

# Low Vcesat NPN Epitaxial Planar Transistor

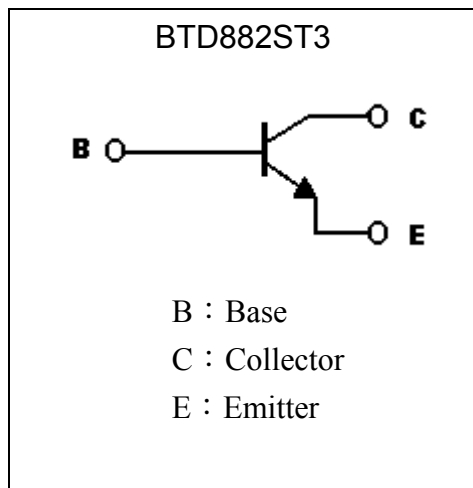
## BTD882ST3

$BV_{CEO}$	30V
$I_C$	3A
$R_{CESAT}(typ)$	150m $\Omega$

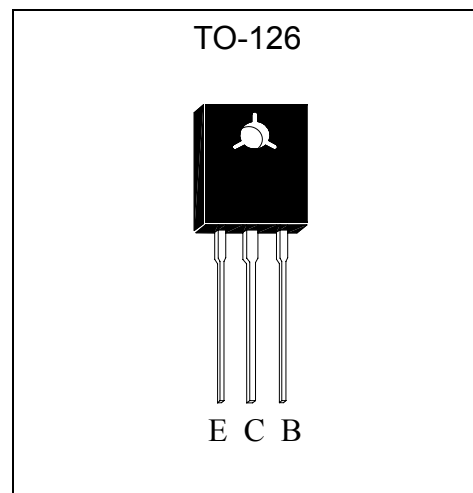
### Features

- Low  $V_{CE}(sat)$ , 0.3V typ. at  $I_C / I_B = 2A / 0.2A$
- Excellent current gain characteristics
- Complementary to BTB772ST3
- Pb-free lead plating package

### Symbol



### Outline



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

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	$V_{CBO}$	60	V
Collector-Emitter Voltage	$V_{CEO}$	30	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current	$I_C(DC)$	3	A
	$I_C(Pulse)$	7 *1	A
Power Dissipation	$P_d(T_a=25^\circ C)$	1	W
	$P_d(T_c=25^\circ C)$	10	
Operating Junction and Storage Temperature Range	$T_j ; T_{stg}$	-55~+150	°C

Note : \*1. Single Pulse  $P_w \leq 350\mu s, Duty \leq 2\%$ .

**Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
$BV_{CBO}$	60	-	-	V	$I_C=50\mu A, I_E=0$
$BV_{CEO}$	30	-	-	V	$I_C=1mA, I_B=0$
$BV_{EBO}$	6	-	-	V	$I_E=50\mu A, I_C=0$
$I_{CBO}$	-	-	100	nA	$V_{CB}=60V, I_E=0$
$I_{EBO}$	-	-	100	nA	$V_{EB}=6V, I_C=0$
* $V_{CE(sat)}$	-	0.3	0.5	V	$I_C=2A, I_B=0.2A$
* $R_{CE(sat)}$	-	0.15	0.25	$\Omega$	$I_C=2A, I_B=0.2A$
* $V_{BE(sat)}$	-	-	1.5	V	$I_C=2A, I_B=0.2A$
* $h_{FE1}$	160	-	-	-	$V_{CE}=2V, I_C=20mA$
* $h_{FE2}$	180	-	390	-	$V_{CE}=2V, I_C=500mA$
* $h_{FE3}$	150	-	-	-	$V_{CE}=2V, I_C=1A$
$f_T$	-	270	-	MHz	$V_{CE}=5V, I_C=0.5A, f=100MHz$
Cob	-	16	-	pF	$V_{CB}=10V, f=1MHz$

\*Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ **Classification Of  $h_{FE} 2$** 

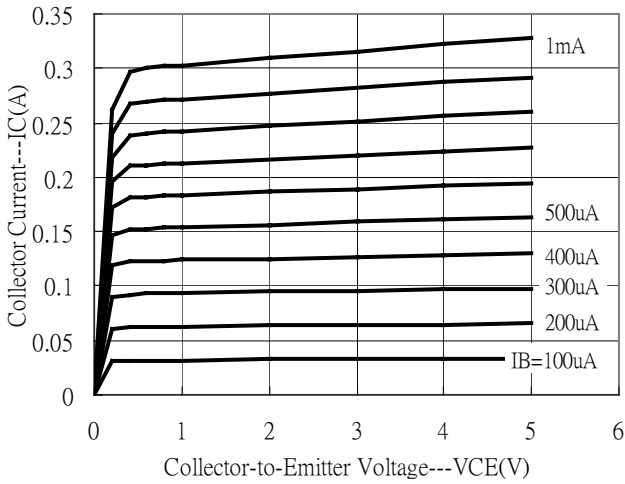
Rank	P
Range	180~390

**Ordering Information**

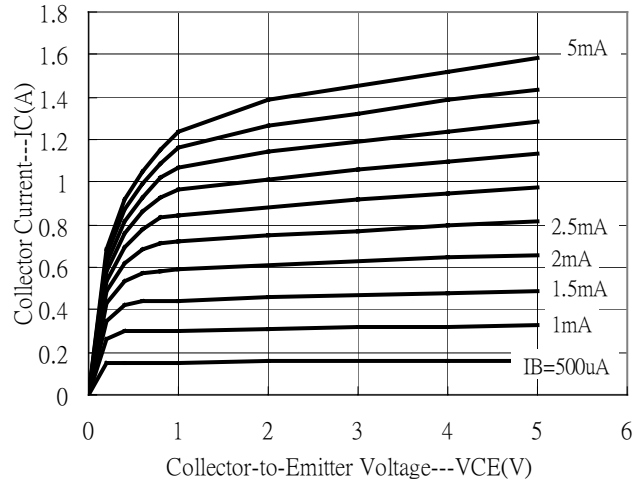
Device	Package	Shipping	Marking
BTD882ST3	TO-126 (Pb-free lead plating package)	200 pcs / bag, 10 bags/box, 10 boxes/carton	D882●

**Typical Characteristics**

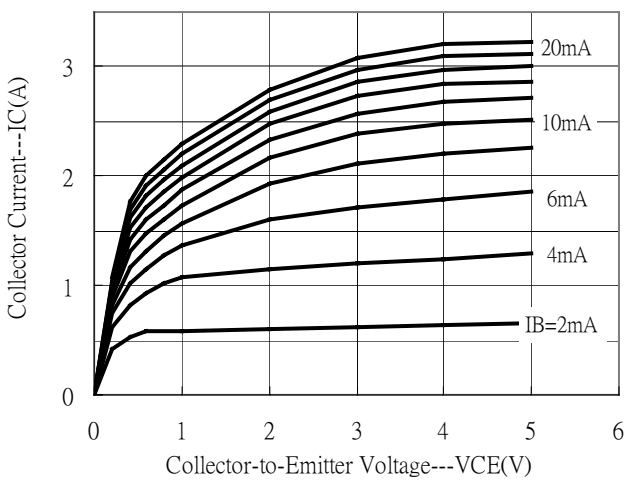
Emitter Grounded Output Characteristics



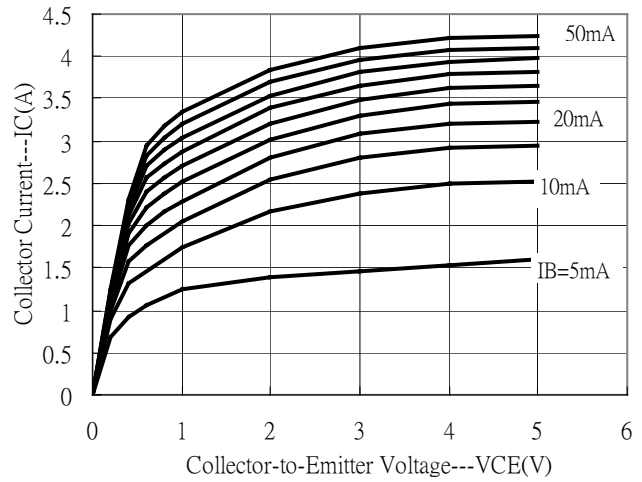
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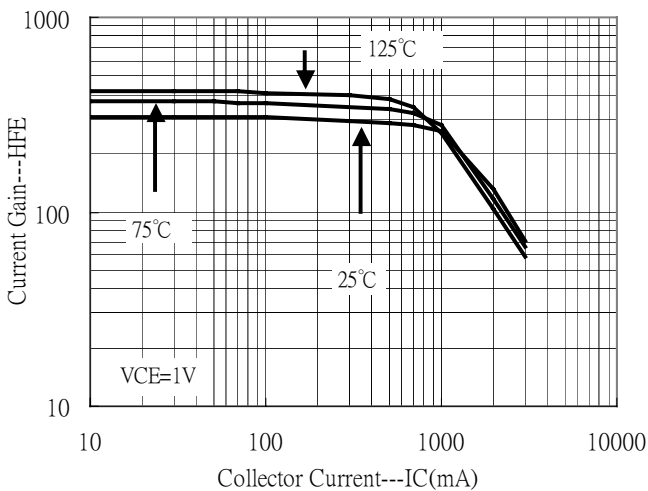
Emitter Grounded Output Characteristics



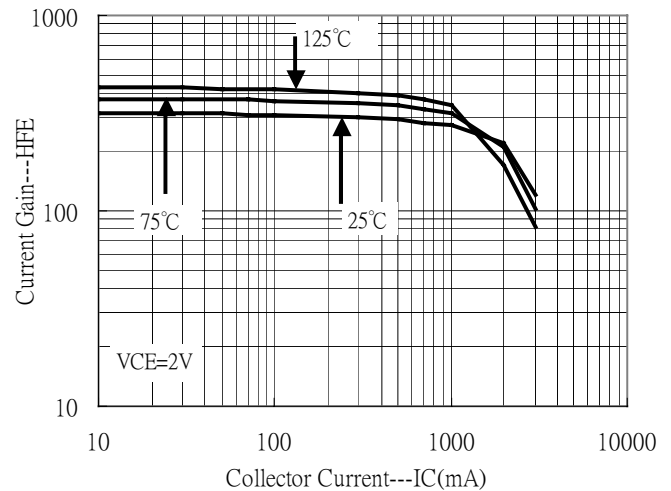
Emitter Grounded Output Characteristics



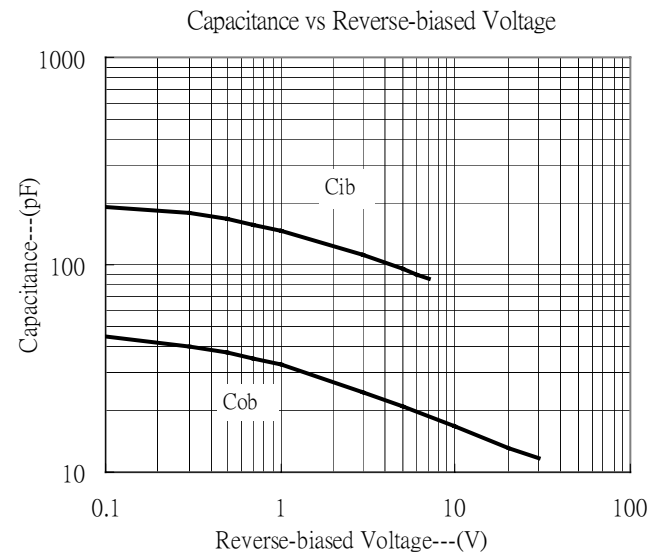
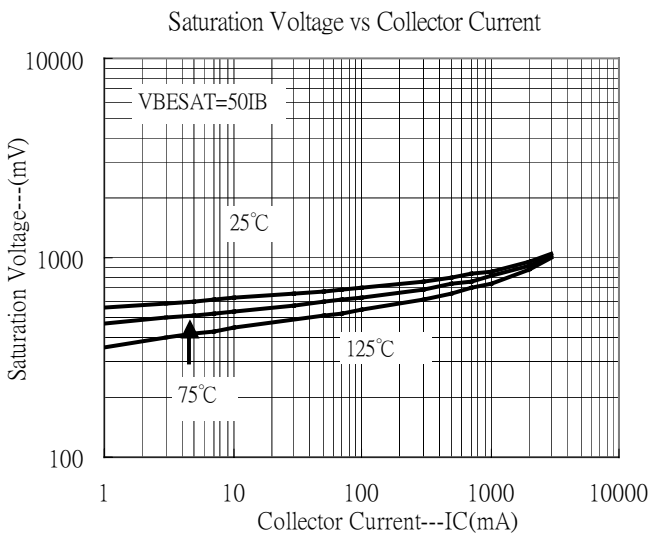
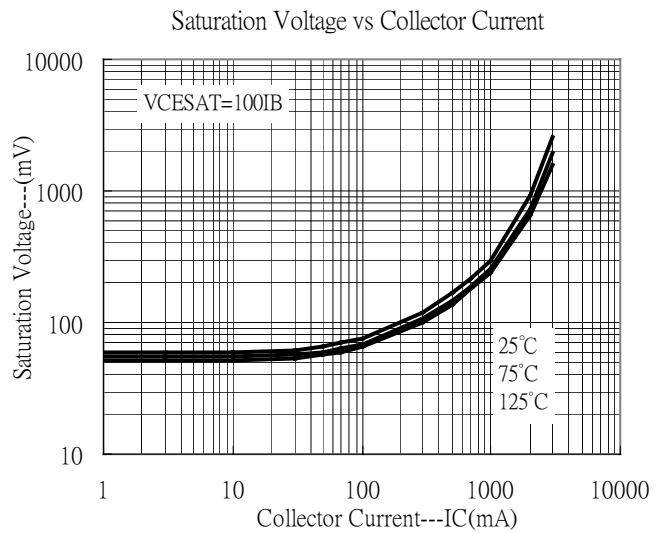
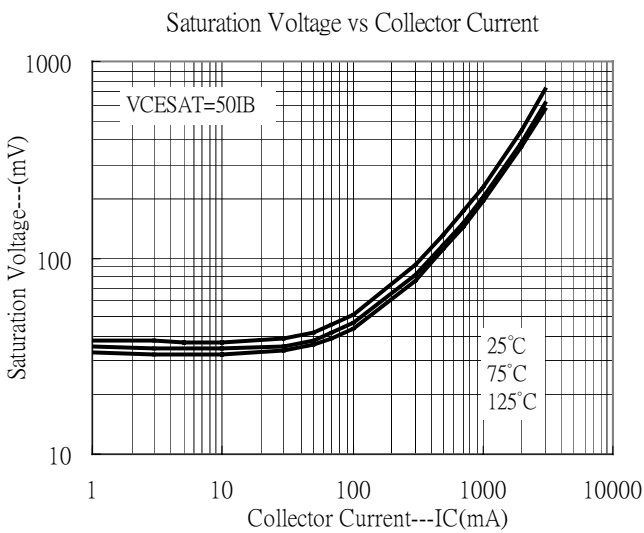
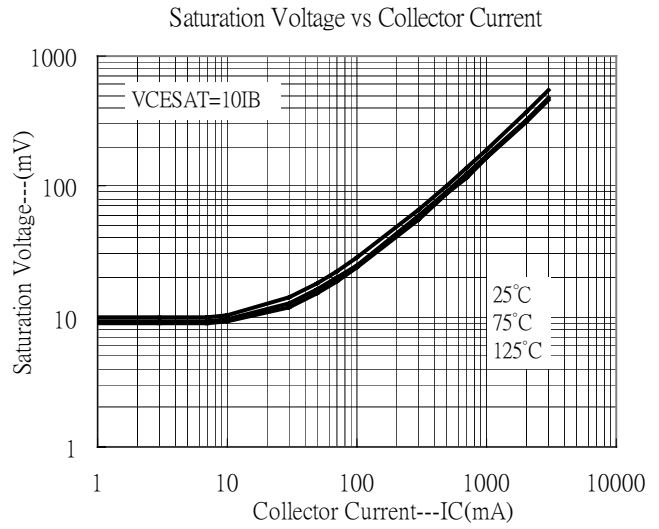
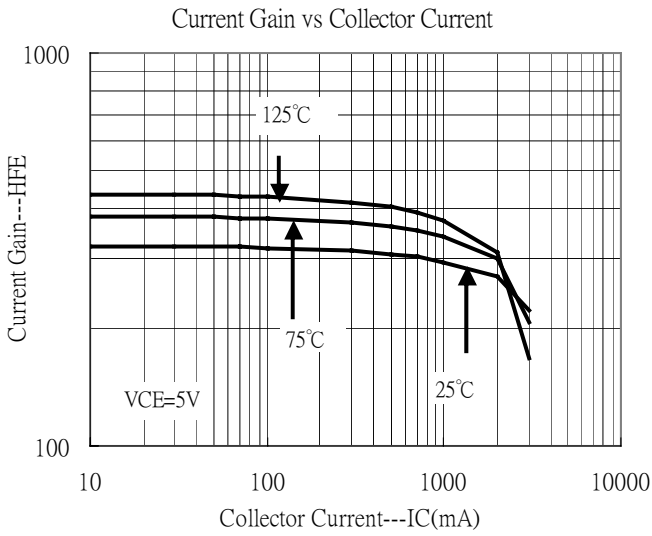
Current Gain vs Collector Current



Current Gain vs Collector Current

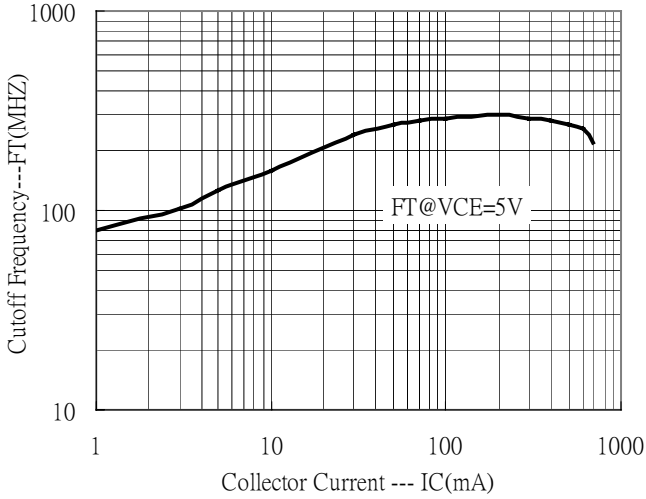


**Typical Characteristics(Cont.)**

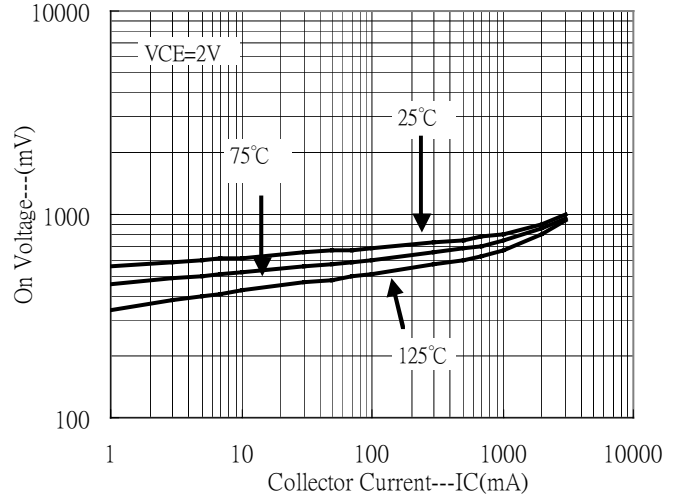


**Typical Characteristics(Cont.)**

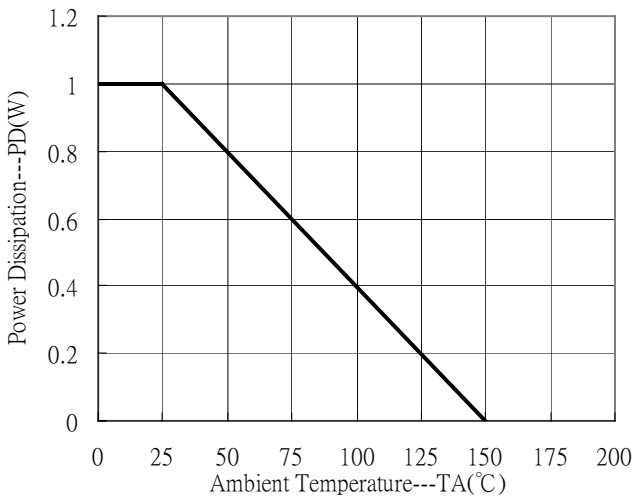
Cutoff Frequency vs Collector Current



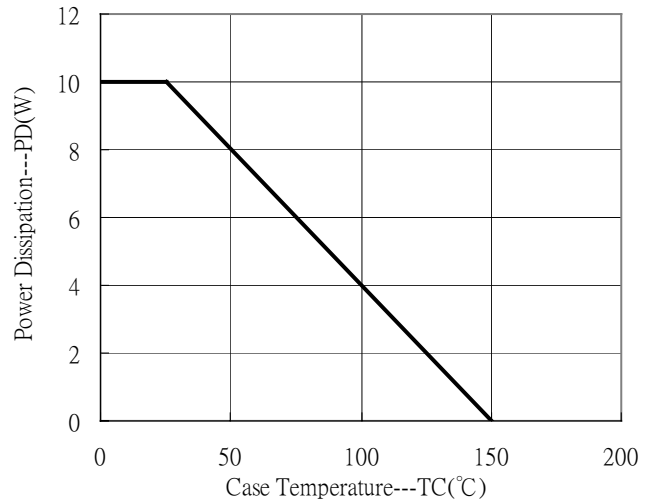
On Voltage vs Collector Current



Power Derating Curve

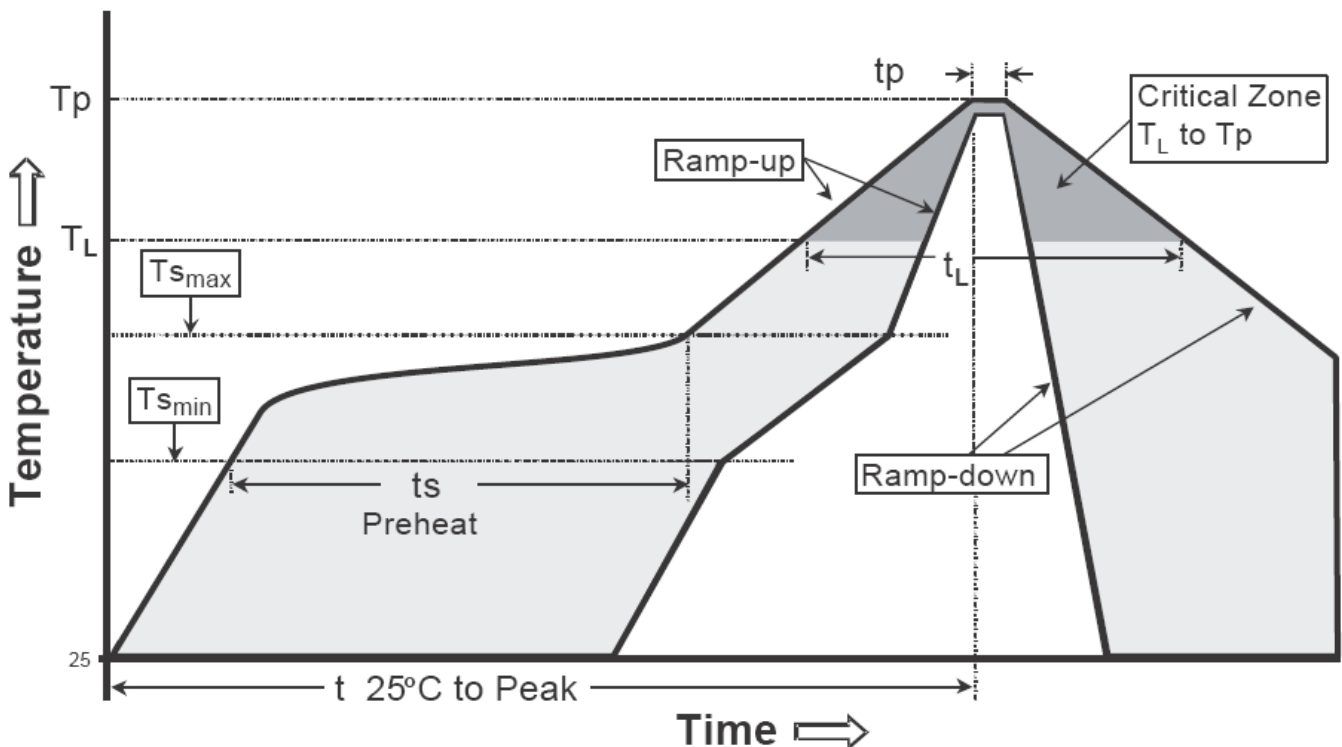


Power Derating Curve



**Recommended wave soldering condition**

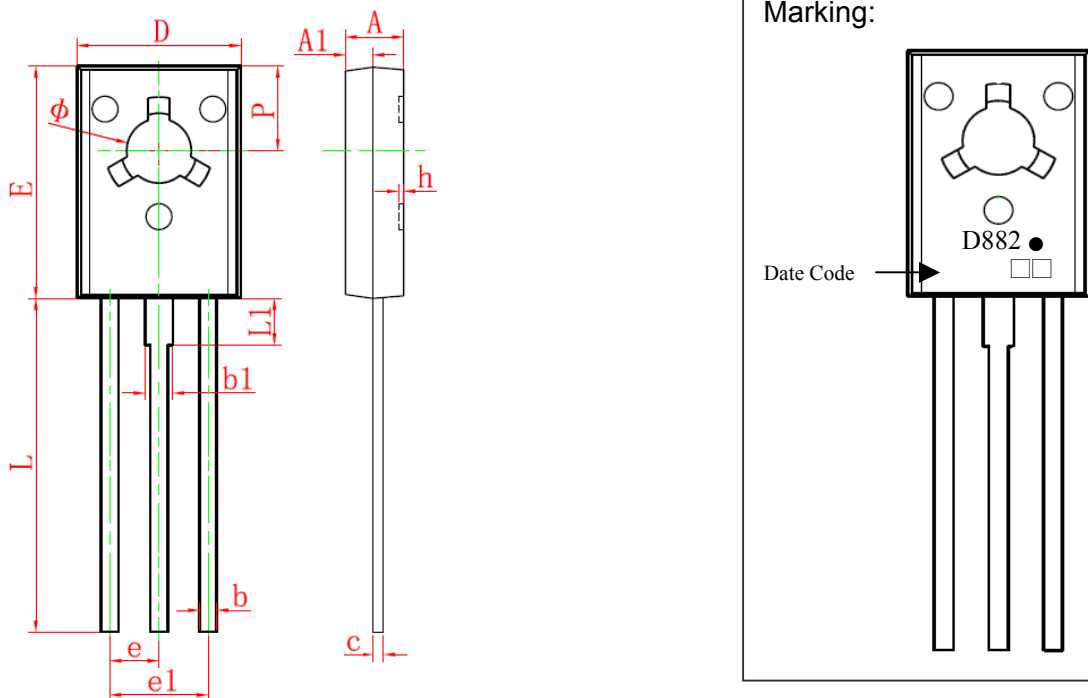
Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

**Recommended temperature profile for IR reflow**


Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T <sub>smax</sub> to T <sub>p</sub> )	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T <sub>s min</sub> )	100°C	150°C
-Temperature Max(T <sub>s max</sub> )	150°C	200°C
-Time(t <sub>s min</sub> to t <sub>s max</sub> )	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T <sub>L</sub> )	183°C	217°C
- Time (t <sub>L</sub> )	60-150 seconds	60-150 seconds
Peak Temperature(T <sub>p</sub> )	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(t <sub>p</sub> )	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:

Date Code →

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

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

\*: 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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