## Low Vcesat NPN Epitaxial Planar Transistor

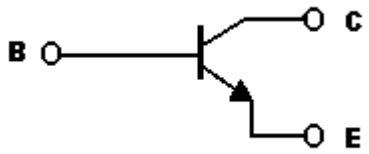
# BTC5201D3

## Features

- Low $V_{CE(sat)}$
- High $BV_{CEO}$
- Excellent current gain characteristics

## Symbol

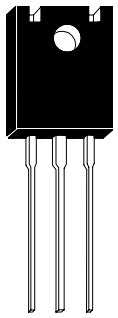
BTC5201D3




B：Base
C：Collector
E：Emitter

## Outline

TO-126ML



E C B

## 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 | $V_{EBO}$ | 6 | V |
| Collector Current (DC) | $I_C$ | 8 | A |
| Collector Current (Pulse) | $I_{CP}$ | 16 (Note 1) | |
| Base Current | $I_B$ | 1 | A |
| Power Dissipation @ $T_A$=25℃ | $P_D$ | 1.5 | W |
| Power Dissipation @ $T_C$=25℃ | $P_D$ | 20 | |
| 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 : 1. Single Pulse , Pw≦380μs,Duty≦2%.

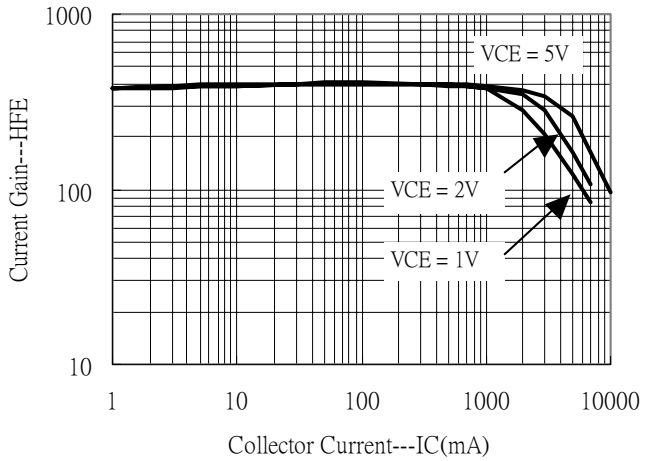
## Characteristics (Ta=25°C)

| Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|---|---|---|---|---|---|
| $BV_{CEO(SUS)}$ | 80 | - | - | V | $I_C$=30mA, $I_B$=0 |
| $I_{CES}$ | - | - | 10 | μA | $V_{CE}$=80V, $V_{BE}$=0 |
| $I_{EBO}$ | - | - | 50 | μA | $V_{EB}$=5V,$I_C$=0 |
| *$V_{CE(sat)}$ 1 | - | 0.1 | 0.3 | V | $I_C$=2A, $I_B$=0.2A |
| *$V_{CE(sat)}$ 2 | - | - | 0.6 | V | $I_C$=8A, $I_B$=0.4A |
| *$V_{BE(sat)}$ 1 | - | - | 1.2 | V | $I_C$=2A, $I_B$=0.2A |
| *$V_{BE(sat)}$ 2 | - | - | 1.5 | V | $I_C$=8A, $I_B$=0.8A |
| *$h_{FE}$ 1 | 60 | - | - | - | $V_{CE}$=1V, $I_C$=0.1A |
| *$h_{FE}$ 2 | 40 | - | - | - | $V_{CE}$=1V, $I_C$=4A |
| $f_T$ | - | 50 | - | MHz | $V_{CE}$=6V, $I_C$=500mA, f=20MHz |
| Cob | - | 130 | - | pF | $V_{CB}$=10V, f=1MHz |

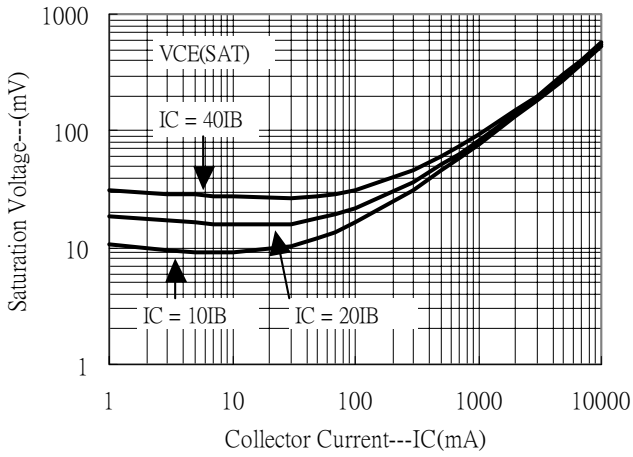
*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

## Characteristic Curves

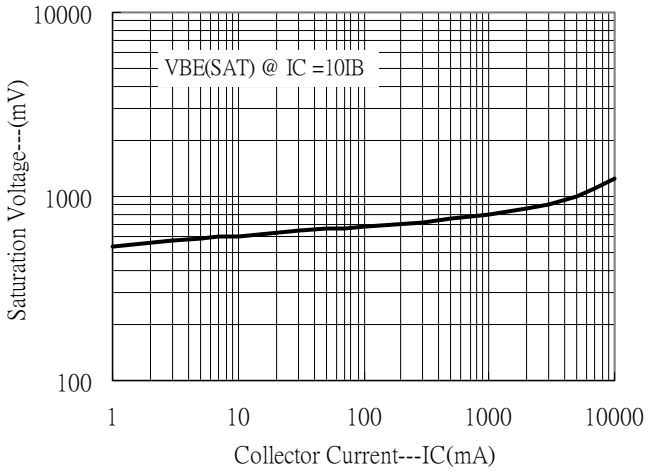
Current Gain vs Collector Current



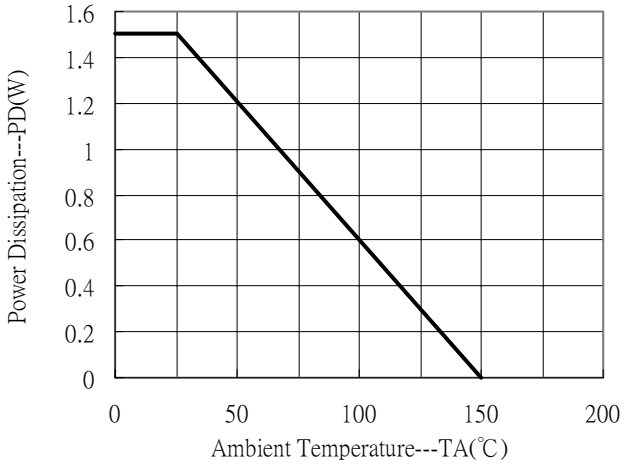

Saturation Voltage vs Collector Current



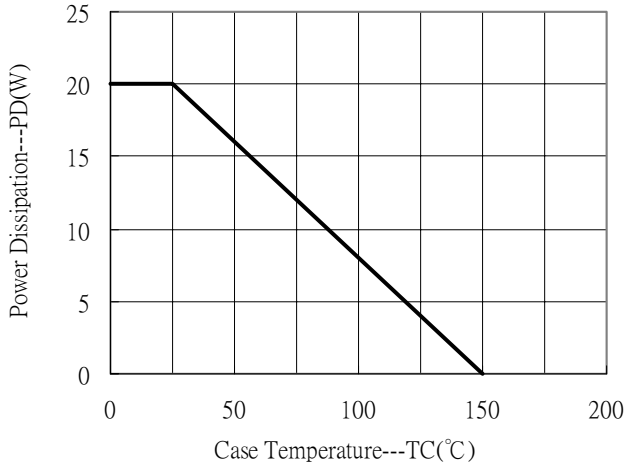

Saturation Voltage vs Collector Current



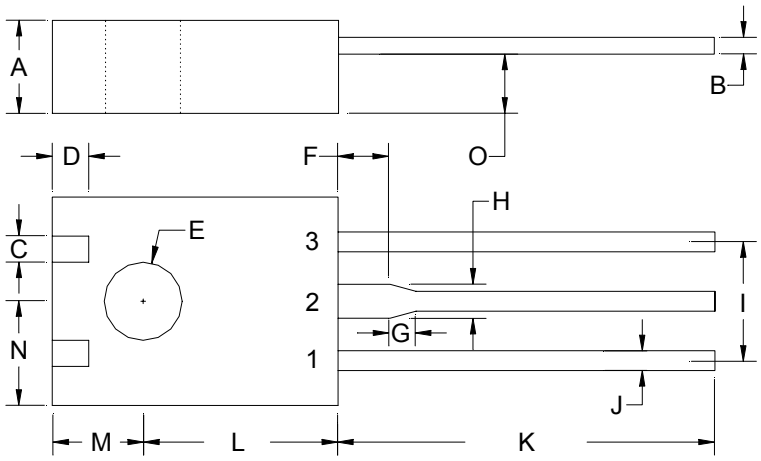

Power Derating Curve



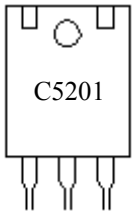

Power Derating Curve



## TO-126ML Dimension




Marking:




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

3-Lead TO-126ML Plastic Package
CYStek Package Code: D3

*: Typical

| DIM | Inches | | Millimeters | | DIM | Inches | | Millimeters | |
|---|---|---|---|---|---|---|---|---|---|
| | Min. | Max. | Min. | Max. | | Min. | Max. | Min. | Max. |
| A | 0.1356 | 0.1457 | 3.44 | 3.70 | I | - | *0.1795 | - | *4.56 |
| B | 0.0170 | 0.0272 | 0.43 | 0.69 | J | 0.0268 | 0.0331 | 0.68 | 0.84 |
| C | 0.0344 | 0.0444 | 0.87 | 1.12 | K | 0.5512 | 0.5906 | 14.00 | 15.00 |
| D | 0.0501 | 0.0601 | 1.27 | 1.52 | L | 0.2903 | 0.3003 | 7.37 | 7.62 |
| E | 0.1131 | 0.1231 | 2.87 | 3.12 | M | 0.1378 | 0.1478 | 3.50 | 3.75 |
| F | 0.0737 | 0.0837 | 1.87 | 2.12 | N | 0.1525 | 0.1625 | 3.87 | 4.12 |
| G | 0.0294 | 0.0494 | 0.74 | 1.25 | O | 0.0740 | 0.0842 | 1.88 | 2.14 |
| H | 0.0462 | 0.0562 | 1.17 | 1.42 | | | | | |

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