



CHENMKO ENTERPRISE CO.,LTD

Halogens free devices

SURFACE MOUNT
NPN/PNP Silicon AF Transistor Array
VOLTAGE 50 Volts CURRENT 0.5 Ampere

CH817UPNGP

APPLICATION

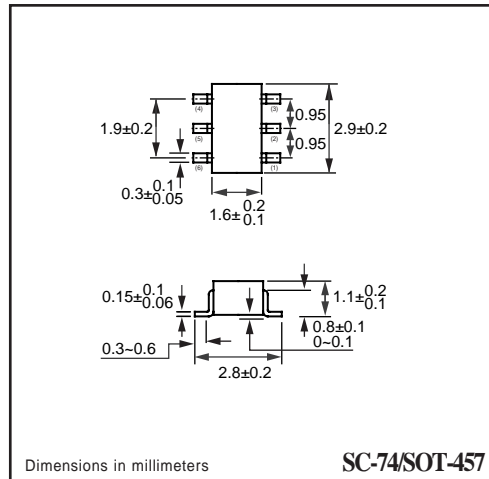
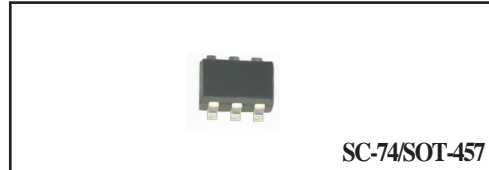
- * AF input stages and driver applicationon equipment.
- * Other switching applications.

FEATURE

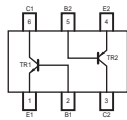
- * Small surface mounting type. (SC-74/SOT-457)
- * High current gain.
- * Suitable for high packing density.
- * Low collector-emitter saturation.
- * High saturation current capability.
- * Two internal isolated NPN/PNP transistor in one package.

CONSTRUCTION

- * NPN/PNP transistor in one package.



CIRCUIT



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------------|-------------------------------|----------------------------------|------|------|------|
| V _{CB0} | collector-base voltage | open emitter | – | 45 | V |
| V _{CE0} | collector-emitter voltage | open base | – | 50 | V |
| V _{EB0} | emitter-base voltage | open collector | – | 5 | V |
| I _C | collector current (DC) | | – | 500 | mA |
| I _{CM} | peak collector current | | – | 1000 | mA |
| I _{BM} | peak base current | | – | 200 | mA |
| P _{tot} | total power dissipation | T _{amb} ≤ 25 °C; note 1 | – | 330 | mW |
| T _{stg} | storage temperature | | –65 | +150 | °C |
| T _j | junction temperature | | – | 150 | °C |
| T _{amb} | operating ambient temperature | | –65 | +150 | °C |

Note

1. Transistor mounted on an FR4 printed-circuit board.

RATING CHARACTERISTIC CURVES (CH817UPNGP)

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---------------|---|------------|-------|------|
| $R_{th\ j-s}$ | thermal resistance from junction to soldering point | note 1 | 105 | K/W |

Note

1. Transistor mounted on an FR4 printed-circuit board.

CHARACTERISTICS

$T_{amb} = 25\text{ °C}$ unless otherwise specified.

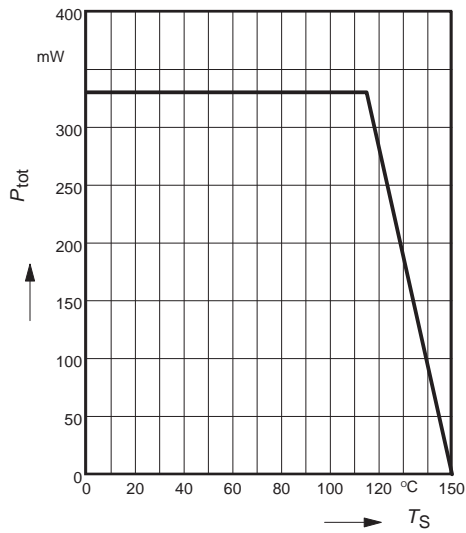
| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|-------------|--------------------------------------|---|------|------|------|
| I_{CBO} | collector cut-off current | $I_E = 0; V_{CB} = 25\text{ V}$ | – | 100 | nA |
| | | $I_C = 0; V_{CB} = 25\text{ V}; T_A = 150\text{ °C}$ | – | 50 | uA |
| I_{EBO} | emitter cut-off current | $I_C = 0; V_{EB} = 4\text{ V}$ | – | 100 | nA |
| h_{FE} | DC current gain | $I_C = 100\text{ mA}; V_{CE} = 1.0\text{V}; \text{note 1}$ | 160 | 400 | |
| | | $I_C = 300\text{ mA}; V_{CE} = 1.0\text{V}$ | 100 | – | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = 500\text{ mA}; I_B = 50\text{ mA}$ | – | 700 | mV |
| V_{BEsat} | base-emitter saturation voltage | $I_C = 500\text{ mA}; I_B = 50\text{ mA}$ | – | 1.2 | V |
| C_c | collector capacitance | $I_E = i_e = 0; V_{CB} = 10\text{V}; f = 1\text{ MHz}$ | – | 6 | pF |
| C_e | emitter capacitance | $I_C = i_c = 0; V_{BE} = 500\text{ mV}; f = 1\text{ MHz}$ | – | 60 | pF |
| f_T | transition frequency | $I_C = 50\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$ | 170 | – | MHz |
| F | noise figure | $I_C = 100\text{ }\mu\text{A}; V_{CE} = 5\text{ V}; R_S = 1\text{ k}\Omega; f = 1.0\text{ kHz}$ | – | 4 | dB |

Note

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$.

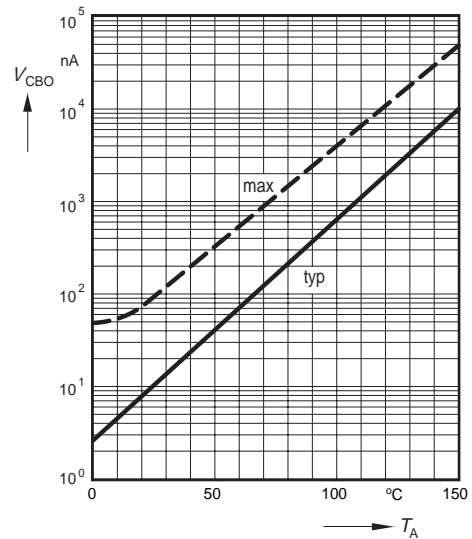
RATING CHARACTERISTIC CURVES (CH817UPNGP)

Total power dissipation $P_{tot} = f(T_S)$

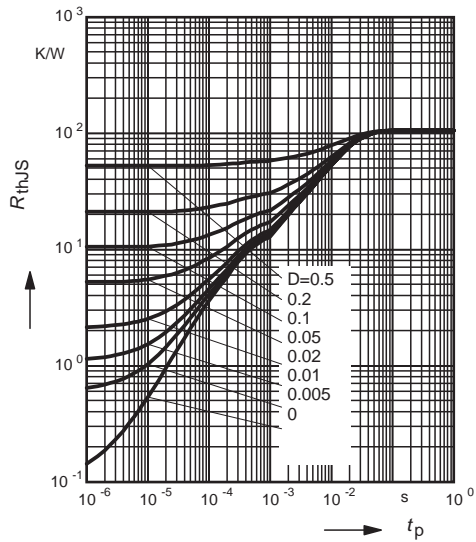


Collector cutoff current $I_{CBO} = f(T_A)$

$V_{CB} = 25V$

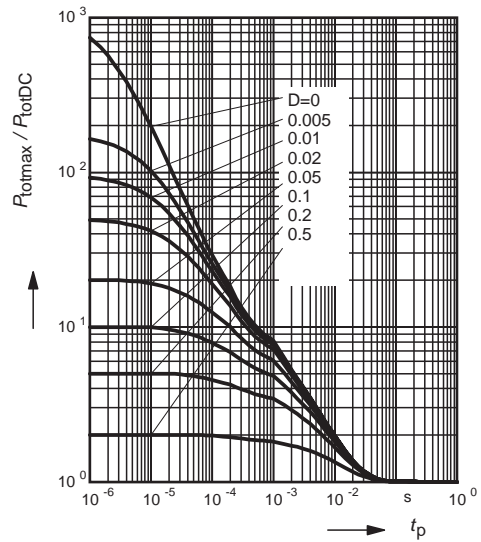


Permissible Pulse Load $R_{thJS} = f(t_p)$



Permissible Pulse Load

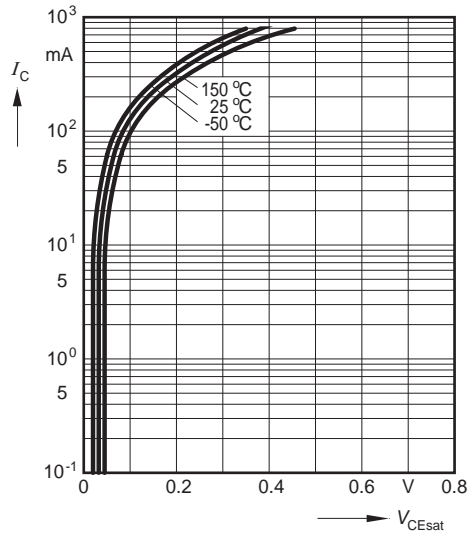
$P_{totmax} / P_{totDC} = f(t_p)$



RATING CHARACTERISTIC CURVES (CH817UPNGP)

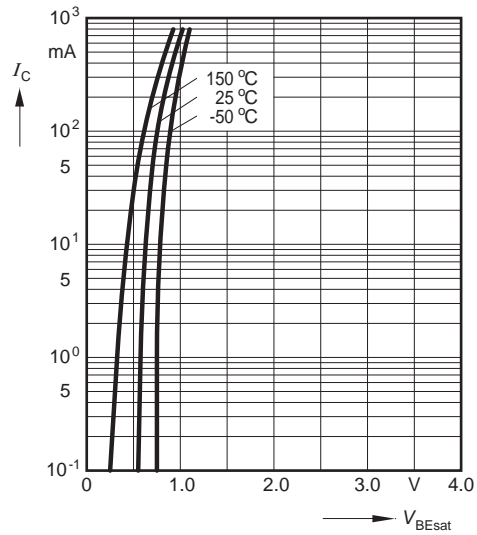
Collector-emitter saturation voltage

$$I_C = f(V_{CEsat}), h_{FE} = 10$$



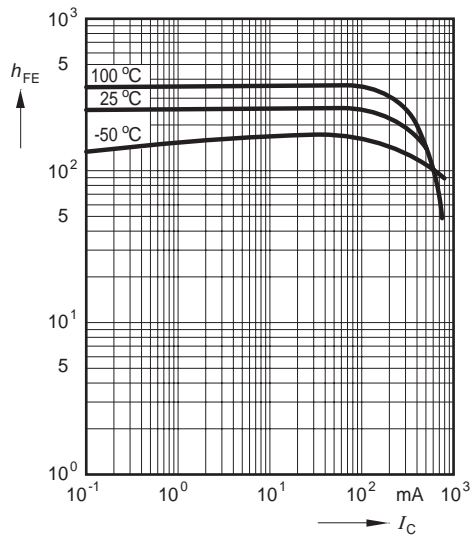
Base-emitter saturation voltage

$$I_C = f(V_{BEsat}), h_{FE} = 10$$



DC current gain $h_{FE} = f(I_C)$

$$V_{CE} = 5V$$



Transition frequency $f_T = f(I_C)$

$$V_{CE} = 5V$$

