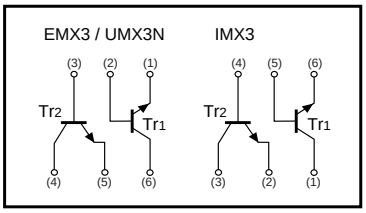
# General purpose (dual transistors)

## EMX3 / UMX3N / IMX3

### ●Features

1) Two 2SC2412AK chips in a EMT or UMT or SMT package.

### ●Equivalent circuits




### ●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 | | $V_{EBO}$ | 7 | V |
| Collector current | | $I_C$ | 150 | mA |
| Collector power dissipation | EEMX3 / UMX3N | $P_C$ | 150(TOTAL) | mW ∗1 |
| | IMX3 | | 300(TOTAL) | ∗2 |
| Junction temperature | | Tj | 150 | °C |
| Storage temperature | | Tstg | −55 to +150 | °C |

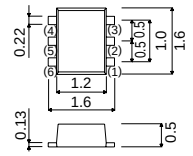
∗1 120mW per element must not be exceeded.
∗2 200mW per element must not be exceeded.

### ●Package, marking, and packaging specifications

| Type | EMX3 | UMX3N | IMX3 |
|---|---|---|---|
| Package | EMT6 | UMT6 | SMT6 |
| Marking | X3 | X3 | X3 |
| Code | T2R | TR | T108 |
| Basic ordering unit (pieces) | 8000 | 3000 | 3000 |

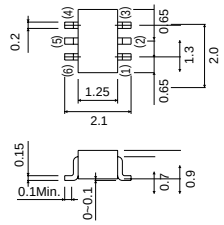
### ●External dimensions (Unit : mm)

EMX3



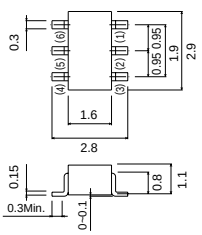

ROHM : EMT6 Each lead has same dimensions

UMX3N




ROHM : UMT6
EIAJ : SC-88 Each lead has same dimensions

IMX3




ROHM : SMT6
EIAJ : SC-74 Each lead has same dimensions

## ●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 |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | – | – | 0.4 | V | $I_C/I_B$=50mA/5mA |
| DC current transfer ratio | $h_{FE}$ | 120 | – | 560 | – | $V_{CE}$=6V, $I_C$=1mA |
| Transition frequency | $f_T$ | – | 180 | – | MHz | $V_{CE}$=12V, $I_E$=–2mA, f=100MHz ＊ |
| Output capacitance | Cob | – | 2 | 3.5 | pF | $V_{CB}$=12V, $I_E$=0mA, f=1MHz |

＊Transition frequency of the device.

## ●Electrical characteristics curves

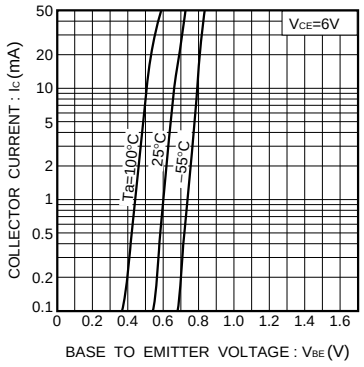



Fig.1 Grounded emitter propagation characteristics

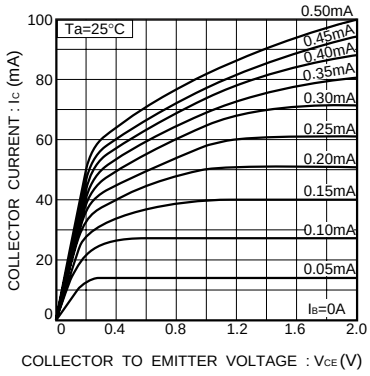



Fig.2 Grounded emitter output characteristics ( I )

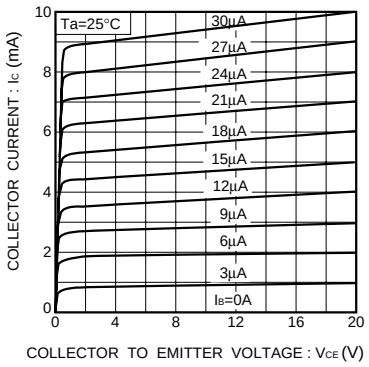



Fig.3 Grounded emitter output characteristics ( II )

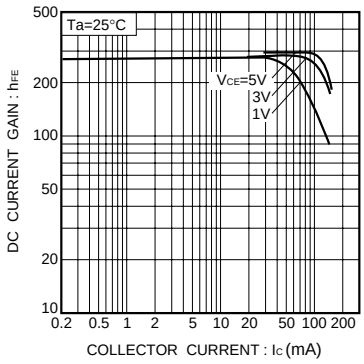



Fig.4 DC current gain vs. collector current ( I )

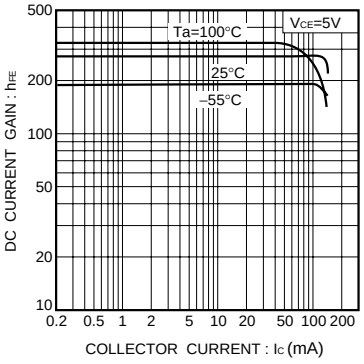



Fig.5 DC current gain vs. collector current ( II )

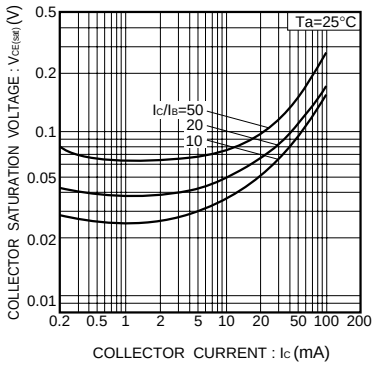



Fig. 6 Collector-emitter saturation voltage vs. collector current

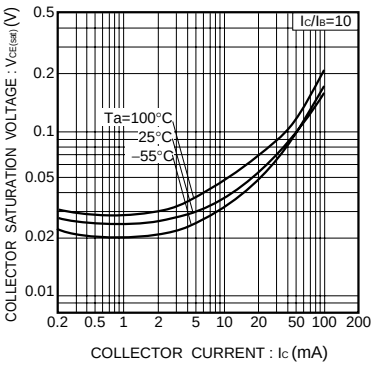



Fig.7 Collector-emitter saturation voltage vs. collector current ( I )

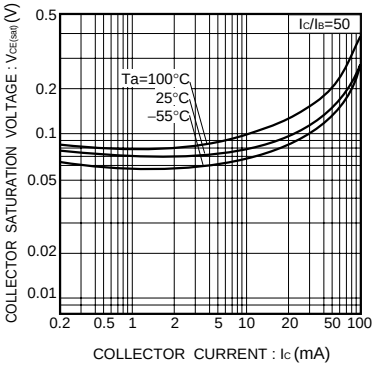



Fig.8 Collector-emitter saturation voltage vs. collector current (II)

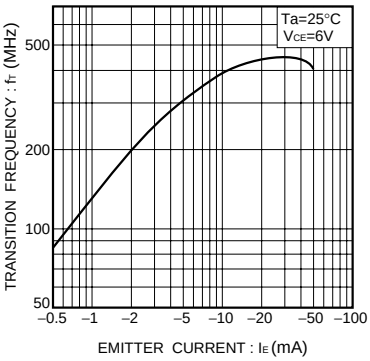



Fig.9 Gain bandwidth product vs. emitter current

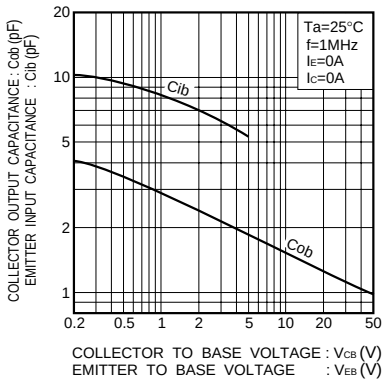



Fig.10 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

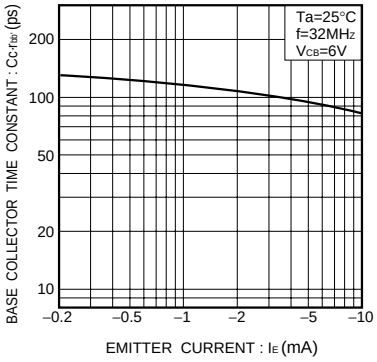



Fig.11 Base-collector time constant vs. emitter current

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