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General Purpose Transistor (Isolated Dual Transistors)

EMT1 / UMT1N / IMT1A

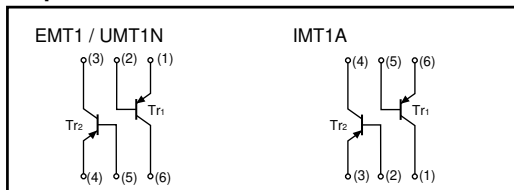
●Features

- 1) Two 2SA1037AK chips in a EMT or UMT or SMT package.
- 2) Mounting possible with EMT3 or UMT3 or SMT3 automatic mounting machines.
- 3) Transistor elements are independent, eliminating interference.

●Structure

Epitaxial planar type
PNP silicon transistor

●Equivalent circuit



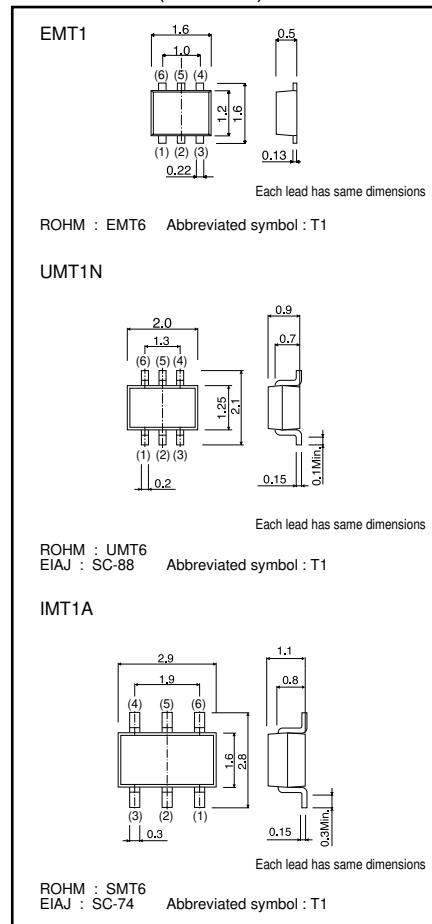
The following characteristics apply to both Tr₁ and Tr₂.

●Absolute maximum ratings (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 _{EBO} | -6 | V |
| Collector current | I _c | -150 | mA |
| Collector power dissipation | EMT1, UMT1N | 150 (TOTAL) | mW *1 |
| | IMT1A | | |
| Junction temperature | T _j | 150 | °C |
| Storage temperature | T _{stg} | -55 to +150 | °C |

*1 120mW per element must not be exceeded.
*2 200mW per element must not be exceeded.

●Dimensions (Unit : mm)



Transistors

●Electrical characteristics (Ta = 25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|----------------------|------|------|------|------|--|
| Collector-base breakdown voltage | BV _{CB0} | -60 | - | - | V | I _c = -50μA |
| Collector-emitter breakdown voltage | BV _{CEO} | -50 | - | - | V | I _c = -1mA |
| Emitter-base breakdown voltage | BV _{EB0} | -6 | - | - | V | I _E = -50μA |
| Collector cutoff current | I _{CB0} | - | - | -0.1 | μA | V _{CB} = -60V |
| Emitter cutoff current | I _{EB0} | - | - | -0.1 | μA | V _{EB} = -6V |
| Collector-emitter saturation voltage | V _{CE(sat)} | - | - | -0.5 | V | I _c /I _b = -50mA/-5mA |
| DC current transfer ratio | h _{FE} | 120 | - | 560 | - | V _{CE} = -6V, I _c = -1mA |
| Transition frequency | f _{tr} | - | 140 | - | MHz | V _{CE} = -12V, I _E = 2mA, f = 100MHz |
| Output capacitance | C _{ob} | - | 4 | 5 | pF | V _{CB} = -12V, I _E = 0A, f = 1MHz |

●Packaging specifications

| Type | Package | Taping | | |
|-------|------------------------------|--------|------|------|
| | Code | T2R | TN | T110 |
| | Basic ordering unit (pieces) | 8000 | 3000 | 3000 |
| EMT1 | | ○ | - | - |
| UMT1N | | - | ○ | - |
| IMT1A | | - | - | ○ |

●Electrical characteristic curves

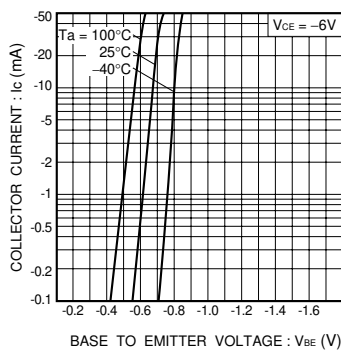


Fig.1 Grounded emitter propagation characteristics

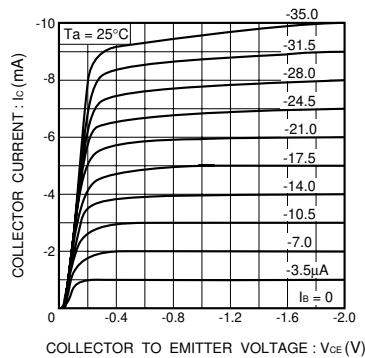


Fig.2 Grounded emitter output characteristics (I)

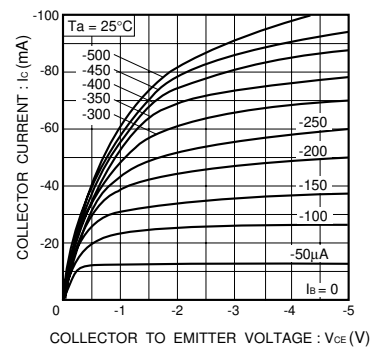


Fig.3 Grounded emitter output characteristics (II)

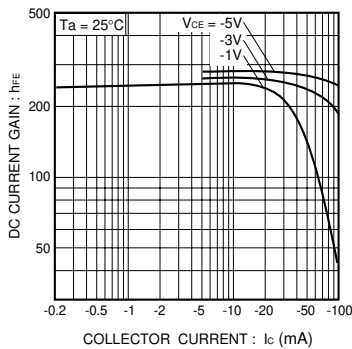


Fig.4 DC current gain vs. collector current (I)

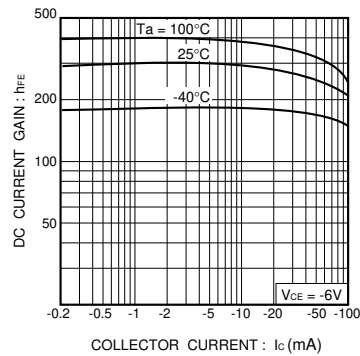


Fig.5 DC current gain vs. collector current (II)

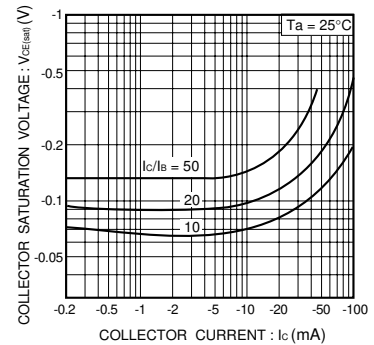


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

Transistors

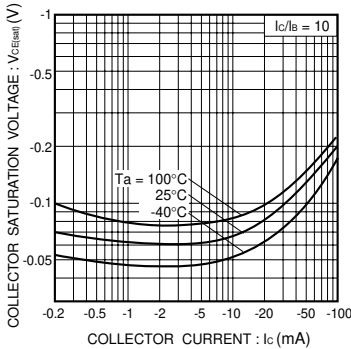


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

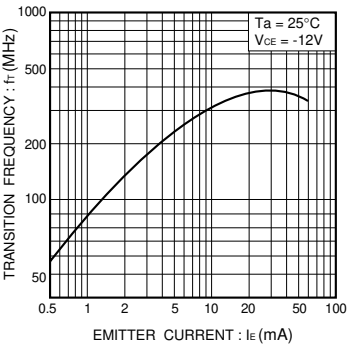


Fig.8 Gain bandwidth product vs. emitter current

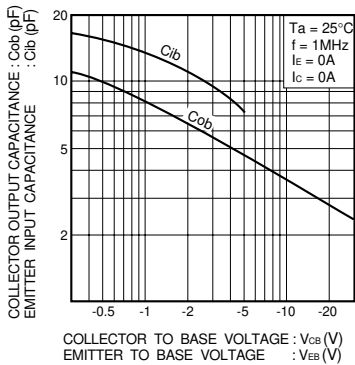


Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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