



## PRODUCT DATA SHEET



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**Datasheet**



**Resources**

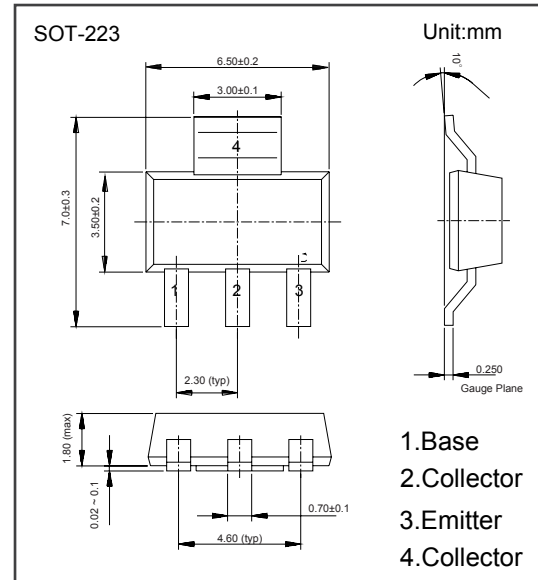


**Samples**

Please note: Please check the JINGAO Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at [www.jg-semi.cn](http://www.jg-semi.cn). Please email any questions regarding the system integration to [JINGAO\\_questions@jgsemi.com](mailto:JINGAO_questions@jgsemi.com).

### ■ Features

- Collector Current Capability  $I_C=6A$
- Collector Emitter Voltage  $V_{CEO}=60V$



### ■ Absolute Maximum Ratings $T_a = 25^{\circ}C$

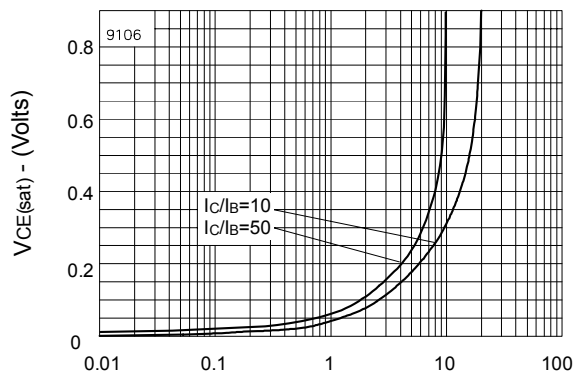
| Parameter                      | Symbol    | Rating     | Unit        |
|--------------------------------|-----------|------------|-------------|
| Collector - Base Voltage       | $V_{CB0}$ | 150        | V           |
| Collector - Emitter Voltage    | $V_{CE0}$ | 60         |             |
| Emitter - Base Voltage         | $V_{EB0}$ | 6          |             |
| Collector Current - Continuous | $I_C$     | 6          | A           |
| Collector Current - Pulse      | $I_{CP}$  | 20         |             |
| Collector Power Dissipation    | $P_C$     | 3          | W           |
| Junction Temperature           | $T_J$     | 150        | $^{\circ}C$ |
| Storage Temperature Range      | $T_{stg}$ | -55 to 150 |             |

**■ Electrical Characteristics Ta = 25°C**

| Parameter                                                            | Symbol               | Test Conditions                                         | Min | Typ  | Max  | Unit    |
|----------------------------------------------------------------------|----------------------|---------------------------------------------------------|-----|------|------|---------|
| Collector- base breakdown voltage                                    | V <sub>CB0</sub>     | I <sub>C</sub> = 100 $\mu$ A, I <sub>E</sub> = 0        | 150 |      |      | V       |
| Collector-emitter breakdown voltage                                  | V <sub>CER</sub>     | I <sub>C</sub> =1mA, R <sub>B</sub> $\leq$ 1k $\Omega$  | 150 |      |      |         |
| Collector- emitter breakdown voltage                                 | V <sub>CEO</sub>     | I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0              | 60  |      |      |         |
| Emitter - base breakdown voltage                                     | V <sub>EBO</sub>     | I <sub>E</sub> = 100 $\mu$ A, I <sub>C</sub> = 0        | 6   |      |      |         |
| Collector-base cut-off current                                       | I <sub>CBO</sub>     | V <sub>CB</sub> = 120 V, I <sub>E</sub> = 0             |     |      | 0.1  | $\mu$ A |
|                                                                      |                      | V <sub>CB</sub> = 120 V, I <sub>E</sub> = 0, Ta = 100°C |     |      | 1    |         |
| Collector- emitter cut-off current R <sub>B</sub> $\leq$ 1k $\Omega$ | I <sub>CER</sub>     | V <sub>CB</sub> = 120 V, I <sub>E</sub> = 0             |     |      | 0.1  |         |
|                                                                      |                      | V <sub>CB</sub> = 120 V, I <sub>E</sub> = 0, Ta = 100°C |     |      | 1    |         |
| Emitter cut-off current                                              | I <sub>EBO</sub>     | V <sub>EB</sub> = 6V, I <sub>C</sub> =0                 |     |      | 0.1  |         |
| Collector-emitter saturation voltage                                 | V <sub>CE(sat)</sub> | I <sub>C</sub> =0.1 A, I <sub>B</sub> =5mA (Note.1)     |     |      | 50   | mV      |
|                                                                      |                      | I <sub>C</sub> =1 A, I <sub>B</sub> =50mA (Note.1)      |     |      | 100  |         |
|                                                                      |                      | I <sub>C</sub> =2 A, I <sub>B</sub> =50mA (Note.1)      |     |      | 170  |         |
|                                                                      |                      | I <sub>C</sub> =6 A, I <sub>B</sub> =300mA (Note.1)     |     |      | 375  |         |
| Base - emitter saturation voltage                                    | V <sub>BE(sat)</sub> | I <sub>C</sub> =6 A, I <sub>B</sub> =300mA (Note.1)     |     |      | 1.2  | V       |
| Base-Emitter Turn On Voltage                                         | V <sub>BE(on)</sub>  | V <sub>CE</sub> = 6V, I <sub>C</sub> = 1A (Note.1)      |     |      | 1.15 |         |
| DC current gain (Note.1)                                             | h <sub>FE(1)</sub>   | V <sub>CE</sub> = 1V, I <sub>C</sub> = 10mA             | 100 |      | 300  |         |
|                                                                      | h <sub>FE(2)</sub>   | V <sub>CE</sub> = 1V, I <sub>C</sub> = 2A               | 100 |      | 300  |         |
|                                                                      | h <sub>FE(3)</sub>   | V <sub>CE</sub> = 1V, I <sub>C</sub> = 5A               | 75  |      |      |         |
|                                                                      | h <sub>FE(4)</sub>   | V <sub>CE</sub> = 1V, I <sub>C</sub> = 10A              | 25  |      |      |         |
| Switching Times                                                      | t <sub>on</sub>      | I <sub>C</sub> =1A, I <sub>B1</sub> =100mA              |     | 45   |      | ns      |
|                                                                      | t <sub>off</sub>     | I <sub>B2</sub> =100mA, V <sub>CC</sub> =10V            |     | 1100 |      |         |
| Collector output capacitance                                         | C <sub>ob</sub>      | V <sub>CB</sub> = 10V, f=1MHz                           |     | 45   |      | pF      |
| Transition frequency                                                 | f <sub>T</sub>       | V <sub>CE</sub> = 10V, I <sub>C</sub> = 100mA, f=50MHz  |     | 130  |      | MHz     |

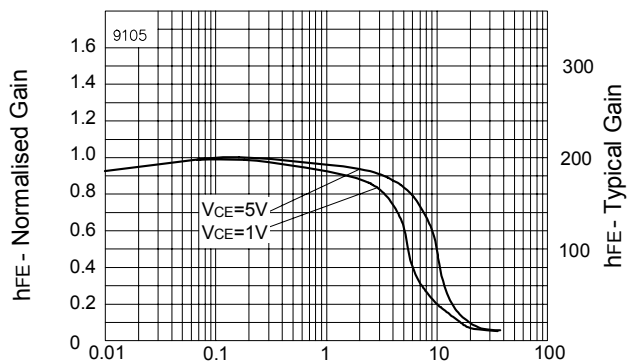
Note.1: Pulse width=300 $\mu$ s. Duty cycle  $\leq$  2%

■ Typical Characteristics



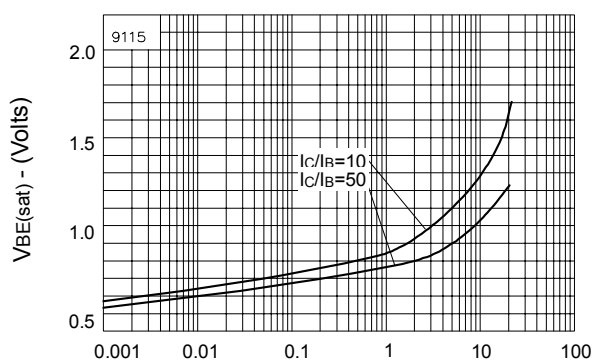
IC - Collector Current (Amps)

VCE(sat) v IC



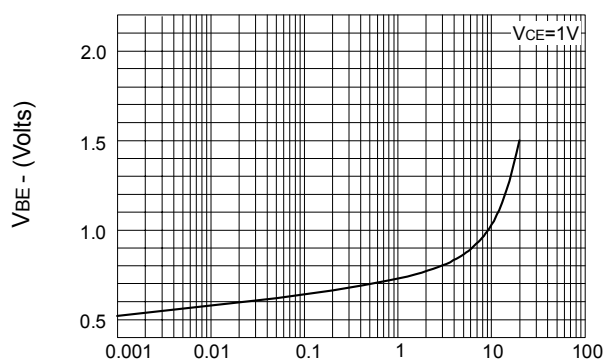
IC - Collector Current (Amps)

hFE v IC



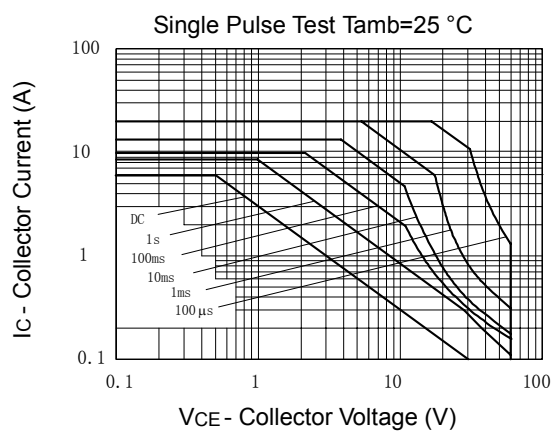
IC - Collector Current (Amps)

VBE(sat) v IC



IC - Collector Current (Amps)

VBE(on) v IC



Safe Operating Area

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