

2SC2412K / 2SC4081 / 2SC4617 / 2SC4617H /
2SC5658 / 2SC1740S

Transistors

General purpose transistor (50V, 0.15A)

2SC2412K / 2SC4081 / 2SC4617 / 2SC4617H / 2SC5658 / 2SC1740S

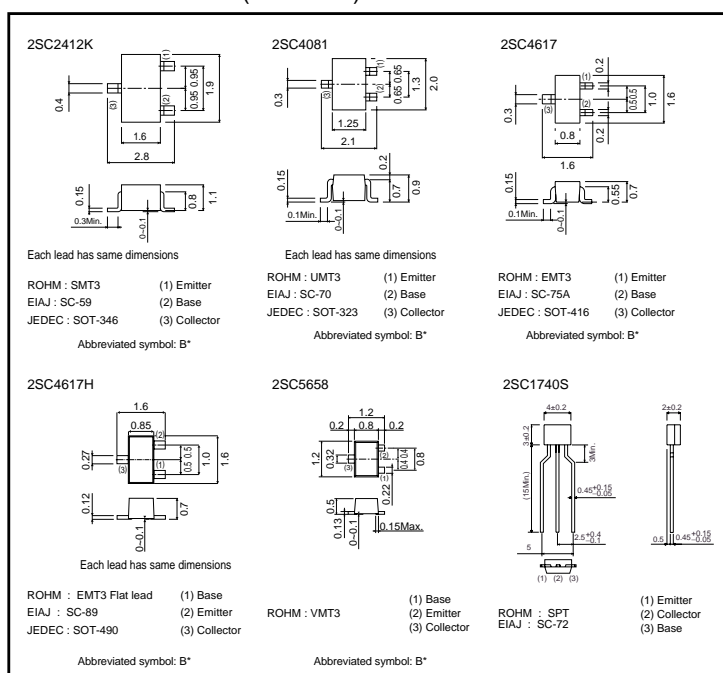
●Features

- 1) Low Cob.
Cob=2.0pF (Typ.)
- 2) Complements the 2SA1037AK /
2SA1576A / 2SA1774 /
2SA1774H / 2SA2029 /
2SA933AS.

●Structure

Epitaxial planar type
NPN silicon transistor

●External dimensions (Units : mm)



* Denotes h_{FE}

●Absolute maximum (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------------|----------------------------|----------|------|
| Collector-base voltage | V _{CB0} | 60 | V |
| Collector-emitter voltage | V _{CE0} | 50 | V |
| Emitter-base voltage | V _{EB0} | 7 | V |
| Collector current | I _c | 0.15 | A |
| Collector power dissipation | 2SC2412K, 2SC4081 | 0.2 | W |
| | 2SC4617, 2SC4617H, 2SC5658 | 0.15 | |
| | 2SC1740S | 0.3 | |
| Junction temperature | T _j | 150 | °C |
| Storage temperature | T _{stg} | -55~+150 | °C |

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●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|----------------------|------|------|------|------|--|
| Collector-base breakdown voltage | BV _{CBO} | 60 | – | – | V | I _c =50μA |
| Collector-emitter breakdown voltage | BV _{CEO} | 50 | – | – | V | I _c =1mA |
| Emitter-base breakdown voltage | BV _{EBO} | 7 | – | – | V | I _E =50μA |
| Collector cutoff current | I _{CBO} | – | – | 0.1 | μA | V _{CB} =60V |
| Emitter cutoff current | I _{EBO} | – | – | 0.1 | μA | V _{EB} =7V |
| DC current transfer ratio | h _{FE} | 120 | – | 560 | – | V _{CE} =6V, I _c =1mA |
| Collector-emitter saturation voltage | V _{CE(sat)} | – | – | 0.4 | V | I _c /I _B =50mA/5mA |
| Transition frequency | f _T | – | 180 | – | MHz | V _{CE} =12V, I _E =–2mA, f=100MHz |
| Output capacitance | C _{ob} | – | 2 | 3.5 | pF | V _{CE} =12V, I _E =0A, f=1MHz |

●Packaging specifications and h_{FE}

| Type | h _{FE} | Package | Taping | | | | Bulk |
|----------|-----------------|------------------------------|--------|------|------|------|------|
| | | Code | T146 | T106 | TL | T2L | TP |
| | | Basic ordering unit (pieces) | 3000 | 3000 | 3000 | 8000 | 5000 |
| 2SC2412K | QRS | ○ | – | – | – | – | |
| 2SC4081 | QRS | – | ○ | – | – | – | |
| 2SC4617 | QRS | – | – | ○ | – | – | |
| 2SC4617H | QRS | – | – | – | ○ | – | |
| 2SC5658 | QRS | – | – | – | ○ | – | |
| 2SC1740S | QRS | – | – | – | – | ○ | |

h_{FE} values are classified as follows :

| Item | Q | R | S |
|-----------------|---------|---------|---------|
| h _{FE} | 120~270 | 180~390 | 270~560 |

●Electrical characteristic curves

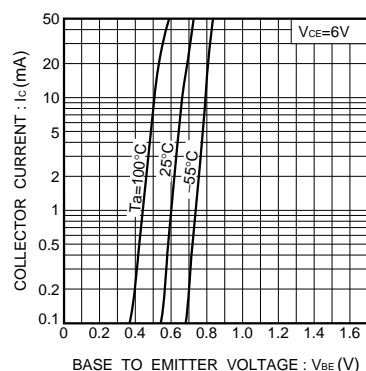


Fig.1 Grounded emitter propagation characteristics

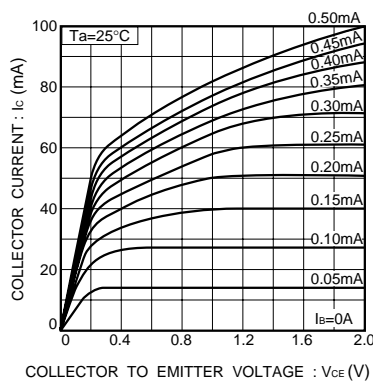


Fig.2 Grounded emitter output characteristics (I)

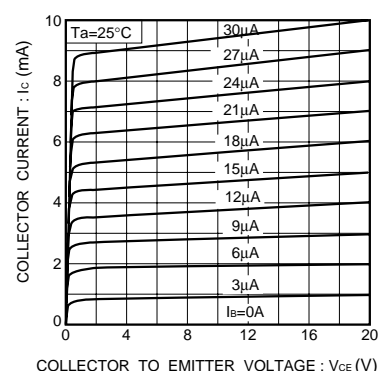


Fig.3 Grounded emitter output characteristics (II)

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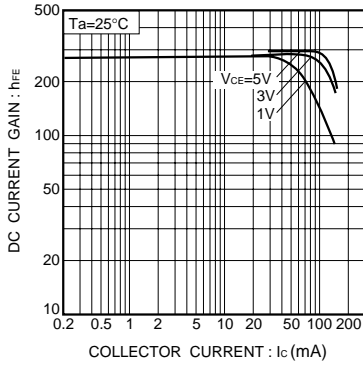


Fig.4 DC current gain vs. collector current (I)

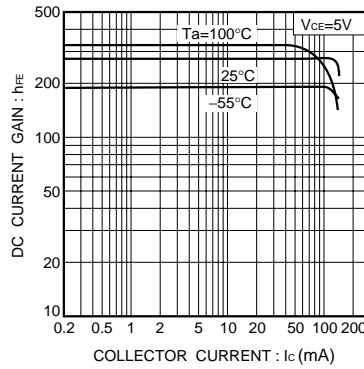


Fig.5 DC current gain vs. collector current (II)

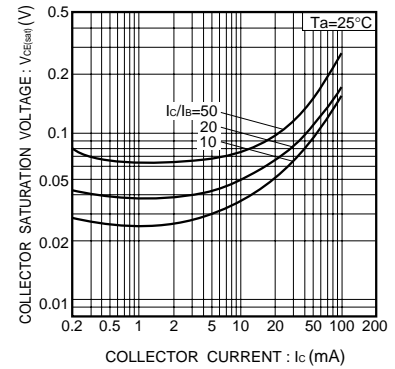


Fig. 6 Collector-emitter saturation voltage vs. collector current

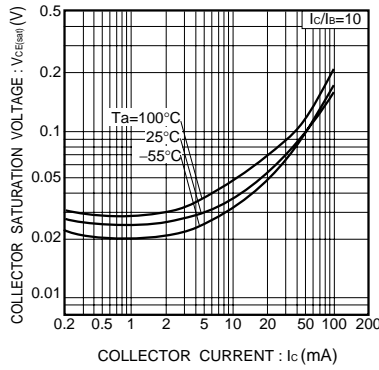


Fig.7 Collector-emitter saturation voltage vs. collector current (I)

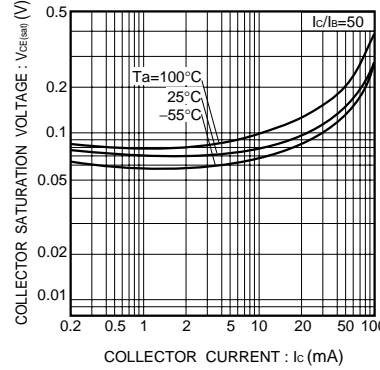


Fig.8 Collector-emitter saturation voltage vs. collector current (II)

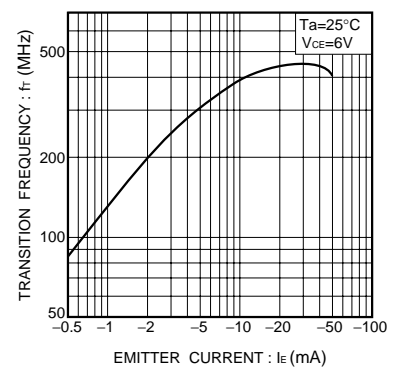


Fig.9 Gain bandwidth product vs. emitter current

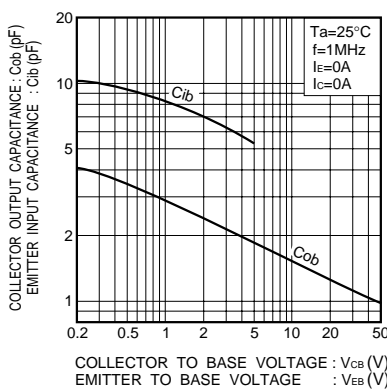


Fig.10 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

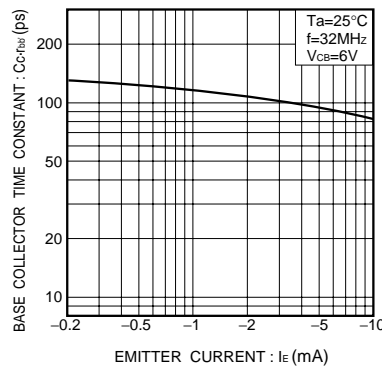


Fig.11 Base-collector time constant vs. emitter current