

## Silicon PNP transistor epitaxial type BP865

### [ Applications ]

Battery charger

Low voltage switching

### [ Feature ]

Low collector saturation voltage  $V_{CE(sat)} = -0.6V$  (Max.) at  $I_C = -10A$ ,  $I_B = -0.33A$

High speed switching

### [ Absolute maximum ratings (Ta=25C) ]

| Characteristic            | Symbol | Maximum ratings | Unit |
|---------------------------|--------|-----------------|------|
| Collector-base voltage    | VCBO   | -50             | V    |
| Collector-emitter voltage | VCEO   | -40             | V    |
| Emitter-base voltage      | VEBO   | -5              | V    |
| Collector current (DC)    | IC     | -10             | A    |
| Collector current (Pulse) | ICP    | -20             | 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-emitter breakdown voltage  | BVCEO         | -40  | -    | -    | V    | $I_C = -10mA$ , $I_B = 0A$                |
| Collector cut-off current            | ICBO          | -    | -    | -50  | uA   | $V_{CB} = -50V$ , $I_E = 0A$              |
| Emitter cut-off current              | IEBO          | -    | -    | -50  | uA   | $V_{EB} = -5V$ , $I_C = 0A$               |
| DC current gain 1                    | hFE 1         | 45   | -    | -    | -    | $V_{CE} = -2V$ , $I_C = -0.1A$            |
| DC current gain 2                    | hFE 2         | 90   | -    | 260  | -    | $V_{CE} = -2V$ , $I_C = -3A$              |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | -    | -    | -0.6 | V    | $I_C = -10A$ , $I_B = -0.33A$             |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | -    | -    | -1.5 | V    | $I_C = -10A$ , $I_B = -0.33A$             |
| Transition frequency                 | fT            | -    | 40   | -    | MHz  | $V_{CE} = -10V$ , $I_E = 0.5A$            |
| Collector output capacitance         | Cob           | -    | 300  | -    | pF   | $V_{CB} = -10V$ , $f = 1MHz$ , $I_E = 0A$ |
| Turn on time                         | ton           | -    | 0.1  | -    | us   | $V_{CC} = -20V$                           |
| Storage time                         | tstg          | -    | 0.5  | -    | us   | $I_C = -3A$                               |
| Fall time                            | tf            | -    | 0.1  | -    | us   | $I_B1 = -I_B2 = -0.1A$                    |

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

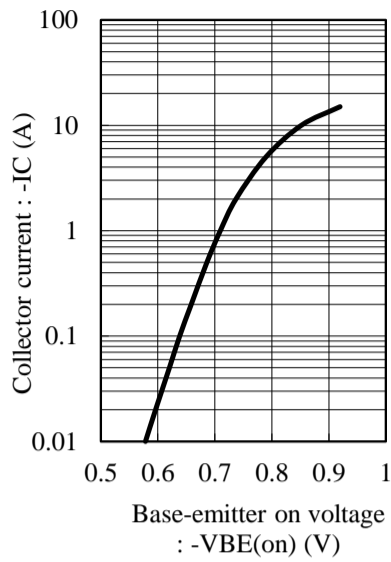


Fig.2 hFE - IC  
at VCE= -2V, Ta= 25C

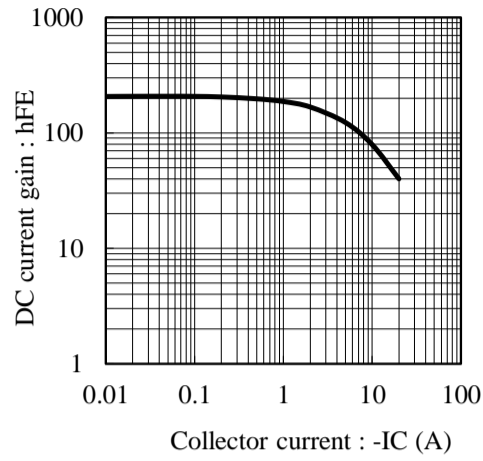


Fig.3 VCE(sat) - IC  
at IC/IB= 30, Ta= 25C

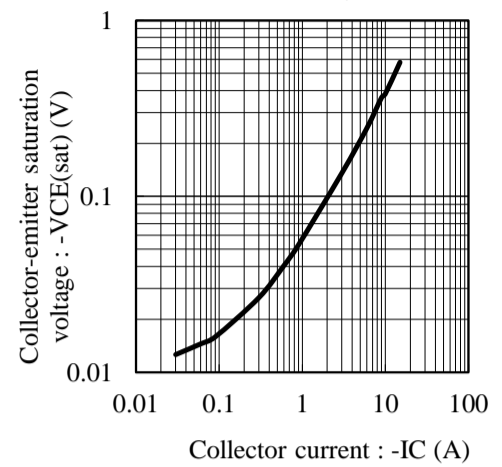


Fig.4 VBE(sat) - IC  
at IC/IB= 30, Ta= 25C

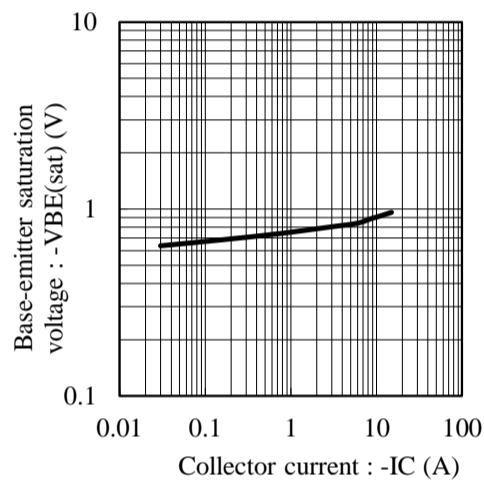


Fig.5 fT - IE  
at VCE= -10V, Ta= 25C

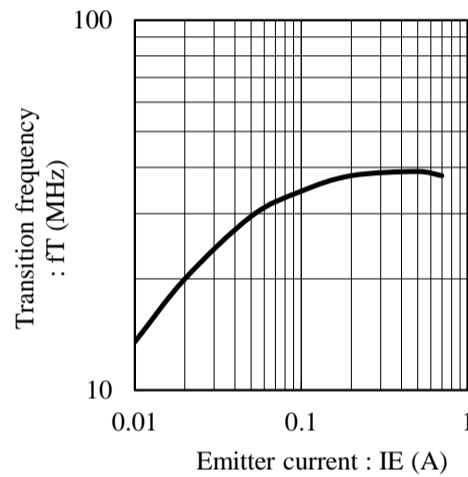


Fig.6 Cob - VCB  
at f= 1MHz, Ta= 25C

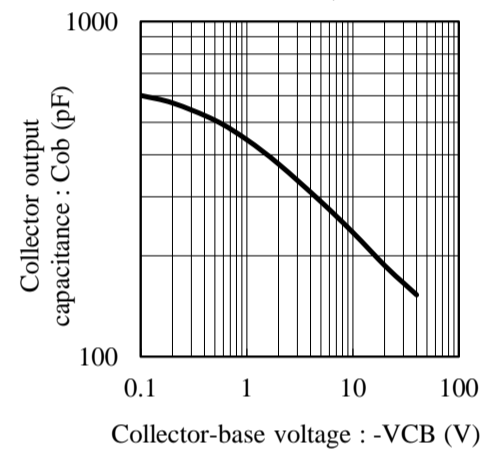


Fig.7 Cib - VEB  
at f= 1MHz, Ta= 25C

