# General Purpose Transistor (Isolated Dual Transistors)

## EMT1 / UMT1N / IMT1A

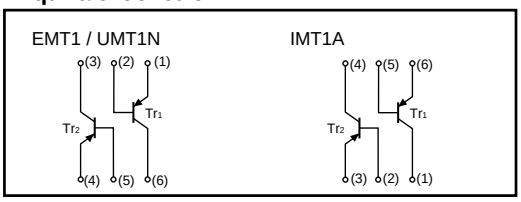
### ●Features

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 $Tr_1$ and $Tr_2$.

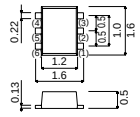
### ●Absolute maximum ratings (Ta = 25°C)

| Parameter | | Symbol | Limits | Unit |
|---|---|---|---|---|
| Collector-base voltage | | $V_{CBO}$ | –60 | V |
| Collector-emitter voltage | | $V_{CEO}$ | –50 | V |
| Emitter-base voltage | | $V_{EBO}$ | –6 | V |
| Collector current | | $I_C$ | –150 | mA |
| Collector power dissipation | EMT1, UMT1N | $P_C$ | 150 (TOTAL) | mW ∗1 |
| | IMT1A | | 300 (TOTAL) | ∗2 |
| Junction temperature | | Tj | 150 | °C |
| Storage temperature | | Tstg | –55 to +150 | °C |

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

### ●External dimensions (Unit : mm)

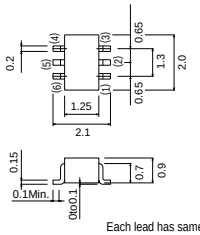
EMT1




Each lead has same dimensions

ROHM : EMT6 Abbreviated symbol : T1

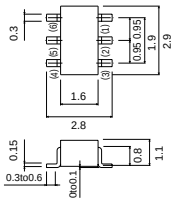
UMT1N




Each lead has same dimensions

ROHM : UMT6
EIAJ : SC-88 Abbreviated symbol : T1

IMT1A




Each lead has same dimensions

ROHM : SMT6
EIAJ : SC-74 Abbreviated symbol : T1

## ●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 | $BV_{EBO}$ | –6 | – | – | V | $I_E$ = –50μA |
| Collector cutoff current | $I_{CBO}$ | – | – | –0.1 | μA | $V_{CB}$ = –60V |
| Emitter cutoff current | $I_{EBO}$ | – | – | –0.1 | μA | $V_{EB}$ = –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 | $f_T$ | – | 140 | – | MHz | $V_{CE}$ = –12V, $I_E$ = 2mA, f = 100MHz |
| Output capacitance | Cob | – | 4 | 5 | pF | $V_{CB}$ = –12V, $I_E$ = 0A, f = 1MHz |

## ●Packaging specifications

| | Package | Taping | | |
|---|---|---|---|---|
| | Code | T2R | TR | T108 |
| Type | Basic ordering unit (pieces) | 8000 | 3000 | 3000 |
| EMT1 | | ○ | – | – |
| UMT1N | | – | ○ | – |
| IMT1A | | – | – | ○ |

## ●Electrical characteristic curves

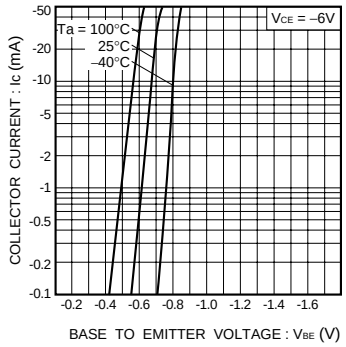



Fig.1 Grounded emitter propagation characteristics

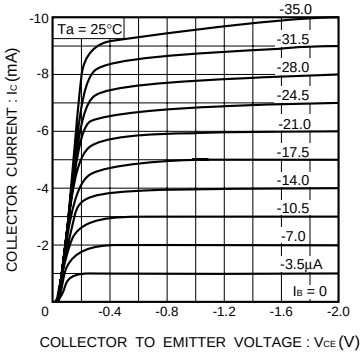



Fig.2 Grounded emitter output characteristics ( I )

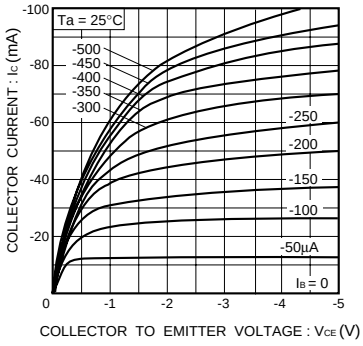



Fig.3 Grounded emitter output characteristics ( II )

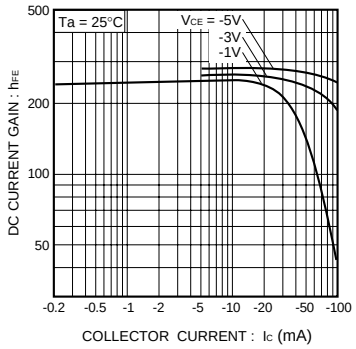



Fig.4 DC current gain vs. collector current ( I )

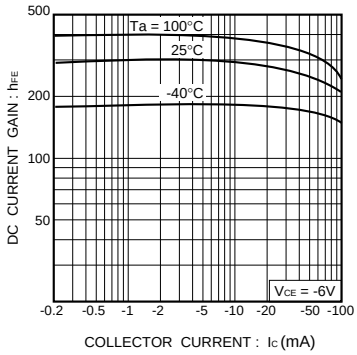



Fig.5 DC current gain vs. collector current ( II )

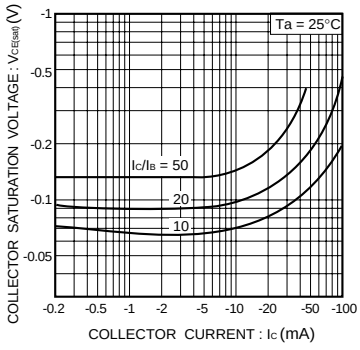



Fig.6 Collector-emitter saturation voltage vs. collector current ( I )

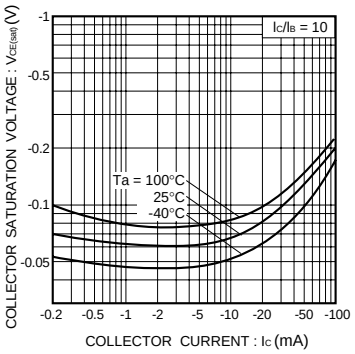



Fig.7 Collector-emitter saturation voltage vs. collector current ( II )

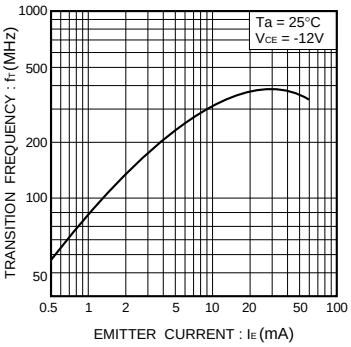



Fig.8 Gain bandwidth product vs. emitter current

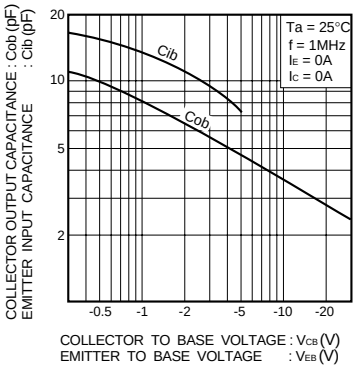



Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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