

# Medium Power Transistor (50V,0.5A)

2SD1949/2SD1484K

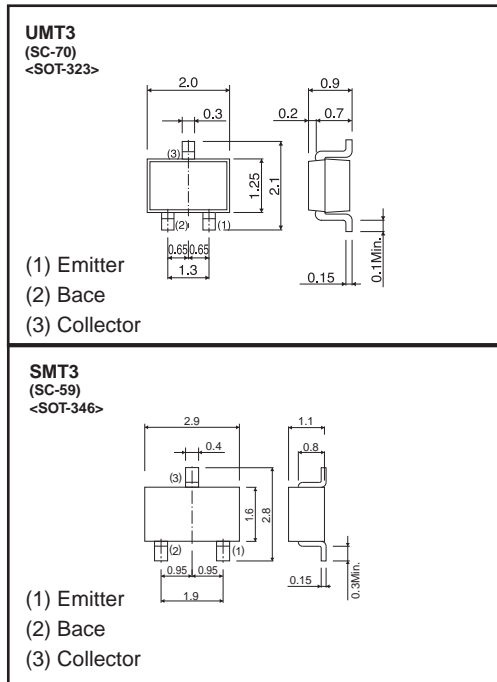
● **Features**

- 1) High current. ( $I_C=0.5A$ )
- 2) Low saturation voltage, typically  $V_{CE(sat)}=0.1V$  at  $I_C / I_B=150mA / 15mA$ .

● **Absolute maximum ratings** ( $T_a=25^\circ C$ )

| Parameter                   | Symbol    | Limits      | Unit       |
|-----------------------------|-----------|-------------|------------|
| Collector-base voltage      | $V_{CBO}$ | 50          | V          |
| Collector-emitter voltage   | $V_{CEO}$ | 50          | V          |
| Emitter-base voltage        | $V_{EBO}$ | 5           | V          |
| Collector current           | $I_C$     | 0.5         | A          |
| Collector power dissipation | $P_C$     | 0.2         | W          |
| Junction temperature        | $T_J$     | 150         | $^\circ C$ |
| Storage temperature         | $T_{stg}$ | -55 to +150 | $^\circ C$ |

● **Dimensions** (Unit : mm)



● **Electrical characteristics** ( $T_a=25^\circ C$ )

| Parameter                            | Symbol        | Min. | Typ. | Max. | Unit    | Conditions                       |
|--------------------------------------|---------------|------|------|------|---------|----------------------------------|
| Collector-base breakdown voltage     | $BV_{CBO}$    | 50   | -    | -    | V       | $I_C=100\mu A$                   |
| Collector-emitter breakdown voltage  | $BV_{CEO}$    | 50   | -    | -    | V       | $I_C=1mA$                        |
| Emitter-base breakdown voltage       | $BV_{EBO}$    | 5    | -    | -    | V       | $I_E=100\mu A$                   |
| Collector cutoff current             | $I_{CBO}$     | -    | -    | 0.5  | $\mu A$ | $V_{CB}=30V$                     |
| Emitter cutoff current               | $I_{EBO}$     | -    | -    | 0.5  | $\mu A$ | $V_{EB}=4V$                      |
| DC current transfer ratio            | $h_{FE}$      | 120  | -    | 390  | -       | $V_{CE}/I_C=3V/10mA$             |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | -    | -    | 0.4  | V       | $I_C/I_B=150mA/15mA$             |
| Transition frequency                 | $f_T$         | -    | 250  | -    | MHz     | $V_{CE}=5V, I_E=-20mA, f=100MHz$ |
| Output capacitance                   | $C_{ob}$      | -    | 6.5  | -    | pF      | $V_{CB}=10V, I_E=0A, f=1MHz$     |

● **Packaging specifications and  $h_{FE}$**

| Type                         | 2SD1949 | 2SD1484K |
|------------------------------|---------|----------|
| Package                      | UMT3    | SMT3     |
| $h_{FE}$                     | QR      | QR       |
| Marking                      | Y*      | Y*       |
| Code                         | T106    | T146     |
| Basic ordering unit (pieces) | 3000    | 3000     |

\* Danotes  $h_{FE}$

$h_{FE}$  values are classified as follows :

| Item     | Q          | R          |
|----------|------------|------------|
| $h_{FE}$ | 120 to 270 | 180 to 390 |

● Electrical characteristic curves

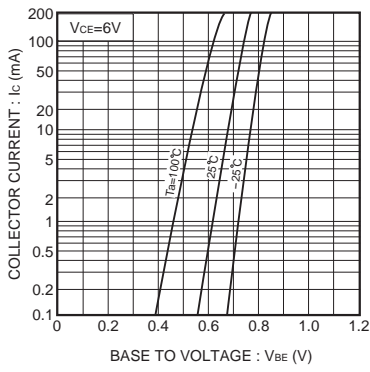


Fig.1 Ground emitter propagation characteristics

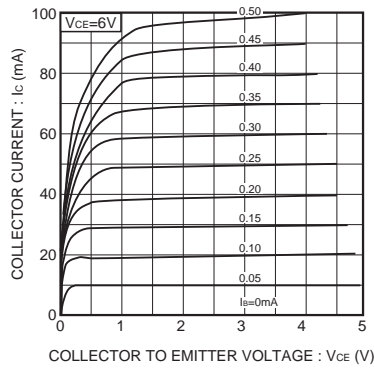


Fig.2 Ground emitter output characteristics

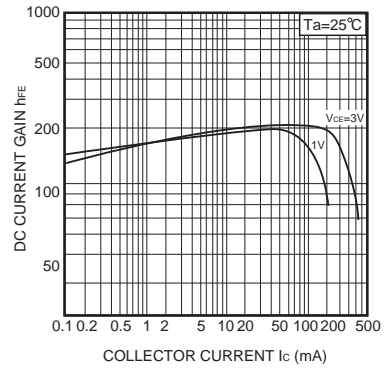


Fig.3 DC current gain vs. Collector current (I)

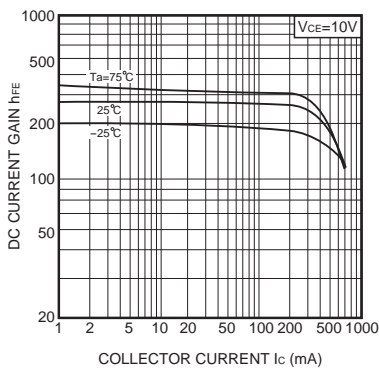


Fig.4 DC current gain vs. Collector current (II)

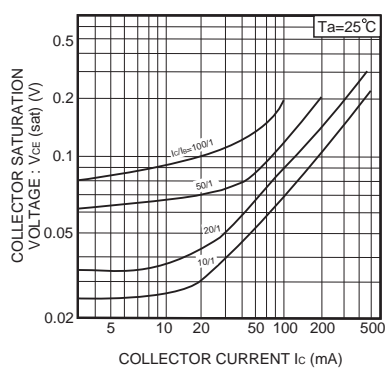


Fig.5 Collector-emitter saturation voltage vs. Collector current

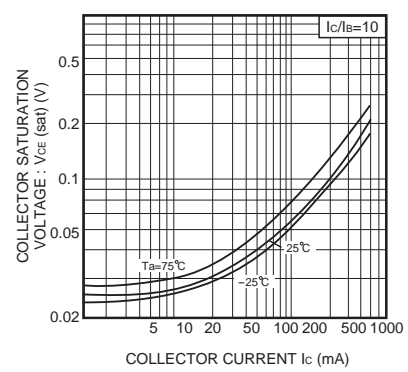


Fig.6 Collector-emitter saturation voltage vs. collector current

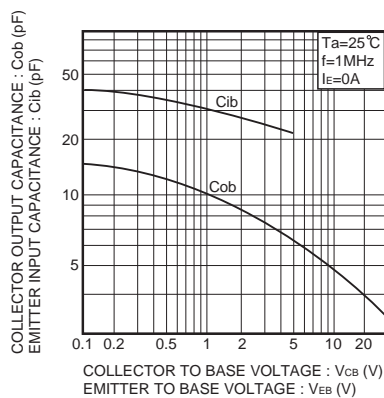


Fig.7 Input-and-output capacity vs. voltage characteristic

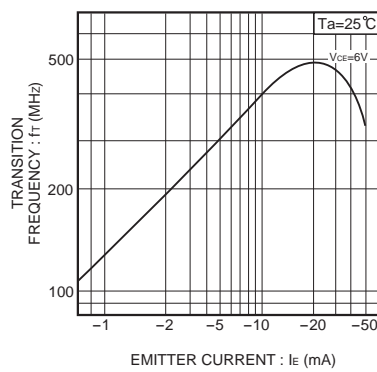


Fig.8 Transition frequency vs. emitter current

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