

# 2SD860, 2SD860A

## Silicon NPN Triple-Diffused Planar Type

### Power Amplifier

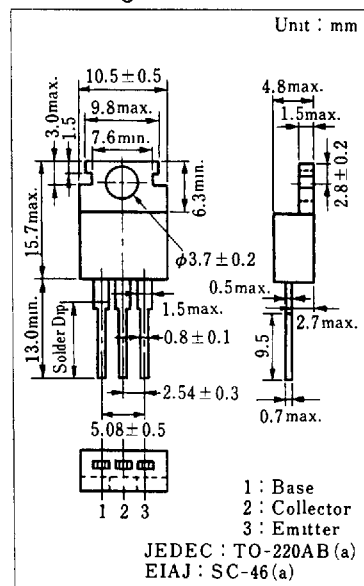
#### ■ Feature

- High collector-base voltage ( $V_{CB0}$ )

#### ■ Absolute Maximum Ratings ( $T_c=25^\circ\text{C}$ )

| Item                        | Symbol    | Value           | Unit             |
|-----------------------------|-----------|-----------------|------------------|
| Collector-base voltage      | $V_{CB0}$ | 350             | V                |
|                             |           | 400             |                  |
| Collector-emitter voltage   | $V_{CE0}$ | 250             | V                |
|                             |           | 300             |                  |
| Emitter-base voltage        | $V_{EB0}$ | 5               | V                |
| Peak collector current      | $I_{CP}$  | 2               | A                |
| Collector current           | $I_C$     | 1               | A                |
| Collector power dissipation | $P_C$     | 40              | W                |
|                             |           | 1.4             |                  |
| Junction temperature        | $T_j$     | 150             | $^\circ\text{C}$ |
| Storage temperature         | $T_{stg}$ | $-55 \sim +150$ | $^\circ\text{C}$ |

#### ■ Package Dimensions

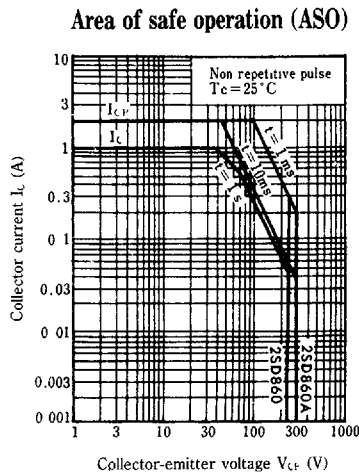
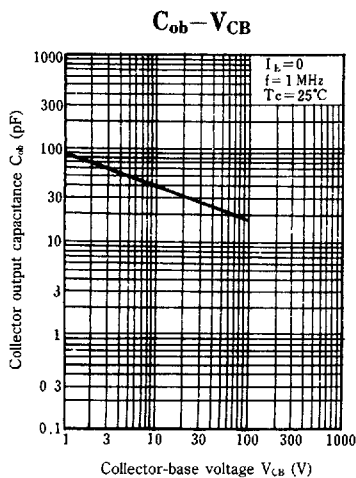
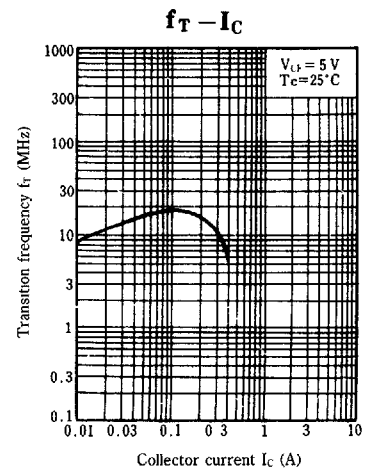
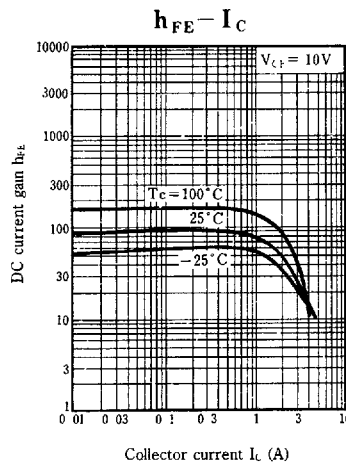
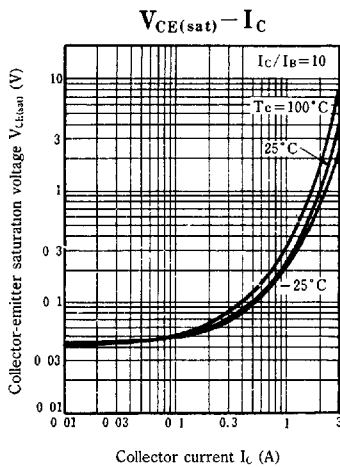
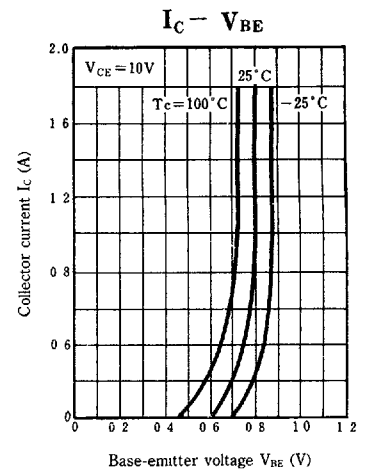
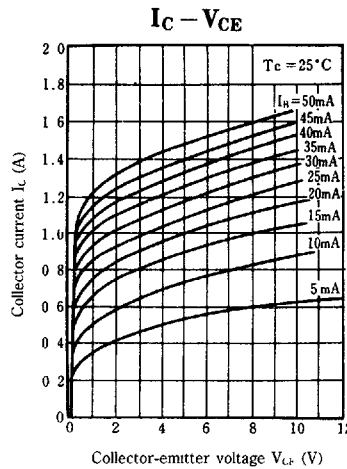
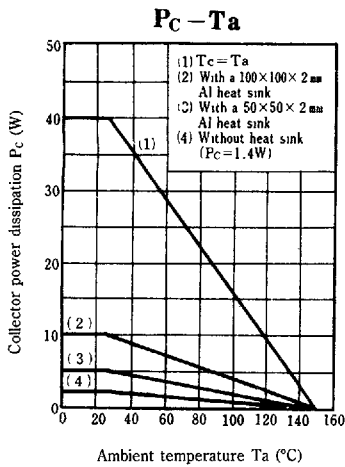


#### ■ Electrical Characteristics ( $T_c=25^\circ\text{C}$ )

| Item                                 | Symbol        | Condition                                                                       | min. | typ. | max. | Unit          |
|--------------------------------------|---------------|---------------------------------------------------------------------------------|------|------|------|---------------|
| Collector cutoff current             | $I_{CE0}$     | $V_{CE}=150\text{ V}, I_B=0$                                                    |      |      | 1    | mA            |
|                                      |               | $V_{CE}=200\text{ V}, I_B=0$                                                    |      |      | 1    |               |
| Collector cutoff current             | $I_{CES}$     | $V_{CE}=350\text{ V}, V_{BE}=0$                                                 |      |      | 1    | mA            |
|                                      |               | $V_{CB}=400\text{ V}, V_{BE}=0$                                                 |      |      | 1    |               |
| Emitter cutoff current               | $I_{E0}$      | $V_{EB}=5\text{ V}, I_C=0$                                                      |      |      | 1    | mA            |
| Collector-emitter voltage            | $V_{CE0}$     | $I_C=30\text{ mA}, I_B=0$                                                       | 250  |      |      | V             |
|                                      |               |                                                                                 | 300  |      |      |               |
| DC current gain                      | $h_{FE1}^*$   | $V_{CE}=10\text{ V}, I_C=0.3\text{ A}$                                          | 40   |      | 250  |               |
|                                      | $h_{FE2}$     | $V_{CE}=10\text{ V}, I_C=2\text{ A}$                                            | 10   |      |      |               |
| Base-emitter voltage                 | $V_{BE}$      | $V_{CB}=10\text{ V}, I_C=2\text{ A}$                                            |      |      | 1.5  | V             |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=2\text{ A}, I_B=0.4\text{ A}$                                              |      |      | 1    | V             |
| Transition frequency                 | $f_T$         | $V_{CE}=5\text{ V}, I_C=0.2\text{ A}, f=1\text{ MHz}$                           |      | 20   |      | MHz           |
| Turn-on time                         | $t_{on}$      | $V_{CC}=50\text{ V}, I_C=2\text{ A}, I_{B1}=0.2\text{ A}, I_{B2}=-0.2\text{ A}$ |      | 0.2  |      | $\mu\text{s}$ |
| Turn-off time                        | $t_{off}$     |                                                                                 |      | 2    |      | $\mu\text{s}$ |

#### \* $h_{FE1}$ Classifications

| Class     | R     | Q      | P       |
|-----------|-------|--------|---------|
| $h_{FE1}$ | 40~90 | 70~150 | 120~250 |



Note) Refer to P.620 (on 2SD812/A) for  $R_{th(jc)} - t$  characteristics.