

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

2SC5659 / 2SC4618 / 2SC4098 / 2SC2413K

●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 | 2SC5659, 2SC4618 | 0.15 | W |
| | 2SC4098, 2SC2413K | 0.2 | |
| Junction temperature | T _j | 150 | °C |
| Storage temperature | T _{stg} | -55 to +150 | °C |

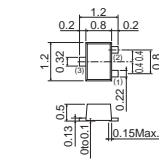
●Packaging specifications and h_{FE}

| Type | 2SC5659 | 2SC4618 | 2SC4098 | 2SC2413K |
|------------------------------|---------|---------|---------|----------|
| Package | VMT3 | EMT3 | UMT3 | SMT3 |
| h _{FE} | P | P | P | P |
| Marking | A* | A* | A* | A* |
| Code | T2L | TL | T106 | T146 |
| Basic ordering unit (pieces) | 8000 | 3000 | 3000 | 3000 |

* Denotes h_{FE}

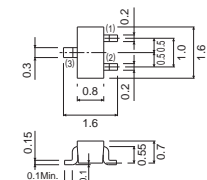
●Dimensions (Unit : mm)

2SC5659



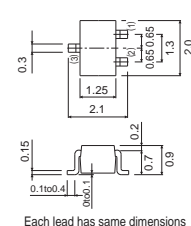
ROHM : VMT3
 (1) Base
 (2) Emitter
 (3) Collector

2SC4618



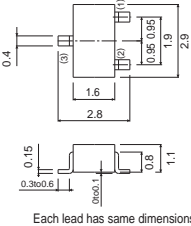
ROHM : EMT3
 EIAJ : SC-75A
 (1) Emitter
 (2) Base
 (3) Collector

2SC4098



ROHM : UMT3
 EIAJ : SC-70
 Each lead has same dimensions
 (1) Emitter
 (2) Base
 (3) Collector

2SC2413K



ROHM : SMT3
 EIAJ : SC-59
 Each lead has same dimensions
 (1) Emitter
 (2) Base
 (3) Collector

●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 _{cBO} | - | - | 0.5 | μA | V _{CB} =24V |
| Emitter cutoff current | I _{EBO} | - | - | 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 | Cob | - | 1.3 | 2.2 | pF | V _{CB} =6V, I _E =0A, f=1MHz |

●Electrical characteristics curves

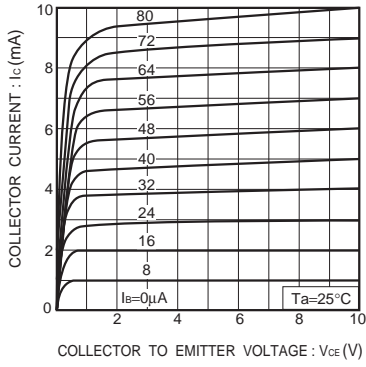


Fig.1 Ground emitter output characteristics

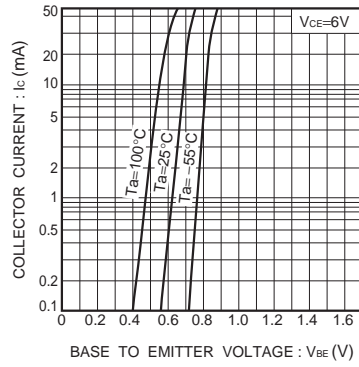


Fig.2 Ground emitter propagation characteristics

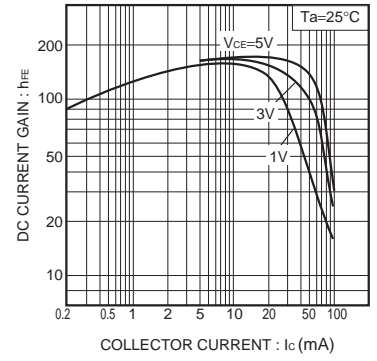


Fig.3 DC current gain vs. collector current (I)

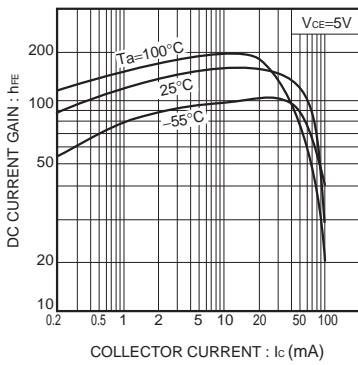


Fig.4 DC current gain vs. collector current (II)

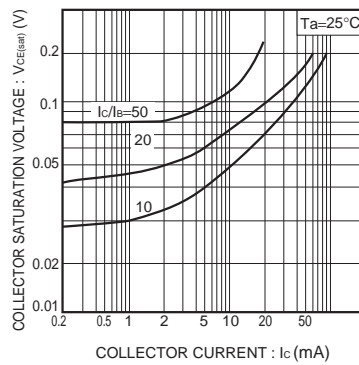


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

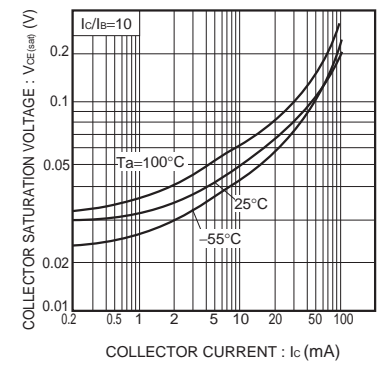


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

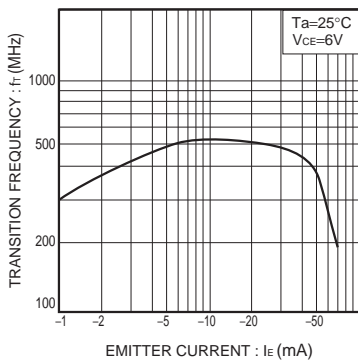


Fig.7 Gain bandwidth product vs. emitter current

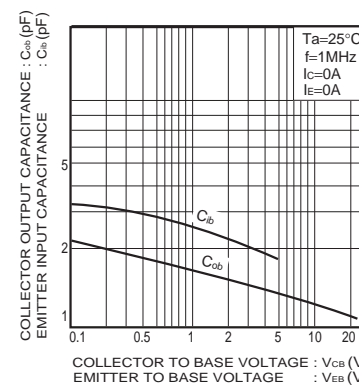


Fig.8 Capacitance vs. voltage

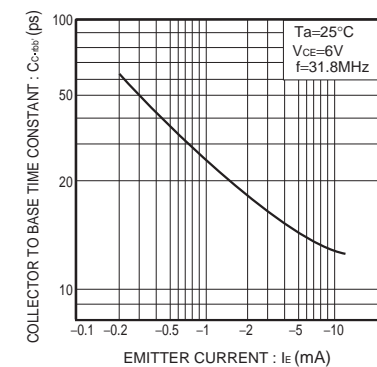


Fig.9 Collector to base time constant vs. emitter current

Notes

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