

General purpose transistors (dual transistors)

EMX1 / UMX1N / IMX1

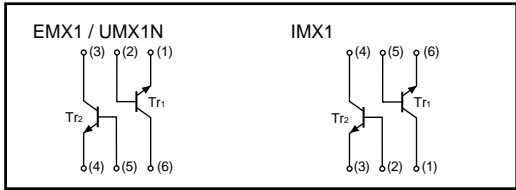
●Features

- 1) Two 2SC2412K 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.
- 4) Mounting cost and area can be cut in half.

●Structure

Epitaxial planar type
NPN silicon transistor

●Equivalent circuit



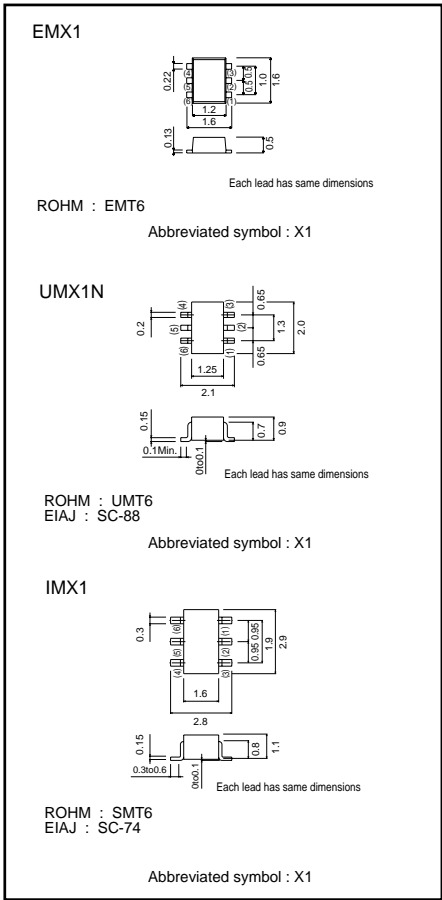
The following characteristics apply to both Tr1 and Tr2.

●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 _{EB0} | 7 | V |
| Collector current | I _c | 150 | mA |
| Power dissipation | EMX1, UMX1N | 150 (TOTAL) | mW *1 |
| | IMX1 | 300 (TOTAL) | mW *2 |
| Junction temperature | T _j | 150 | °C |
| Storage temperature | T _{stg} | -55~+150 | °C |

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

●External dimensions (Units : 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 _{CE0} | 50 | — | — | V | I _c =1mA |
| Emitter-base breakdown voltage | BV _{EB0} | 7 | — | — | 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} =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 | C _{ob} | — | 2 | 3.5 | 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 |
| EMX1 | ○ | — | — | — |
| UMX1N | — | ○ | — | — |
| IMX1 | — | — | — | ○ |

●Electrical characteristic curves

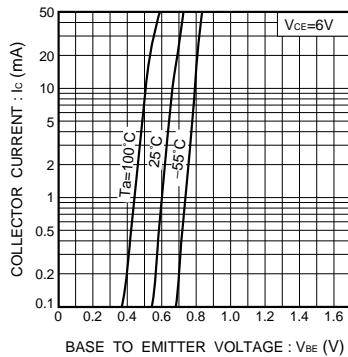


Fig.1 Grounded emitter propagation characteristics

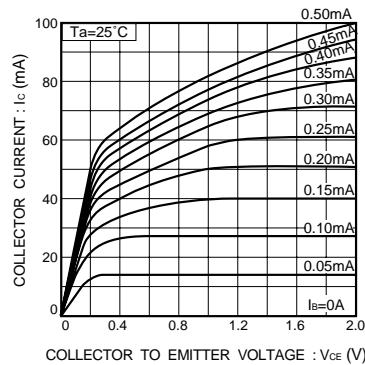


Fig.2 Grounded emitter output characteristics (I)

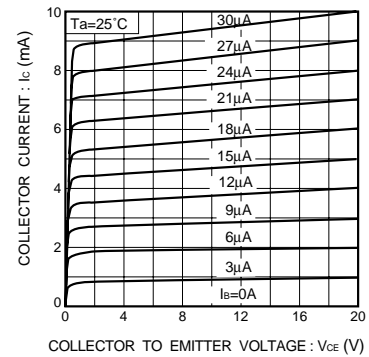


Fig.3 Grounded emitter output characteristics (II)

Transistors

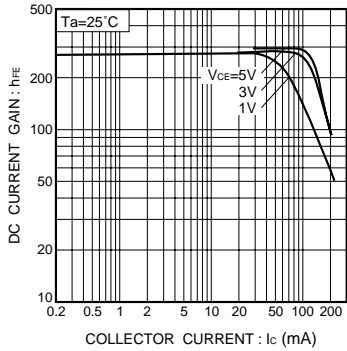


Fig.4 DC current gain vs. collector current (I)

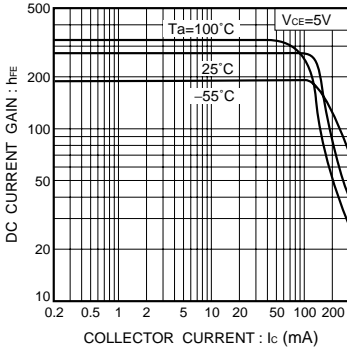


Fig.5 DC current gain vs. collector current (II)

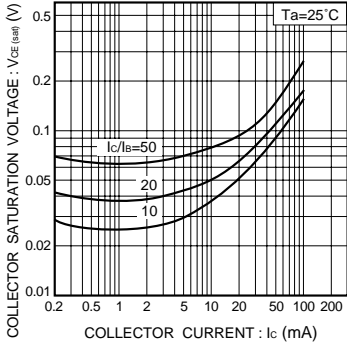


Fig.6 Collector-emitter saturation voltage vs. collector current

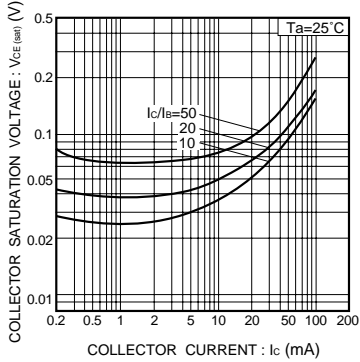


Fig.7 Collector-emitter saturation voltage vs. collector current (I)

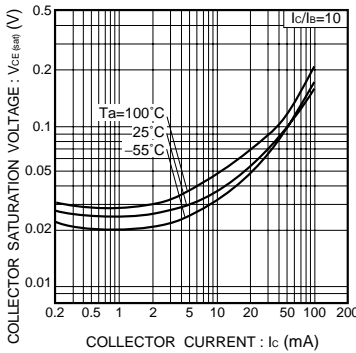


Fig.8 Collector-emitter saturation voltage vs. collector current (II)

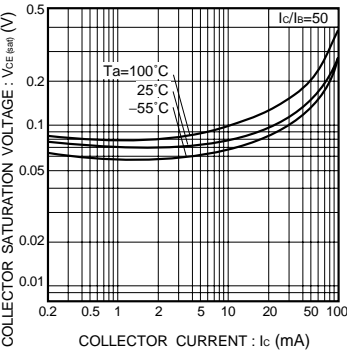


Fig.9 Collector-emitter saturation voltage vs. collector current (III)

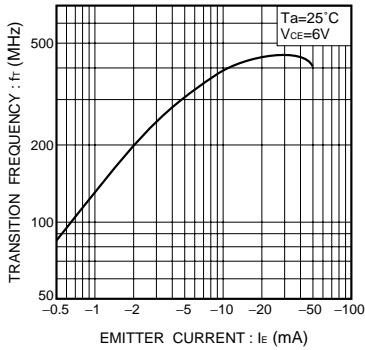


Fig.10 Gain bandwidth product vs. emitter current

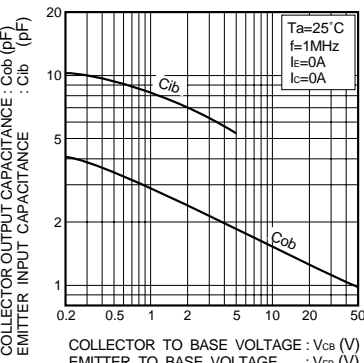


Fig.11 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

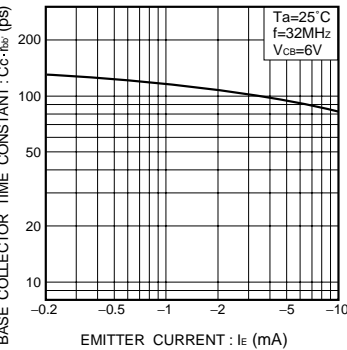


Fig.12 Base-collector time constant vs. emitter current