# NPN Epitaxial Planar Transistor

## Features:

- 5W power dissipation
- Excellent $H_{FE}$ Characteristics up to 1A
- Low Saturation Voltage
  $V_{CE(sat)}$=0.15V(typ)($I_C$=1A,$I_B$=50mA).
- 5A peak pulse current

## Absolute Maximum Ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 150 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 75 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 5 | V |
| Collector Current(DC) | $I_C$ | 1.5 | A |
| Collector Current(Pulsed) | $I_{CP}$ | 5 (Note) | |
| Power Dissipation @$T_C$=25℃ | $P_D$ | 5 | W |
| Junction Temperature | Tj | 150 | °C |
| Storage Temperature | Tstg | -55~+150 | °C |

Note : Single pulse, Pw≤300μs, Duty Cycle≤2%.

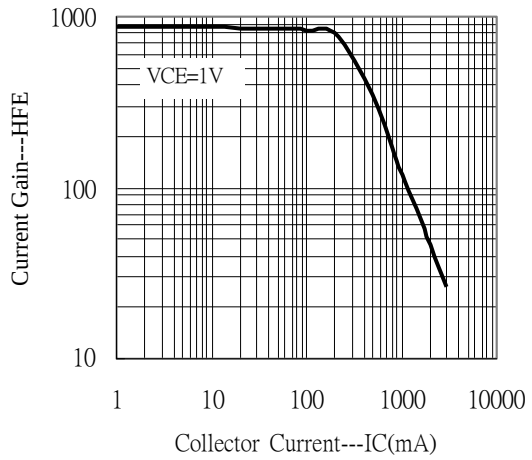
## Characteristics (Ta=25°C)

| Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|---|---|---|---|---|---|
| $BV_{CBO}$ | 150 | 300 | - | V | $I_C$=100μA |
| $BV_{CES}$ | 150 | 300 | | V | $I_C$=100μA |
| $BV_{CEO}$ | 75 | 100 | - | V | $I_C$=10mA |
| $BV_{EBO}$ | 5 | 7.7 | - | V | $I_E$=100μA |
| $I_{CBO}$ | - | 0.9 | 10 | nA | $V_{CB}$=120V |
| $I_{CES}$ | - | 0.9 | 10 | nA | $V_{CE}$=120V |
| $I_{EBO}$ | - | 0.6 | 10 | nA | $V_{EB}$=4V |
| $V_{CE(sat)}$ 1 * | - | - | 40 | mV | $I_C$=200mA, $I_B$=20mA |
| $V_{CE(sat)}$ 2 * | - | - | 200 | mV | $I_C$=500mA, $I_B$=20mA |
| $V_{CE(sat)}$ 3 * | - | - | 1.2 | V | $I_C$=1A, $I_B$=10mA |
| $V_{CE(sat)}$ 4 * | - | - | 500 | mV | $I_C$=2A, $I_B$=100mA |
| $V_{BE(sat)}$ * | - | 1.1 | 1.2 | V | $I_C$=3A,$I_B$=100mA |
| $V_{BE(on)}$ * | - | 1.1 | 1.2 | V | $V_{CE}$=2V, $I_C$=3A |
| $h_{FE}$ 1 * | 270 | - | - | - | $V_{CE}$=2V, $I_C$=10mA |
| $h_{FE}$ 2 * | 300 | 600 | 1200 | - | $V_{CE}$=2V, $I_C$=500mA |
| $h_{FE}$ 3 * | 120 | 180- | - | - | $V_{CE}$=2V, $I_C$=1A |
| $h_{FE}$ 4 * | 10 | - | - | - | $V_{CE}$=2V, $I_C$=4.5A |
| $f_T$ | - | 140 | - | MHz | $V_{CE}$=10V, $I_C$=50mA, f=100MHz |
| Cob | - | 20 | - | pF | $V_{CB}$=10V, $I_E$=0A,f=1MHz |

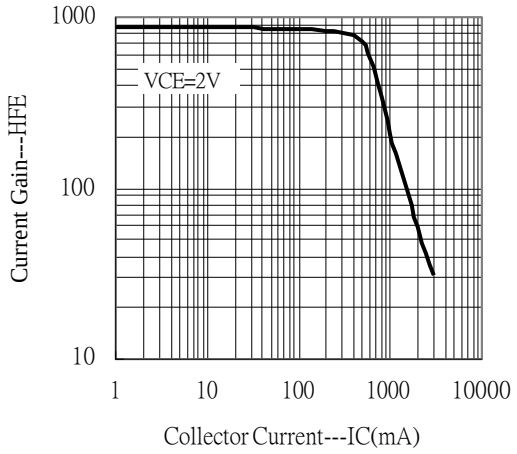
*Pulse Test: Pulse Width ≤300us, Duty Cycle≤2%

## Characteristic Curves

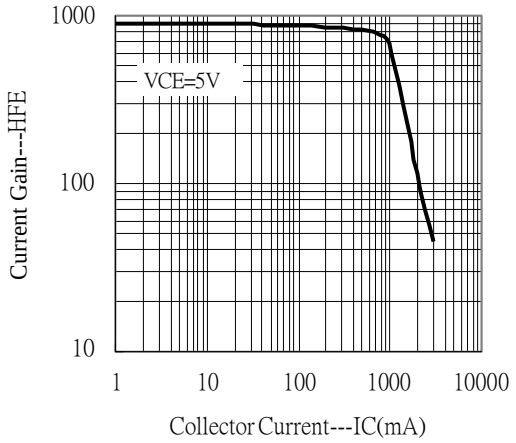
Current Gain vs Collector Current



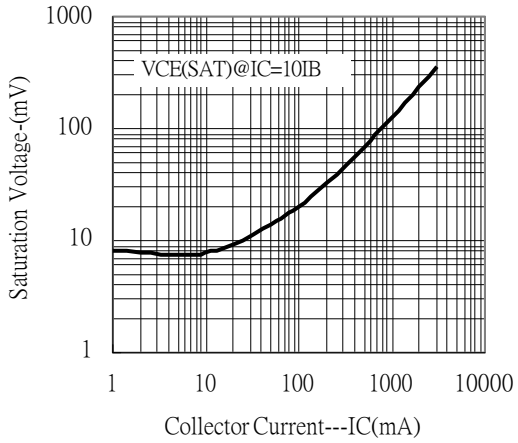

Current Gain vs Collector Current



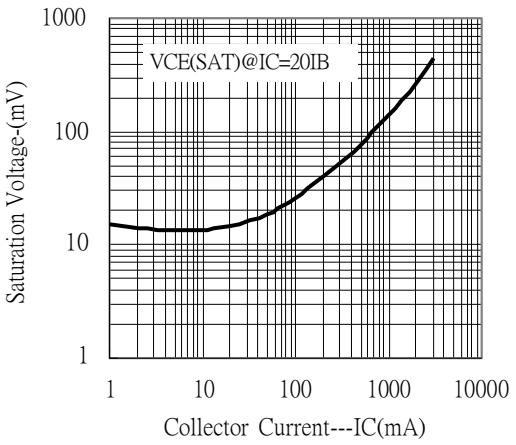

Current Gain vs Collector Current



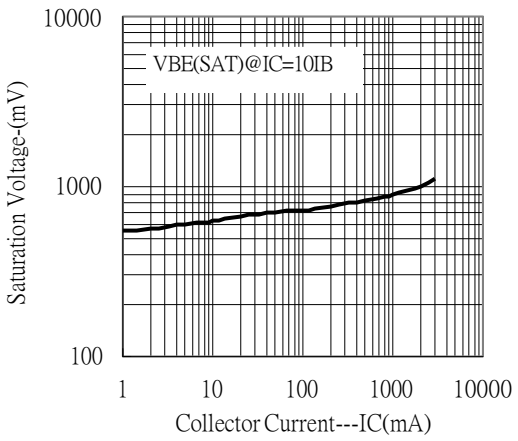

Saturation Voltage vs Collector Current



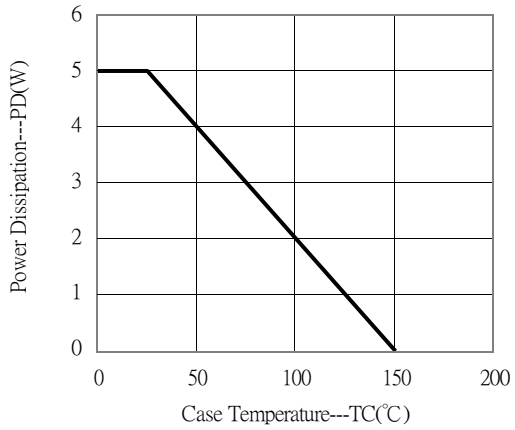

Saturation Voltage vs Collector Current



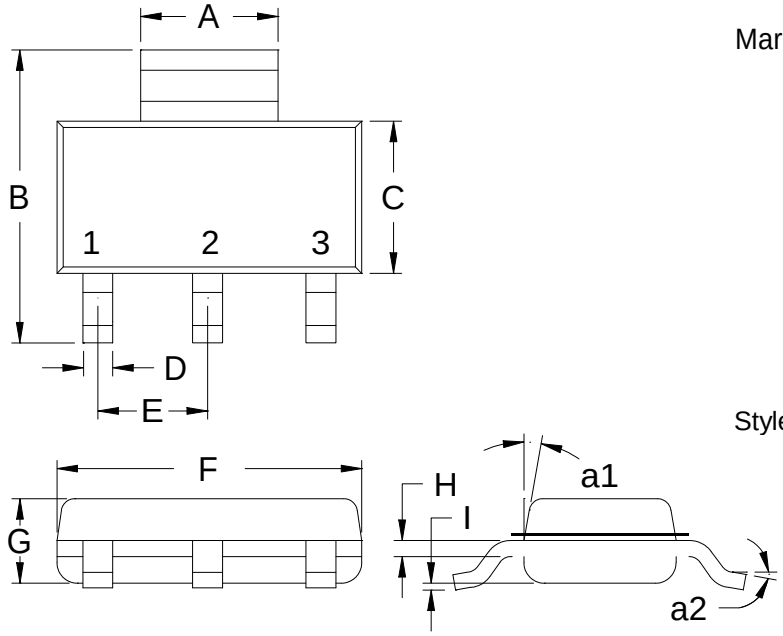

Saturation Voltage vs Collector Current



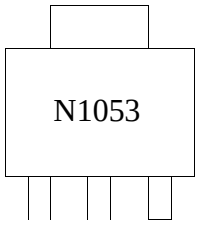
Power Derating Curve



## SOT-223 Dimension




Marking:




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

3-Lead SOT-223 Plastic
Surface Mounted Package
Code: L3

*: Typical

| DIM | Inches | | Millimeters | | DIM | Inches | | Millimeters | |
|---|---|---|---|---|---|---|---|---|---|
| | Min. | Max. | Min. | Max. | | Min. | Max. | Min. | Max. |
| A | 0.1142 | 0.1220 | 2.90 | 3.10 | G | 0.0551 | 0.0709 | 1.40 | 1.80 |
| B | 0.2638 | 0.2874 | 6.70 | 7.30 | H | 0.0098 | 0.0138 | 0.25 | 0.35 |
| C | 0.1299 | 0.1457 | 3.30 | 3.70 | I | 0.0008 | 0.0039 | 0.02 | 0.10 |
| D | 0.0236 | 0.0315 | 0.60 | 0.80 | a1 | *13° | - | *13° | - |
| E | *0.0906 | - | *2.30 | - | a2 | 0° | 10° | 0° | 10° |
| F | 0.2480 | 0.2638 | 6.30 | 6.70 | | | | | |