Silicon NPN Epitaxial

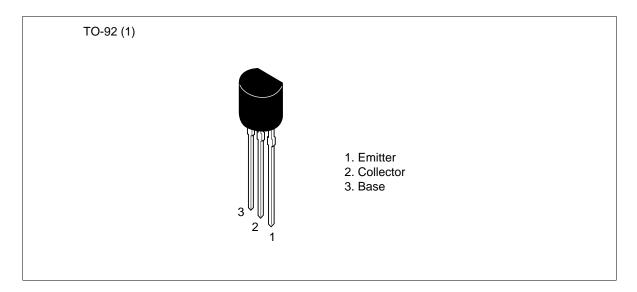
HITACHI

ADE-208-1078A (Z) 2nd. Edition Mar. 2001

Application

• Low frequency amplifier

Outline





Absolute Maximum Ratings $(Ta = 25^{\circ}C)$

| Item | Symbol | 2SC2853 | 2SC2854 | Unit |
|------------------------------|------------------|-------------|-------------|------|
| Collector to base voltage | V_{CBO} | 90 | 120 | V |
| Collector to emitter voltage | V _{CEO} | 90 | 120 | V |
| Emitter to base voltage | V _{EBO} | 5 | 5 | V |
| Collector current | I _c | 100 | 100 | mA |
| Emitter current | I _E | -100 | -100 | mA |
| Collector power dissipation | P _c | 400 | 400 | mW |
| Junction temperature | Tj | 150 | 150 | °C |
| Storage temperature | Tstg | -55 to +150 | -55 to +150 | °C |

Electrical Characteristics ($Ta = 25^{\circ}C$)

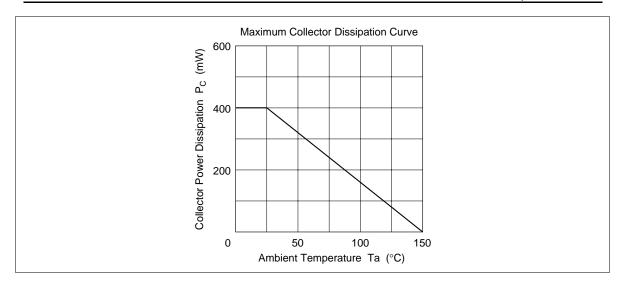
| | | 2SC2 | 2SC2853 2SC2854 | | | | | | |
|---|----------------------|------|-----------------|------|-----|------|------|------|--|
| Item | Symbol | Min | Тур | Max | Min | Тур | Max | Unit | Test conditions |
| Collector to base breakdown voltage | $V_{(BR)CBO}$ | 90 | _ | _ | 120 | _ | _ | V | $I_{c} = 10 \mu\text{A}, I_{E} = 0$ |
| Collector to emitter breakdown voltage | $V_{(BR)CEO}$ | 90 | _ | _ | 120 | _ | _ | V | $I_{\rm C}$ = 1 mA, $R_{\rm BE}$ = ∞ |
| Emitter to base breakdown voltage | $V_{(BR)EBO}$ | 5 | _ | _ | 5 | _ | _ | V | $I_{E} = 10 \mu A, I_{C} = 0$ |
| Collector cutoff current | I _{CBO} | _ | _ | 0.1 | _ | _ | 0.1 | μΑ | $V_{CB} = 70 \text{ V}, I_{E} = 0$ |
| Emitter cutoff current | I _{EBO} | _ | _ | 0.1 | _ | _ | 0.1 | μΑ | $V_{EB} = 2 \text{ V}, I_{C} = 0$ |
| DC current transfer ratio | h _{FE} *1 | 250 | _ | 800 | 250 | _ | 800 | | $V_{CE} = 12 \text{ V}, I_{C} = 2 \text{ mA}^{*2}$ |
| Collector to emitter saturation voltage | V _{CE(sat)} | _ | 0.05 | 0.10 | _ | 0.05 | 0.10 | V | $I_{\rm C} = 10 \text{ mA}, I_{\rm B} = 1 \text{ mA}^{*2}$ |
| Base to emitter saturation voltage | $V_{BE(sat)}$ | _ | 0.7 | 1.0 | _ | 0.7 | 1.0 | V | - |
| Gain bandwidth product | f _T | _ | 310 | | _ | 310 | _ | MHz | $V_{CE} = 6 \text{ V}, I_{C} = 10 \text{ mA}$ |
| Collector output capacitance | Cob | _ | 3 | _ | _ | 3 | _ | pF | $V_{CB} = 10 \text{ V}, I_{E} = 0,$ f = 1 MHz |

Notes: 1. The 2SC2853 and 2SC2854 are grouped by h_{FE} as follows.

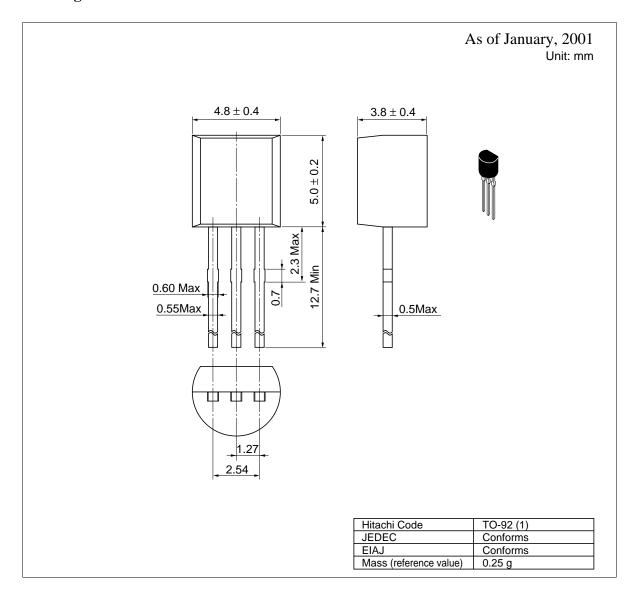
Pulse test

| D | E |
|------------|------------|
| 250 to 500 | 400 to 800 |

See characteristic curves of 2SC2855 and 2SC2856.



Package Dimensions



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