

# 2SC1398, 2SC1398A

## Silicon NPN Epitaxial Planar Type

Medium Power Amplifier  
Complementary Pair with 2SA748

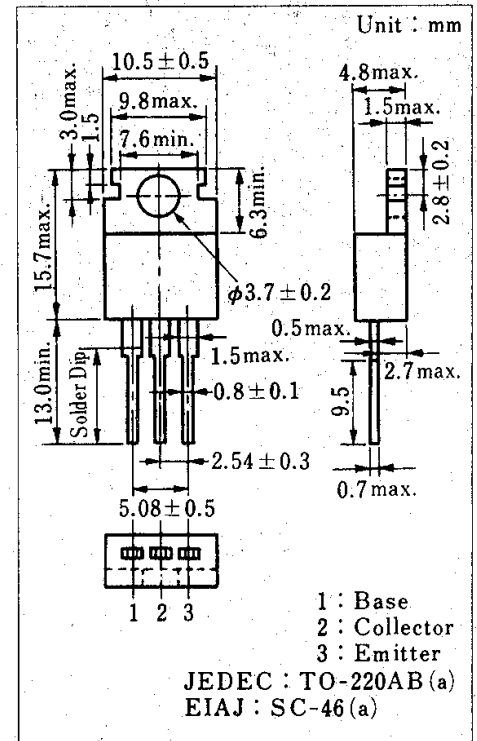
### ■ Feature

- Large collector power dissipation ( $P_C$ )
- 10W output in complementary pair with 2SA748

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

| Item   | Symbol    | Value      | Unit             |
|--|-----------|------------|------------------|
| Collector-base voltage                                 | $V_{CB0}$ | 70         | V                |
| Collector-emitter voltage                              | 2SC1398   | 50         | V                |
|  | 2SC1398A  | 70         |                  |
| Emitter-base voltage                                   | $V_{EB0}$ | 5          | V                |
| Peak collector current                                 | $I_{CP}$  | 3          | A                |
| Collector current                                      | $I_C$     | 2          | A                |
| Collector power dissipation ( $T_c=25^\circ\text{C}$ ) | $P_C$     | 15         | W                |
| Junction temperature                                   | $T_j$     | 150        | $^\circ\text{C}$ |
| Storage temperature                                    | $T_{stg}$ | -55 ~ +150 | $^\circ\text{C}$ |

### ■ Package Dimensions



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

| Item                                 | Symbol        | Condition  | min.    | typ. | max. | Unit          |
|--------------------------------------|---------------|--|---------|------|------|---------------|
| Collector cutoff current             | $I_{CB0}$     | $V_{CB}=40\text{ V}, I_E=0$                              |         |      | 1    | $\mu\text{A}$ |
|                                      | $I_{CE0}$     | $V_{CE}=20\text{ V}, I_B=0$                              |         |      | 100  |               |
| Emitter cutoff current               | $I_{EB0}$     | $V_{EB}=5\text{ V}, I_C=0$                               |         |      | 100  | $\mu\text{A}$ |
| Collector-base voltage               | $V_{CB0}$     | $I_C=1\text{ mA}, I_E=0$                                 | 70      |      |      | V             |
| Collector-emitter voltage            | 2SC1398       | $I_C=10\text{ mA}, I_B=0$                                | 50      |      |      | V             |
|                                      | 2SC1398A      |  | 70      |      |      |               |
| DC current gain                      | $h_{FE1}$     | $V_{CE}=5\text{ V}, I_C=100\text{ mA}$                   | 30      |      |      |               |
|                                      | $h_{FE2}^*$   | $V_{CE}=5\text{ V}, I_C=1\text{ A}$                      | 2SC1398 | 50   |      | 220           |
| 2SC1398A                             | 50            |  |         | 160  |      |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=1\text{ A}, I_B=100\text{ mA}$                      |         | 0.6  | 1.0  | V             |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C=2\text{ A}, I_B=200\text{ mA}$                      |         | 1.0  | 1.5  | V             |
| Transition frequency                 | $f_T$         | $V_{CE}=5\text{ V}, I_C=500\text{ mA}, f=200\text{ MHz}$ |         | 120  |      | MHz           |

### \* $h_{FE2}$ Classifications

| Type No. | Class     | P        | Q        | R         |
|----------|-----------|----------|----------|-----------|
| 2SC1398  | $h_{FE2}$ | 50 ~ 100 | 80 ~ 160 | 120 ~ 220 |
| 2SC1398A | $h_{FE2}$ | 50 ~ 100 | 80 ~ 160 | —         |