

High-frequency Amplifier Transistor (25V, 50mA, 300MHz)

2SC5659 / 2SC4618 / 2SC4098 / 2SC2413K / 2SC2058S

●Features

- 1) Low collector capacitance. (Cob : Typ. 1.3pF)
- 2) Low rbb, high gain, and excellent noise characteristics.

●Absolute maximum ratings (Ta=25°C)

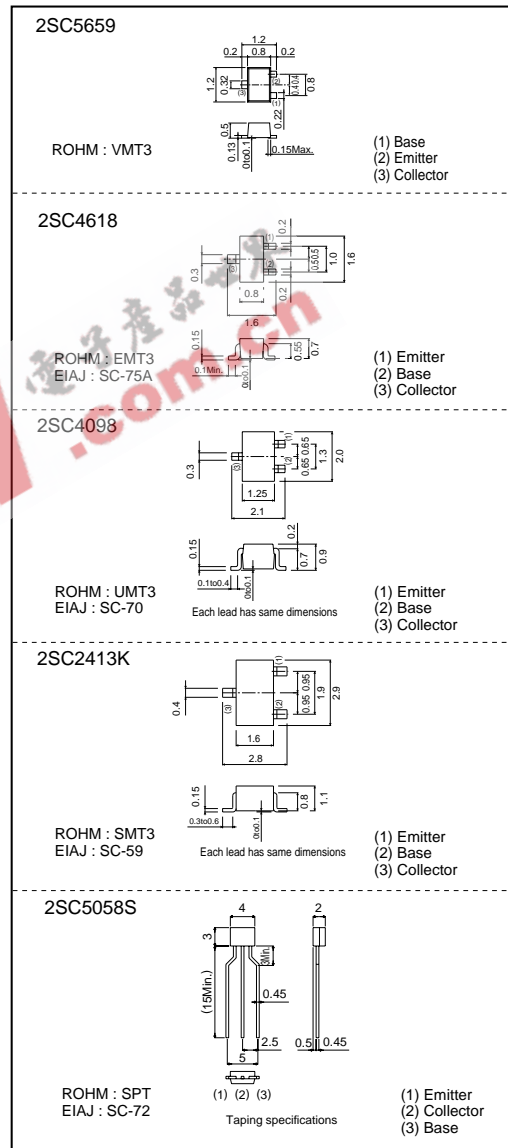
| Parameter | Symbol | Limits | Unit |
|-----------------------------|------------------|-------------|------|
| Collector-base voltage | V _{CB0} | 40 | V |
| Collector-emitter voltage | V _{CE0} | 25 | V |
| Emitter-base voltage | V _{EB0} | 5 | V |
| Collector current | I _c | 50 | mA |
| Collector power dissipation | P _c | 0.15 | W |
| | | 0.2 | |
| | | 0.25 | |
| Junction temperature | T _j | 150 | °C |
| Storage temperature | T _{stg} | -55 to +150 | °C |

●Packaging specifications and hFE

| Type | 2SC5659 | 2SC4618 | 2SC4098 | 2SC2413K | 2SC2058S |
|------------------------------|---------|---------|---------|----------|----------|
| Package | VMT3 | EMT3 | UMT3 | SMT3 | SPT |
| hFE | P | P | P | P | P |
| Marking | A* | A* | A* | A* | - |
| Code | T2L | TL | T106 | T146 | TP |
| Basic ordering unit (pieces) | 8000 | 3000 | 3000 | 3000 | 5000 |

* Denotes hFE

●External dimensions (Unit : mm)



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●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|----------------------|------|------|------|------|---|
| Collector-base breakdown voltage | BV _{CB0} | 40 | - | - | V | I _c =50μA |
| Collector-emitter breakdown voltage | BV _{CE0} | 25 | - | - | V | I _c =1mA |
| Emitter-base breakdown voltage | BV _{EB0} | 5 | - | - | V | I _E =50μA |
| Collector cutoff current | I _{CB0} | - | - | 0.5 | μA | V _{CB} =24V |
| Emitter cutoff current | I _{EB0} | - | - | 0.5 | μA | V _{EB} =3V |
| Collector-emitter saturation voltage | V _{CE(sat)} | - | 0.1 | 0.3 | V | I _c /I _b =10mA/1mA |
| DC current transfer ratio | h _{FE} | 82 | - | 180 | - | V _{CE} =6V, I _c =1mA |
| Transition frequency | f _r | 150 | 300 | - | MHz | V _{CE} =6V, I _E =-1mA, f=100MHz |
| Output capacitance | C _{ob} | - | 1.3 | 2.2 | pF | V _{CB} =6V, I _E =0A, f=1MHz |

●Electrical characteristics curves

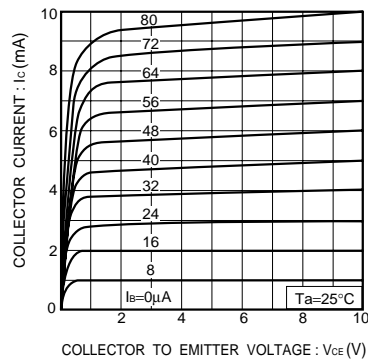


Fig.1 Ground emitter output characteristics

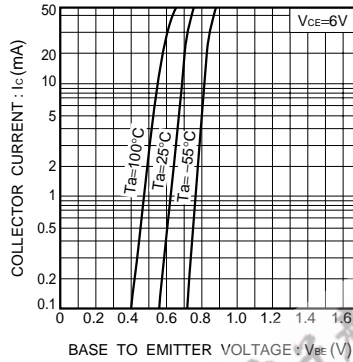


Fig.2 Ground emitter propagation characteristics

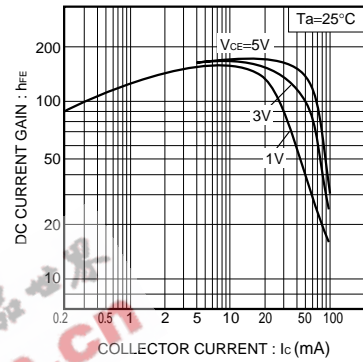


Fig.3 DC current gain vs. collector current (I)

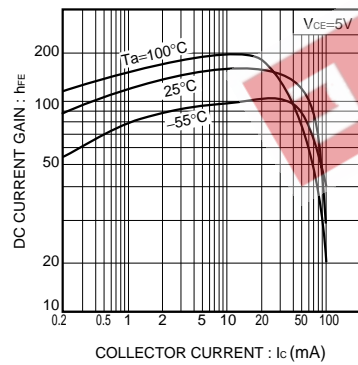


Fig.4 DC current gain vs. collector current (II)

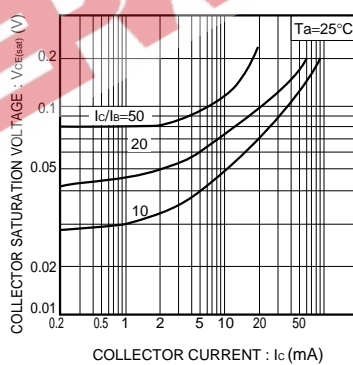


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

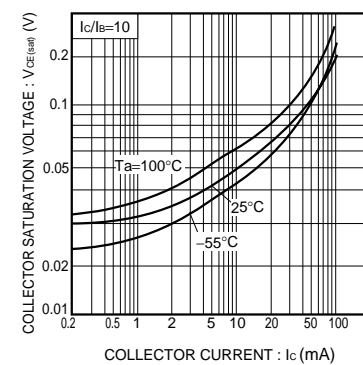


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

Transistors

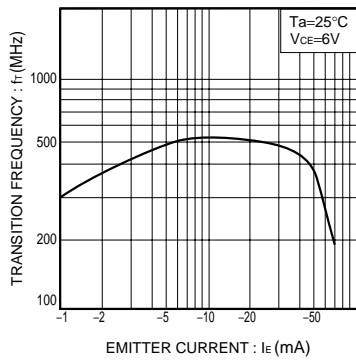


Fig.7 Gain bandwidth product vs. emitter current

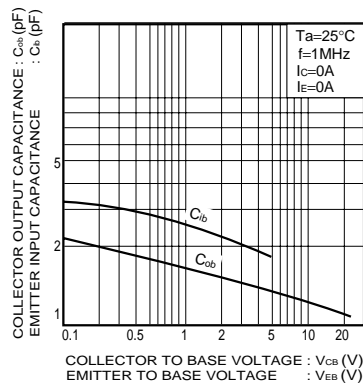


Fig.8 Capacitance vs. voltage

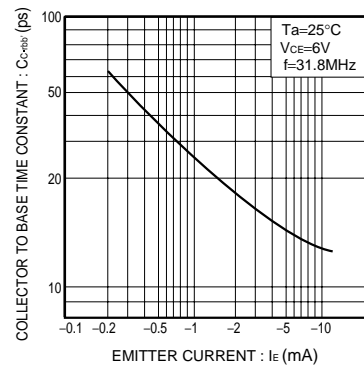


Fig.9 Collector to base time constant vs. emitter current

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