# General purpose transistor (isolated dual transistors)

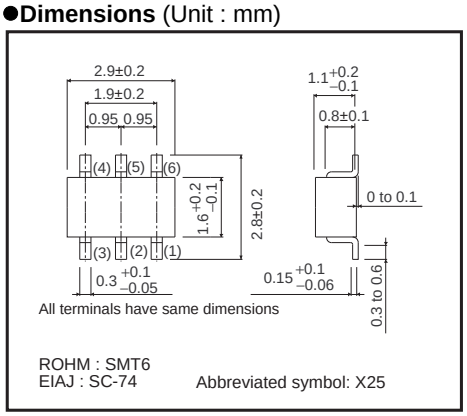
## IMX25

### ●Features
1) Two 2SD2704K chips in a SMT package.
2) Mounting possible with SMT3 automatic mounting machine.
3) Transistor elements are independent, eliminating interference.
4) Mounting cost and area can be cut in half.

### ●Structure
Epitaxial planar type
NPN silicon transistor

The following characteristics apply to both $Tr_1$ and $Tr_2$.

### ●Dimensions (Unit : mm)

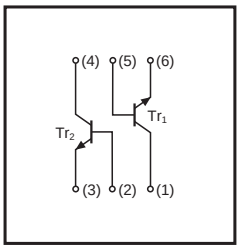



### ●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|---|---|---|---|
| Collector-base voltage | $V_{CBO}$ | 50 | V |
| Collector-emitter voltage | $V_{CEO}$ | 20 | V |
| Emitter-base voltage | $V_{EBO}$ | 25 | V |
| Collector current | $I_C$ | 300 | mA |
| Power dissipation | Pd | 300(TOTAL) | mW ✻ |
| Junction temperature | Tj | 150 | °C |
| Storage temperature | Tstg | −55 to +150 | °C |

✻ 200mW per element must not be exceeded.

### ●Inner circuit




### ●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $BV_{CBO}$ | 50 | – | – | V | $I_C$=10μA |
| Collector-emitter breakdown voltage | $BV_{CEO}$ | 20 | – | – | V | $I_C$=1mA |
| Emitter-base breakdown voltage | $BV_{EBO}$ | 25 | – | – | V | $I_E$=10μA |
| Collector cutoff current | $I_{CBO}$ | – | – | 0.1 | μA | $V_{CB}$=50V |
| Emitter cutoff current | $I_{EBO}$ | – | – | 0.1 | μA | $V_{EB}$=25V |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | – | 50 | 100 | mV | $I_C/I_B$=30mA/3mA |
| DC current transfer ratio | $h_{FE}$ | 820 | – | 2700 | – | $V_{CE}$=2V, $I_C$=4mA |
| Transition frequency | $f_T$ | – | 35 | – | MHz | $V_{CE}$=6V, $I_E$=−4mA, f=10MHz |
| Output capacitance | Cob | – | 3.9 | – | pF | $V_{CB}$=10V, $I_E$=0A, f=1MHz |
| Output On-resistance | Ron | – | 0.7 | – | Ω | $I_B$=5mA, $V_i$=100mVrms, f=1kHz |

### ●Packaging specifications

| | Packaging type | Taping |
|---|---|---|
| | Code | T110 |
| Part No. | Basic ordering unit (pieces) | 3000 |
| IMX25 | | ◯ |

## ●Electrical characteristic curves

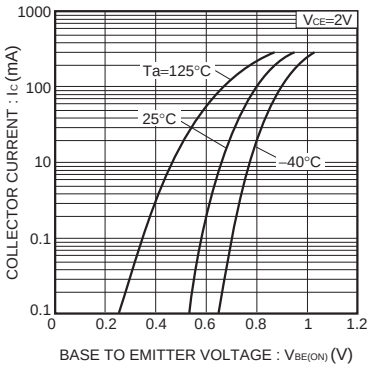



Fig.1 Grounded emitter propagation characteristics ( I )

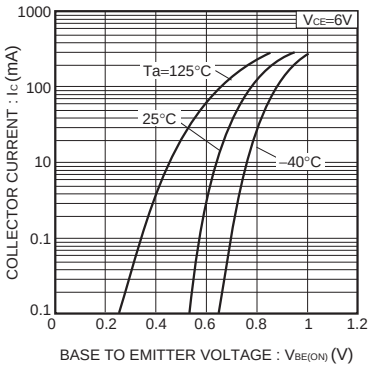



Fig.2 Grounded emitter propagation characteristics ( II )

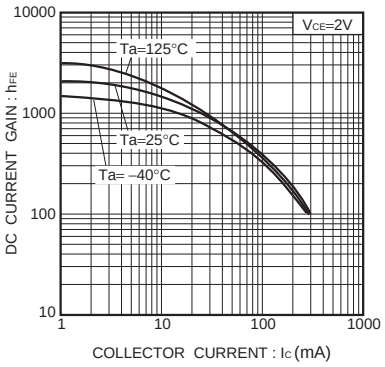



Fig.3 DC current gain vs. collector current ( I )

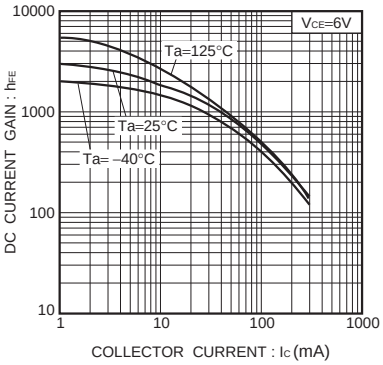



Fig.4 DC current gain vs. collector current ( II )

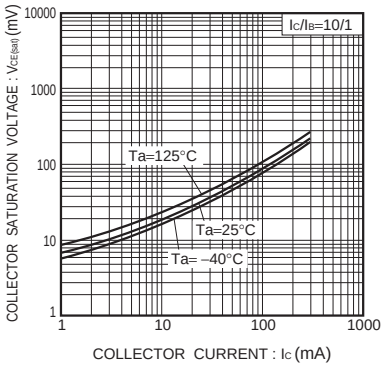



Fig.5 Collector-emitter saturation voltage vs. collector current ( I )

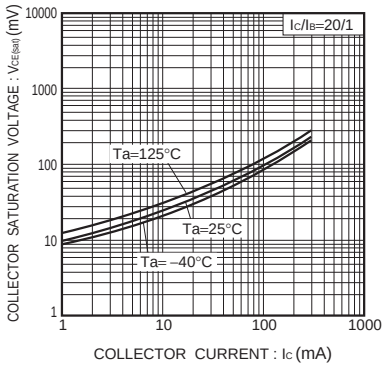



Fig.6 Collector-emitter saturation voltage vs. collector current ( II )

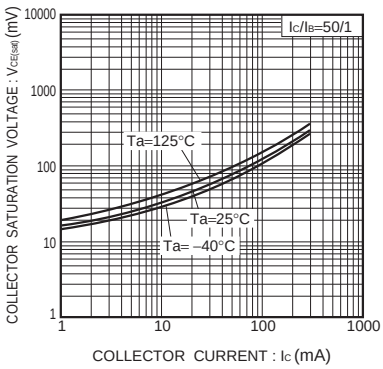



Fig.7 Collector-emitter saturation voltage vs. collector current ( III )

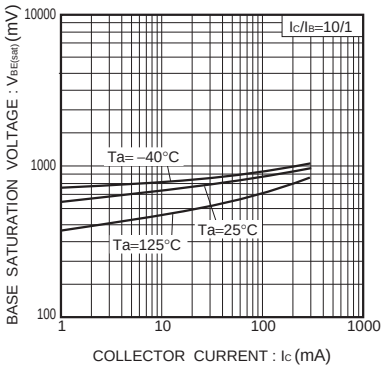



Fig.8 Base-emitter saturation voltage vs. collector current ( I )

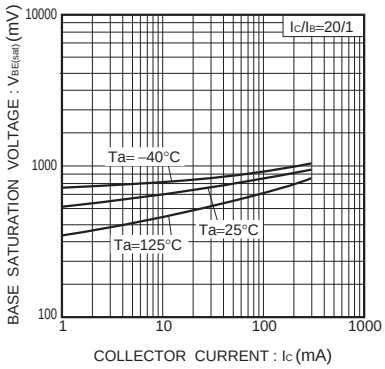



Fig.9 Base-emitter saturation voltage vs. collector current ( II )

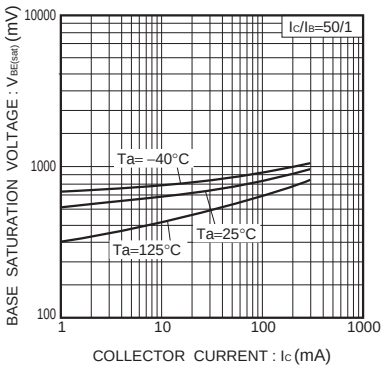



Fig.10 Base-emitter saturation voltage vs. collector current (III)

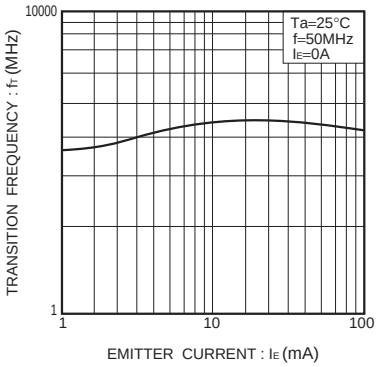



Fig.11 Gain bandwidth product vs. emitter current

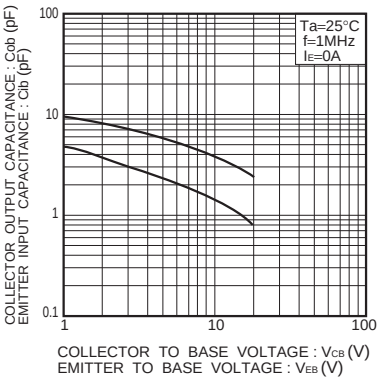



Fig.12 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

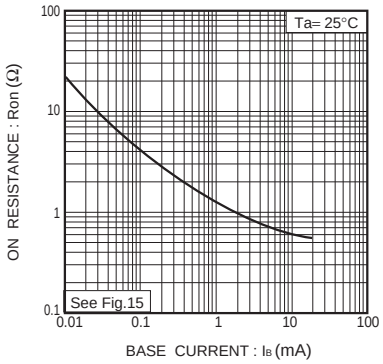



Fig.13 Output-on resistance vs. base current ( I )

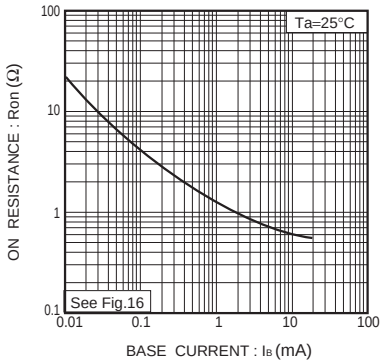



Fig.14 Output-on resistance vs. base current ( II )

## ●Ron measurement circuit

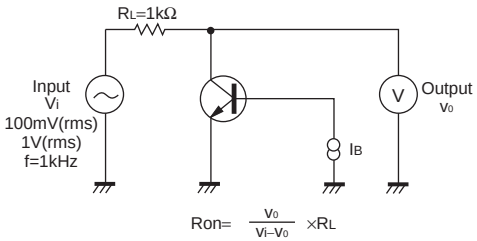



Fig.15 Ron measurement circuit ( I )

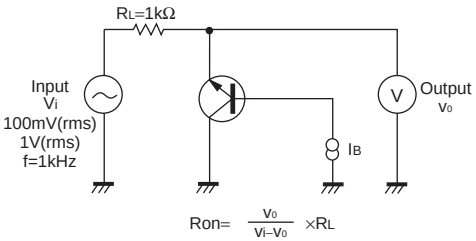



Fig.16 Ron measurement circuit ( II )

This product might cause chip aging and breakdown under the large electrified environment.
Please consider to design ESD protection circuit.

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