

General purpose transistor (50V, 0.15A)

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

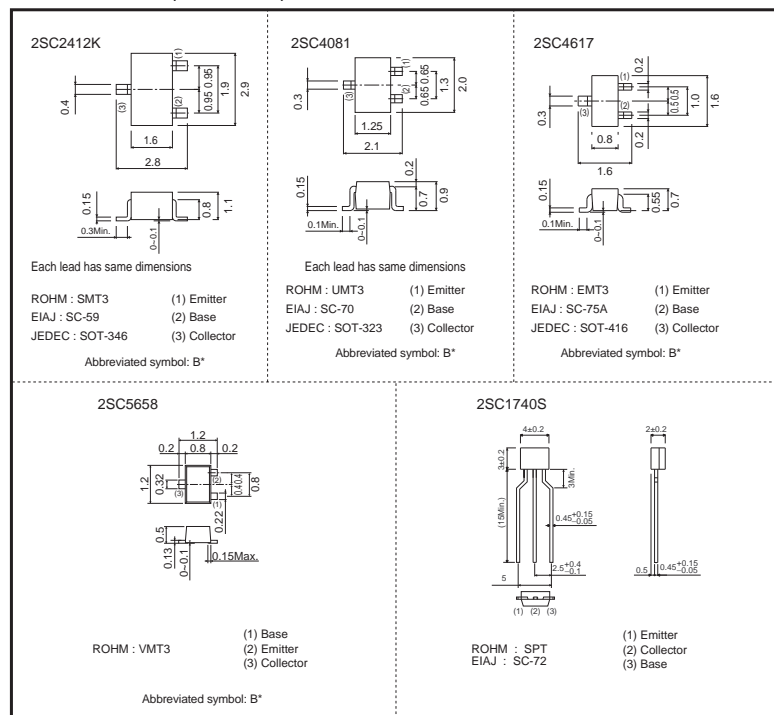
●Features

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

●Structure

Epitaxial planar type
NPN silicon transistor

●Dimensions (Unit : mm)



* Denotes hFE

●Absolute maximum (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------------|-------------------|-------------|------|
| Collector-base voltage | V_{CBO} | 60 | V |
| Collector-emitter voltage | V_{CEO} | 50 | V |
| Emitter-base voltage | V_{EBO} | 7 | V |
| Collector current | I_C | 0.15 | A |
| Collector power dissipation | 2SC2412K, 2SC4081 | 0.2 | W |
| | 2SC4617, 2SC5658 | 0.15 | |
| | 2SC1740S | 0.3 | |
| Junction temperature | T_j | 150 | °C |
| Storage temperature | T_{stg} | -55 to +150 | °C |

●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|---------------|------|------|------|---------|----------------------------------|
| Collector-base breakdown voltage | BV_{CBO} | 60 | — | — | V | $I_C=50\mu A$ |
| Collector-emitter breakdown voltage | BV_{CEO} | 50 | — | — | V | $I_C=1mA$ |
| Emitter-base breakdown voltage | BV_{EBO} | 7 | — | — | V | $I_E=50\mu A$ |
| 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 | — | 390 | — | $V_{CE}=6V, I_C=1mA$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | — | — | 0.4 | V | $I_C/I_E=50mA/5mA$ |
| 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 | | | | |
|----------|----------|------------------------------|--------|------|------|------|------|
| | | Code | T146 | T106 | TL | T2L | TP |
| | | Basic ordering unit (pieces) | 3000 | 3000 | 3000 | 8000 | 5000 |
| 2SC2412K | QR | | ○ | — | — | — | — |
| 2SC4081 | QR | | — | ○ | — | — | — |
| 2SC4617 | QR | | — | — | ○ | — | — |
| 2SC5658 | QR | | — | — | — | ○ | — |
| 2SC1740S | QR | | — | — | — | — | ○ |

h_{FE} values are classified as follows :

| Item | Q | R |
|----------|------------|------------|
| h_{FE} | 120 to 270 | 180 to 390 |

●Electrical characteristic curves

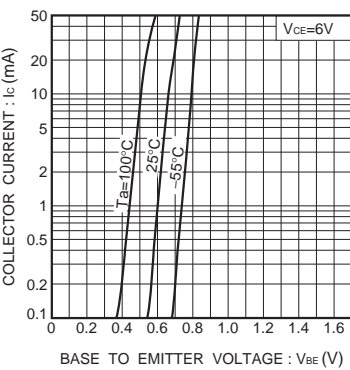


Fig.1 Grounded emitter propagation characteristics

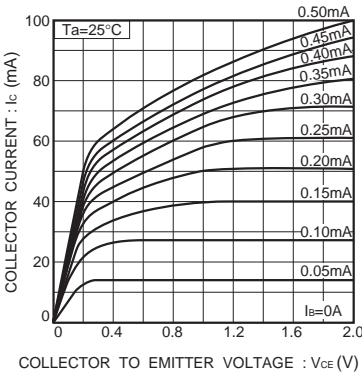


Fig.2 Grounded emitter output characteristics (I)

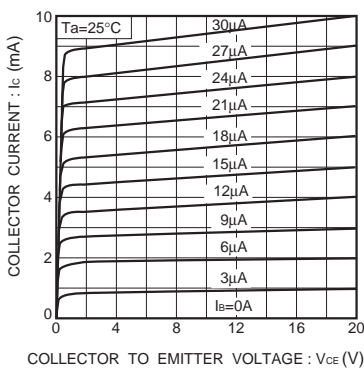


Fig.3 Grounded emitter output characteristics (II)

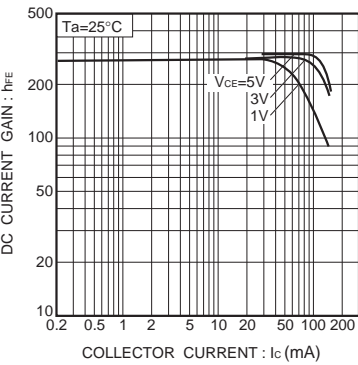


Fig.4 DC current gain vs. collector current (I)

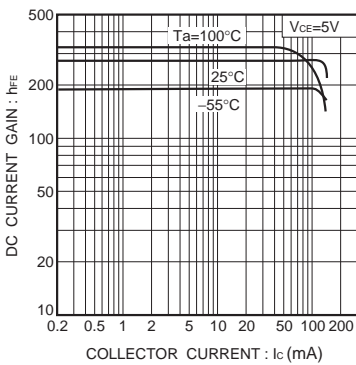


Fig.5 DC current gain vs. collector current (II)

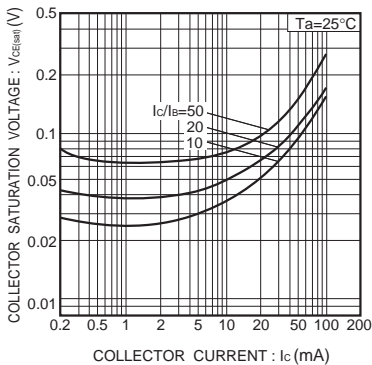


Fig. 6 Collector-emitter saturation voltage vs. collector current

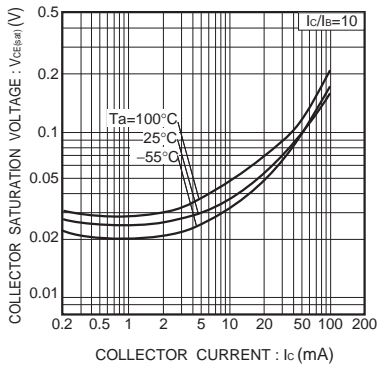


Fig.7 Collector-emitter saturation voltage vs. collector current (I)

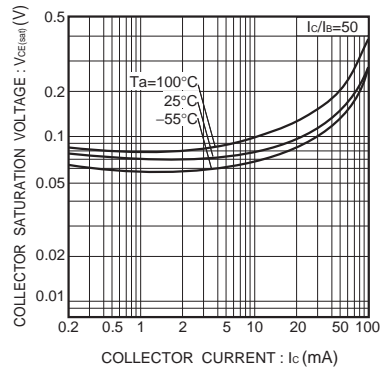


Fig.8 Collector-emitter saturation voltage vs. collector current (II)

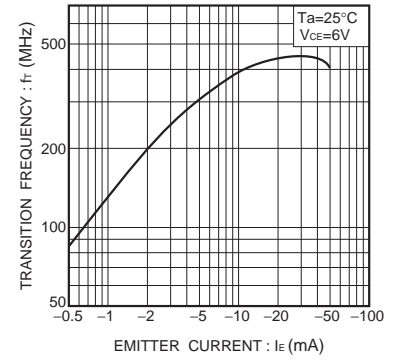


Fig.9 Gain bandwidth product vs. emitter current

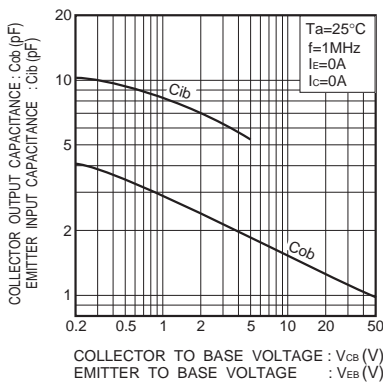


Fig.10 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

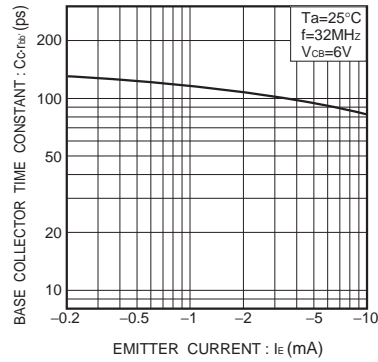


Fig.11 Base-collector time constant vs. emitter current

Notes

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