180	V
Collector-Emitter Voltage	V_{CEO}	180	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	1.5	A
Collector Current (Pulse)	I_{CP}	3 (Note)	A
Power Dissipation @T_A=25℃	P_D	1	W
Power Dissipation @T_C=25℃	P_D	15	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	125	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	8.33	°C/W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

Note : Single Pulse , Pw≦380μs,Duty≦2%.

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	180	-	-	V	I_C=50μA, I_E=0
BV_{CEO}	180	-	-	V	I_C=1mA, I_B=0
BV_{EBO}	5	-	-	V	I_E=50μA, I_C=0
I_{CBO}	-	-	1	μA	V_{CB}=160V, I_E=0
I_{EBO}	-	-	1	μA	V_{EB}=4V, I_C=0
*$V_{CE(sat)}$	-	0.15	0.3	V	I_C=1A, I_B=100mA
*$V_{CE(sat)}$	-	-	0.4	V	I_C=1A, I_B=50mA
*$V_{BE(on)}$	-	-	0.8	V	V_{CE}=5V, I_C=5mA
$h_{FE}1$	180	-	560	-	V_{CE}=5V, I_C=200mA
$h_{FE}2$	30	-	-	-	V_{CE}=5V, I_C=500mA
f_T	-	140	-	MHz	V_{CE}=5V, I_C=150mA
Cob	-	27	-	pF	V_{CB}=10V, I_E=0, f=1MHz

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

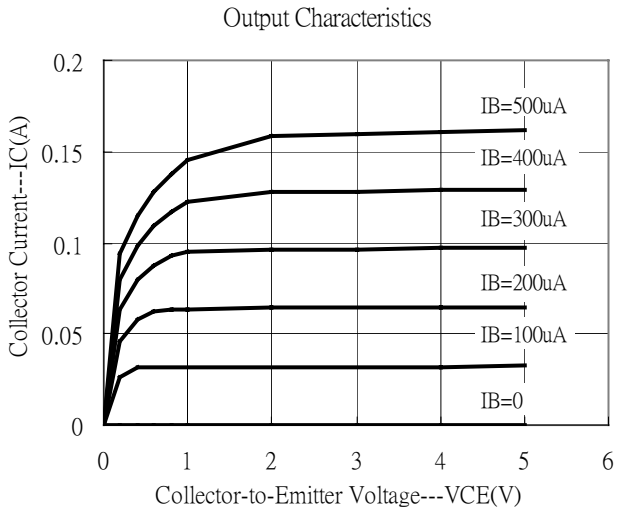
Classification of h_{FE} 1

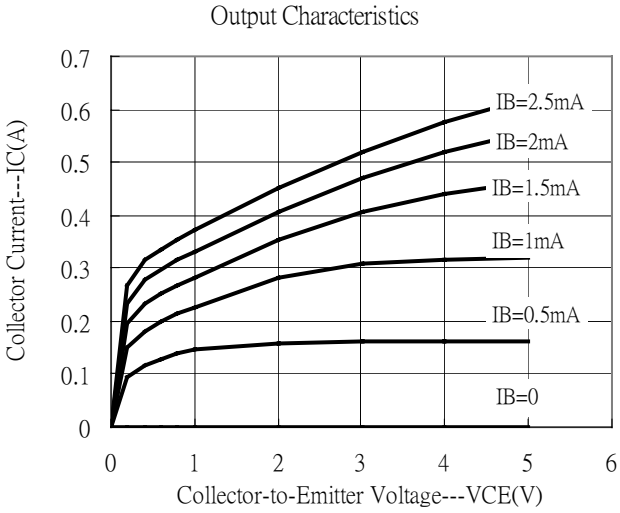
Rank	R	S
Range	180~390	270~560

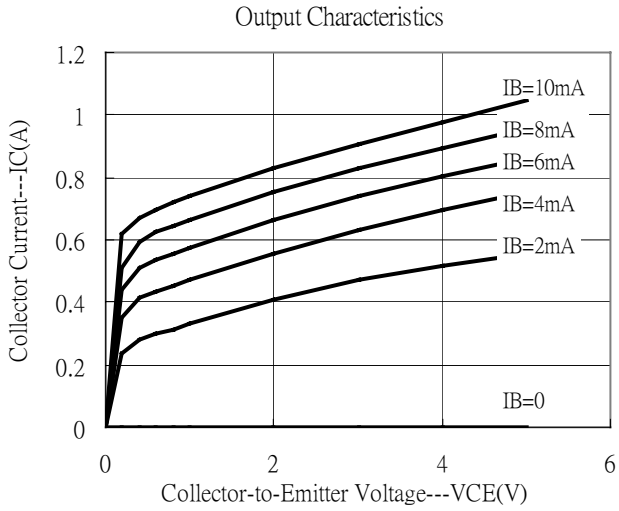
Ordering Information

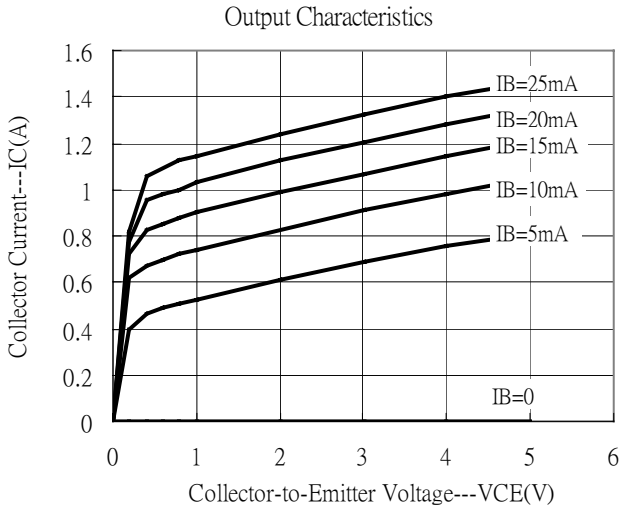
Device	Package	Shipping	Marking
BTD1858T3	TO-126 (Pb-free)	250 pcs / bag, 10 bags / box	D1858

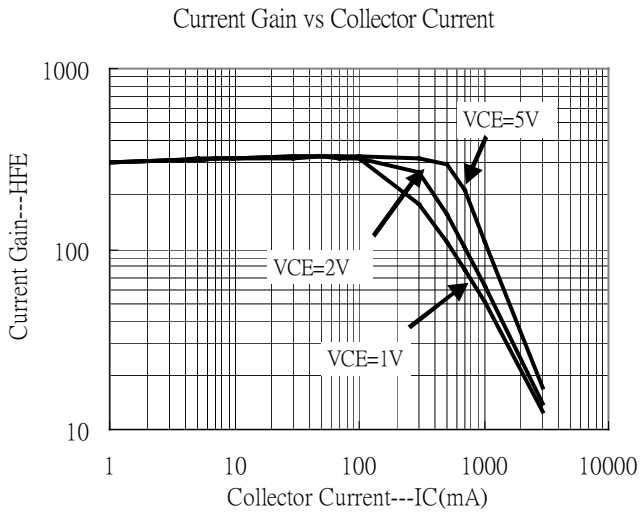
Characteristic Curves

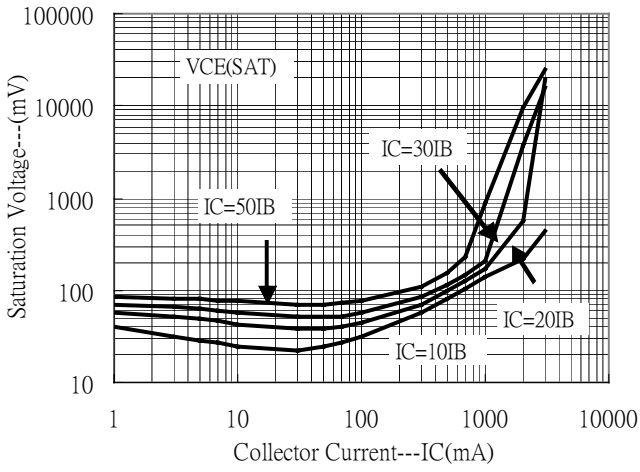






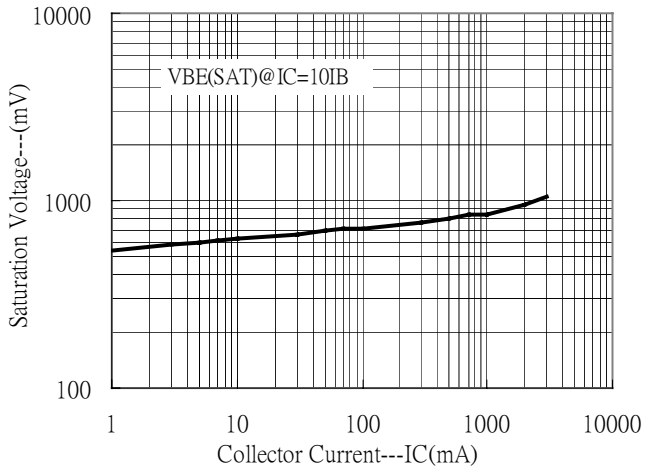




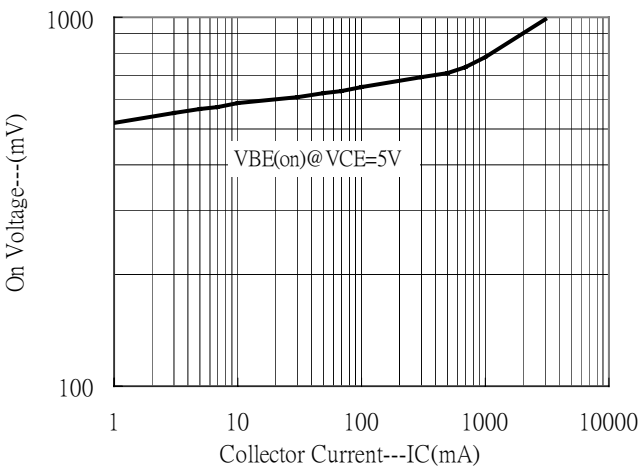


Characteristic Curves(Cont.)

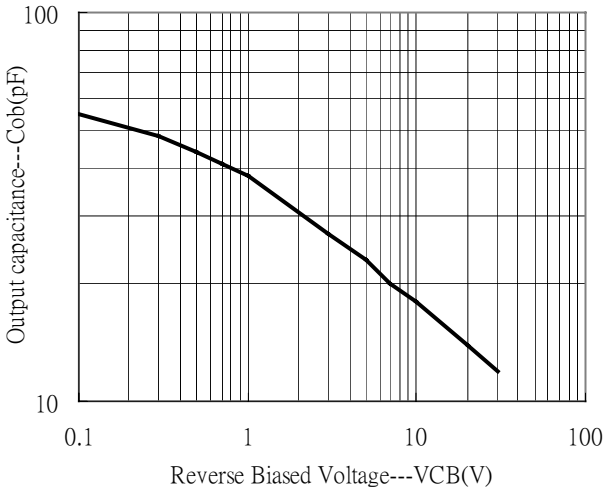
Saturation Voltage vs Collector Current



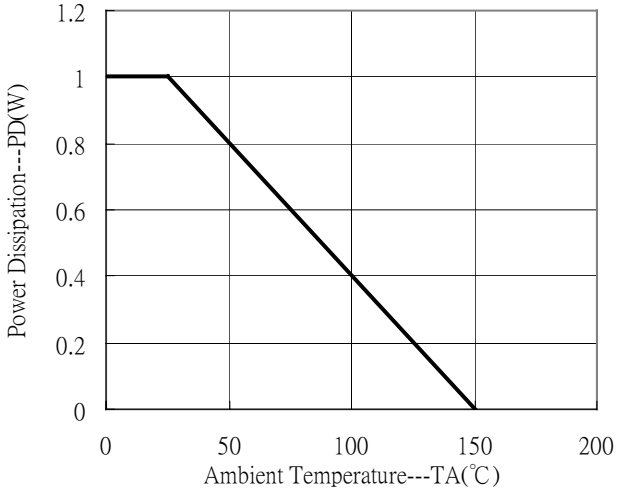
On Voltage vs Collector Current



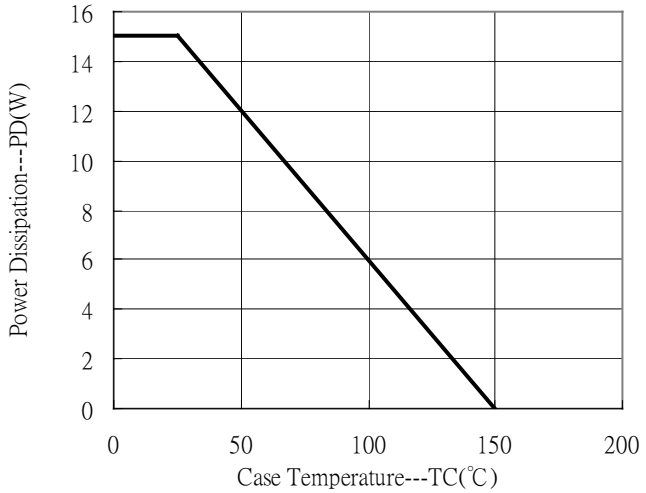
Output Capacitance vs Reverse Biased Voltage



Power Derating Curve



Power Derating Curve



Product Designation

BT X XXXX XX

(1) (2) (3) (4)

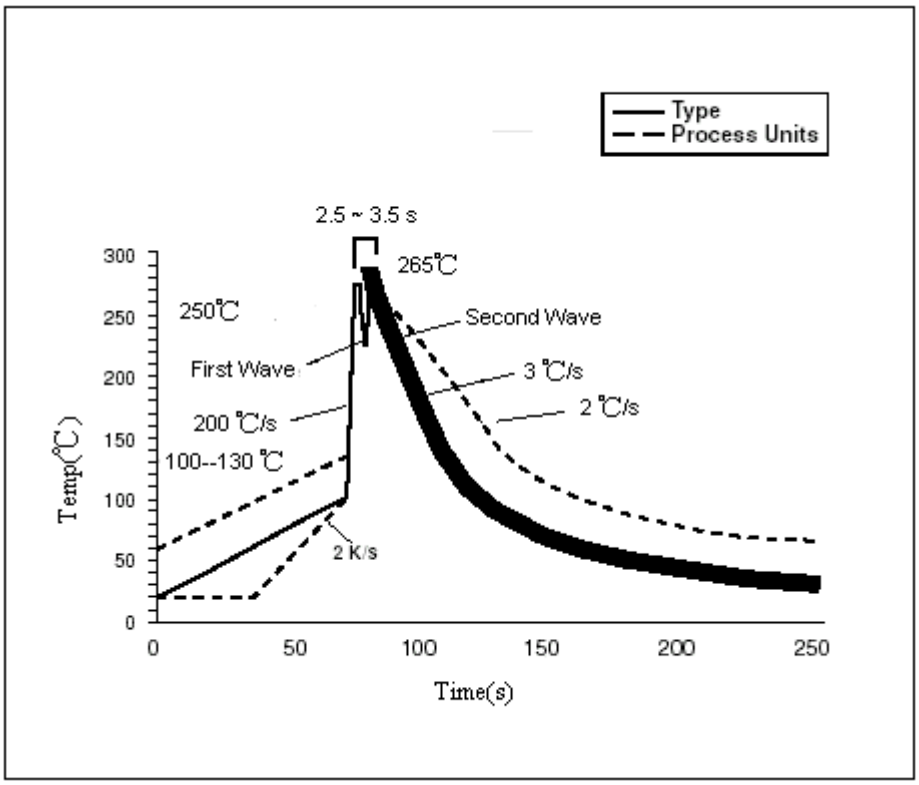
(1) Indicates that transistor is bipolar

(2) Indicates polarity
A, B, P • • • • PNP
C, D, N • • • • NPN

(3) Indicates device random number

(4) Indicates package shape
N3 • • • SOT-23
A3 • • • TO-92
E3 • • • TO-220AB
FP • • • TO-220FP
J3 • • • TO-252
I3 • • • TO-251
F3 • • • TO-263
D3 • • • TO-126ML
T3 • • • TO-126
L3 • • • SOT-223
M3 • • • SOT-89
S3 • • • SOT-323

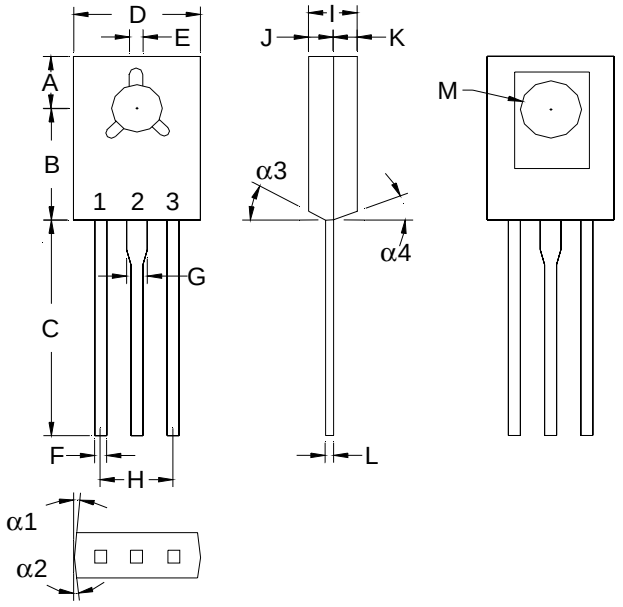
Recommended temperature profile for wave soldering



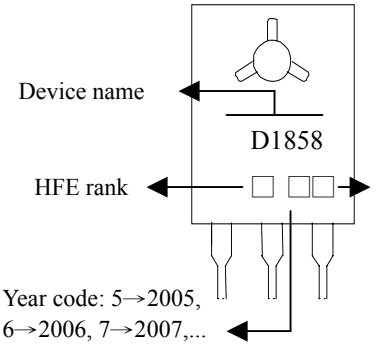
Recommendation:

1. Preheat temperature at solder side must be between 100 and 130 ℃ for 80 to 100 seconds.
2. Temperature ramp-up rate : 1~2 ℃/s
3. The temperature gradient between preheat and wave soldering must be smaller than +100 ℃.
4. Terminations must go through the wave simultaneously.
5. Travel through the wave from 255 to 260℃ for 2.5 to 3.5 seconds
6. Temperature ramp-down rate : 2~3 ℃/s

TO-126 Dimension



Marking:



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

3-Lead TO-126 Plastic Package
CYStek Package Code: T3

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
α1	-	*3°	-	*3°	F	0.0280	0.0319	0.71	0.81
α2	-	*3°	-	*3°	G	0.0480	0.0520	1.22	1.32
α3	-	*3°	-	*3°	H	0.1709	0.1890	4.34	4.80
α4	-	*3°	-	*3°	I	0.0950	0.1050	2.41	2.66
A	0.1500	0.1539	3.81	3.91	J	0.0450	0.0550	1.14	1.39
B	0.2752	0.2791	6.99	7.09	K	0.0450	0.0550	1.14	1.39
C	0.5315	0.6102	13.50	15.50	L	-	*0.0217	-	*0.55
D	0.2854	0.3039	7.52	7.72	M	0.1378	0.1520	3.50	3.86
E	0.0374	0.0413	0.95	1.05					

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: 42 Alloy; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0