

Silicon NPN transistor epitaxial type
C5886

[Applications]

Supply line switching circuits, Battery charger
 DC-DC converter, MOSFET driver

[Feature]

Very low collector saturation voltage $V_{CE(sat)} = 355\text{mV}$ (Max.) at $I_C = 5\text{A}$, $I_B = 0.5\text{A}$

[Absolute maximum ratings (Ta=25C)]

| Characteristic | Symbol | Maximum ratings | Unit |
|---------------------------|--------|-----------------|------|
| Collector-base voltage | VCBO | 40 | V |
| Collector-emitter voltage | VCEO | 40 | V |
| Emitter-base voltage | VEBO | 6 | V |
| Collector current (DC) | IC | 5 | A |
| Collector current (Pulse) | ICP | 10 | A |
| Base current (Pulse) | IBP | 2 | A |
| Junction temperature | Tj | 150 | C |
| Storage temperature | Tstg | -55 to 150 | C |

[Electrical characteristics (Ta=25C)]

| Characteristic | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|----------------------------------------|----------------|------|------|------|------|---------------------------------------------------------------|
| Collector-base breakdown voltage | BVCBO | 40 | - | - | V | $I_C = 100\mu\text{A}$, $I_E = 0\text{A}$ |
| Collector-emitter breakdown voltage | BVCEO | 40 | - | - | V | $I_C = 10\text{mA}$, $I_B = 0\text{A}$ |
| Emitter-base breakdown voltage | BVEBO | 6 | - | - | V | $I_E = 100\mu\text{A}$, $I_C = 0\text{A}$ |
| Collector cut-off current | ICBO | - | - | 100 | nA | $V_{CB} = 30\text{V}$, $I_E = 0\text{A}$ |
| Emitter cut-off current | IEBO | - | - | 100 | nA | $V_{EB} = 5\text{V}$, $I_C = 0\text{A}$ |
| DC current gain 1 | hFE 1 | 300 | 500 | - | - | $V_{CE} = 2\text{V}$, $I_C = 0.5\text{A}$ |
| DC current gain 2 | hFE 2 | 300 | 500 | - | - | $V_{CE} = 2\text{V}$, $I_C = 1\text{A}$ |
| DC current gain 3 | hFE 3 | 250 | 450 | - | - | $V_{CE} = 2\text{V}$, $I_C = 2\text{A}$ |
| DC current gain 4 | hFE 4 | 100 | 300 | - | - | $V_{CE} = 2\text{V}$, $I_C = 5\text{A}$ |
| Collector-emitter saturation voltage 1 | $V_{CE(sat)1}$ | - | 50 | 90 | mV | $I_C = 0.5\text{A}$, $I_B = 5\text{mA}$ |
| Collector-emitter saturation voltage 2 | $V_{CE(sat)2}$ | - | 75 | 120 | mV | $I_C = 1\text{A}$, $I_B = 10\text{mA}$ |
| Collector-emitter saturation voltage 3 | $V_{CE(sat)3}$ | - | 90 | 150 | mV | $I_C = 2\text{A}$, $I_B = 0.2\text{A}$ |
| Collector-emitter saturation voltage 4 | $V_{CE(sat)4}$ | - | 210 | 355 | mV | $I_C = 5\text{A}$, $I_B = 0.5\text{A}$ |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | - | 1.1 | 1.3 | V | $I_C = 5\text{A}$, $I_B = 0.5\text{A}$ |
| Base-emitter on voltage | $V_{BE(on)}$ | - | 0.8 | 1.1 | V | $V_{CE} = 2\text{V}$, $I_C = 2\text{A}$ |
| Transition frequency | fT | 70 | 130 | - | MHz | $V_{CE} = 10\text{V}$, $I_E = -0.1\text{A}$ |
| Collector output capacitance | Cob | - | 60 | 75 | pF | $V_{CB} = 10\text{V}$, $f = 1\text{MHz}$, $I_E = 0\text{A}$ |

Notice 1) These are measured data of transistors assembled by PHENITEC SEMICONDUCTOR Corp. and are for reference only.

Notice 2) The contents described herein are subject to change without notice.

Fig.1 IC - VBE(on)
at VCE= 2V, Ta= 25C

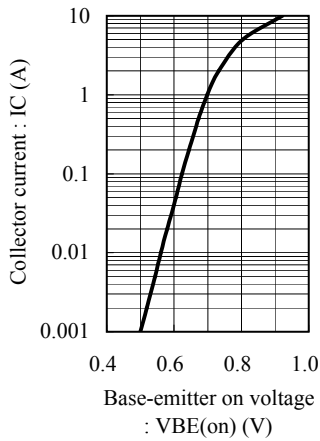


Fig.2 hFE - IC
at VCE= 2V, Ta= 25C

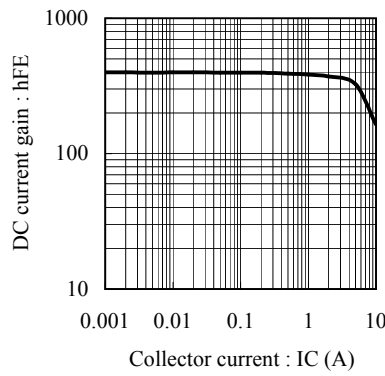


Fig.3 VCE(sat) - IC
at IC/IB= 10, Ta= 25C

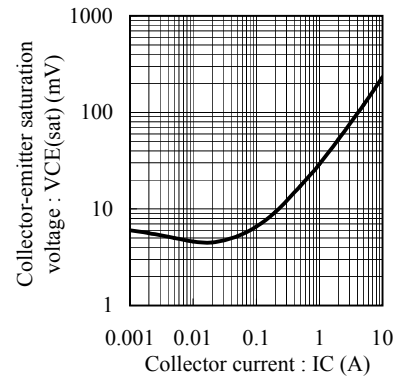


Fig.4 VCE(sat) - IC
at IC/IB= 100, Ta= 25C

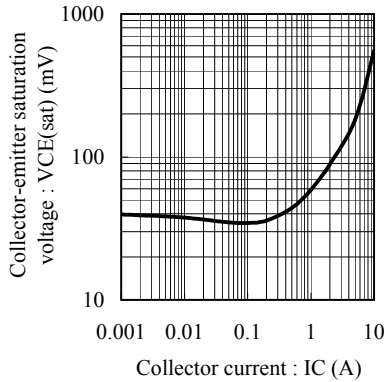


Fig.5 VBE(sat) - IC
at IC/IB= 10, Ta= 25C

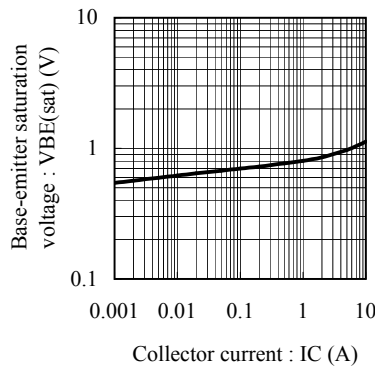


Fig.6 fT - IE
at VCE= 10V, Ta= 25C

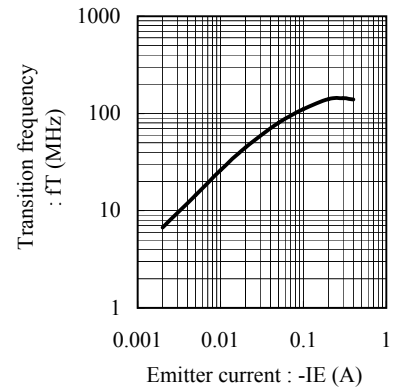


Fig.7 Cob - VCB
at f= 1MHz, Ta= 25C

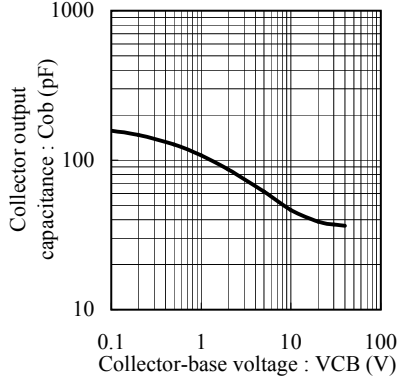


Fig.8 Cib - VEB
at f= 1MHz, Ta= 25C

