

TOSHIBA Transistor Silicon NPN Epitaxial (PCT process)

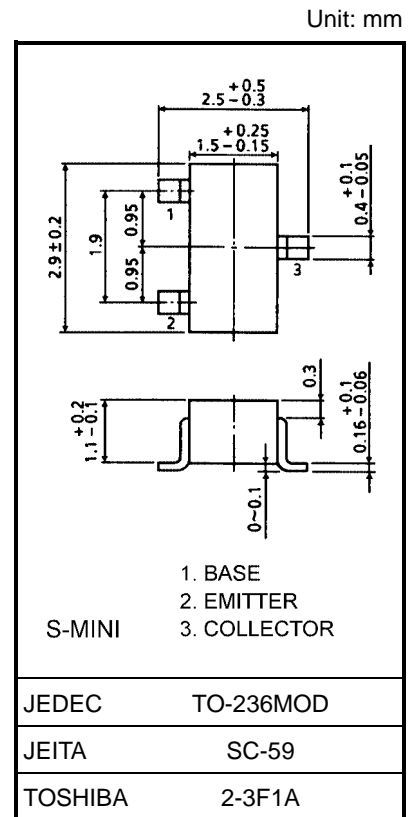
# 2SC2859

Audio Frequency Low Power Amplifier Applications  
 Driver Stage Amplifier Applications  
 Switching Applications

- Excellent  $h_{FE}$  linearity:  $h_{FE(2)} = 25$  (min) ( $V_{CE} = 6\text{ V}$ ,  $I_C = 400\text{ mA}$ )
- Complementary to 2SA1182.

### Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

| Characteristics             | Symbol    | Rating  | Unit             |
|-----------------------------|-----------|---------|------------------|
| Collector-base voltage      | $V_{CBO}$ | 35      | V                |
| Collector-emitter voltage   | $V_{CEO}$ | 30      | V                |
| Emitter-base voltage        | $V_{EBO}$ | 5       | V                |
| Collector current           | $I_C$     | 500     | mA               |
| Base current                | $I_B$     | 50      | mA               |
| Collector power dissipation | $P_C$     | 150     | mW               |
| Junction temperature        | $T_j$     | 125     | $^\circ\text{C}$ |
| Storage temperature range   | $T_{stg}$ | -55~125 | $^\circ\text{C}$ |



### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

Weight: 0.012 g (typ.)

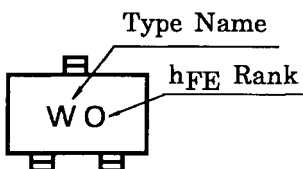
| Characteristics                      | Symbol        | Test Condition   | Min | Typ. | Max  | Unit          |
|--------------------------------------|---------------|--|-----|------|------|---------------|
| Collector cut-off current            | $I_{CBO}$     | $V_{CB} = 35\text{ V}$ , $I_E = 0$                     | —   | —    | 0.1  | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB} = 5\text{ V}$ , $I_C = 0$                      | —   | —    | 0.1  | $\mu\text{A}$ |
| DC current gain (Note)               | $h_{FE(1)}$   | $V_{CE} = 1\text{ V}$ , $I_C = 100\text{ mA}$          | 70  | —    | 400  |               |
|                                      | $h_{FE(2)}$   | $V_{CE} = 6\text{ V}$ , $I_C = 400\text{ mA}$          | 25  | —    | —    |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 100\text{ mA}$ , $I_B = 10\text{ mA}$           | —   | 0.1  | 0.25 | V             |
| Base-emitter voltage                 | $V_{BE}$      | $V_{CE} = 1\text{ V}$ , $I_C = 100\text{ mA}$          | —   | 0.8  | 1.0  | V             |
| Transition frequency                 | $f_T$         | $V_{CE} = 6\text{ V}$ , $I_C = 20\text{ mA}$           | —   | 300  | —    | MHz           |
| Collector output capacitance         | $C_{ob}$      | $V_{CB} = 6\text{ V}$ , $I_E = 0$ , $f = 1\text{ MHz}$ | —   | 7    | —    | pF            |

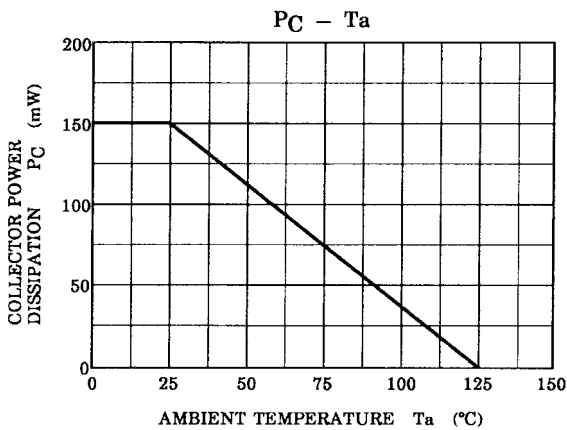
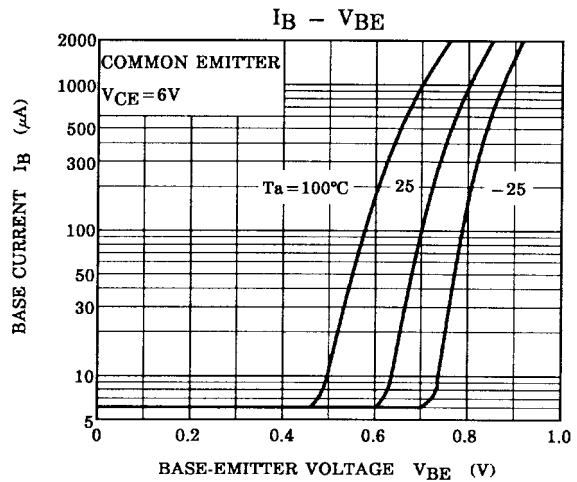
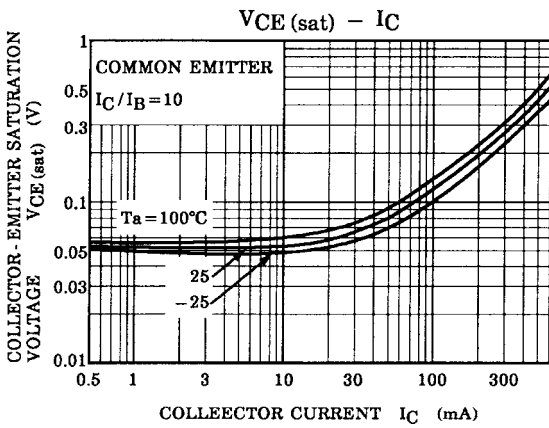
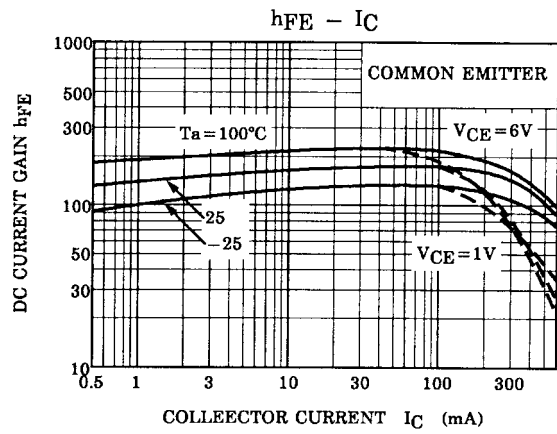
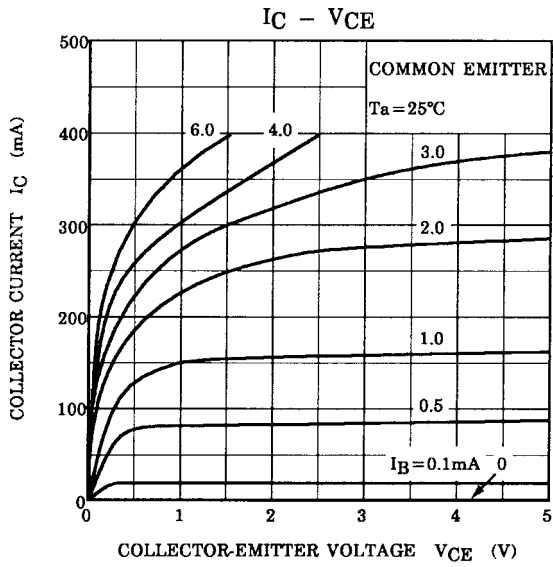
Note:  $h_{FE(1)}$  classification O (O): 70~140, Y (Y): 120~240, GR (G): 200~400

$h_{FE(2)}$  classification O: 25 min, Y: 40 min, GR: 70 min

( ) marking symbol

### Marking





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