

### Applications

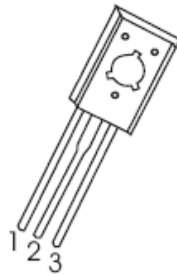
- Low Power Audio Amplifier
- Low Current High Speed Switching

### Features

- High current output up to 3A
- Low saturation voltage
- Complement to MJE172

### TO-126

1. EMITTER
2. COLLECTOR
3. BASE



| Dim | Millimeter |       | Inches |       |
|-----|------------|-------|--------|-------|
|     | Min.       | Max.  | Min.   | Max.  |
| A   | 2.40       | 2.80  | 0.094  | 0.110 |
| A1  | 1.00       | 1.40  | 0.039  | 0.055 |
| b   | 0.66       | 0.86  | 0.026  | 0.034 |
| b1  | 1.17       | 1.37  | 0.046  | 0.054 |
| c   | 0.40       | 0.60  | 0.016  | 0.024 |
| D   | 7.30       | 7.70  | 0.287  | 0.303 |
| E   | 10.60      | 11.00 | 0.417  | 0.433 |
| e   | 2.25       | 2.33  | 0.089  | 0.092 |
| e1  | 4.50       | 4.66  | 0.177  | 0.183 |
| L   | 14.00      | 15.00 | 0.551  | 0.591 |
| L1  | 1.90       | 2.50  | 0.075  | 0.098 |
| Φ   | 3.10       | 3.30  | 0.122  | 0.130 |

### Absolute Maximum Rating ( $T_C=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter                 |                          | Symbol     | Value   | Unit               |
|---------------------------|--------------------------|------------|---------|--------------------|
| Collector-Base Voltage    |                          | $BV_{CBO}$ | 100     | V                  |
| Collector-Emitter Voltage |                          | $BV_{CEO}$ | 80      | V                  |
| Emitter-Base Voltage      |                          | $BV_{EBO}$ | 7       | V                  |
| Collector Current (DC)    |                          | $I_C$      | 3       | A                  |
| Collector Current (Pulse) |                          | $I_{CP}$   | 6       | A                  |
| Power Dissipation         | $T_A=25^{\circ}\text{C}$ | $P_C$      | 1.5     | W                  |
|                           | $T_C=25^{\circ}\text{C}$ |            | 12.5    |                    |
| Junction Temperature      |                          | $T_j$      | 150     | $^{\circ}\text{C}$ |
| Storage Temperature       |                          | $T_{stg}$  | -55~150 | $^{\circ}\text{C}$ |

# MJE182

## Electrical Characteristics (T<sub>C</sub>=25°C unless otherwise noted)

| Parameter                             | Symbol               | Conditions                                                                                                                                    | Min            | Typ | Max               | Unit |
|---------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----|-------------------|------|
| Collector-base breakdown voltage      | BV <sub>CBO</sub>    | I <sub>C</sub> = 100μA, I <sub>E</sub> = 0                                                                                                    | 100            |     |                   | V    |
| Collector-emitter breakdown voltage   | BV <sub>CEO</sub>    | I <sub>C</sub> = 1mA, I <sub>B</sub> = 0                                                                                                      | 80             |     |                   | V    |
| Emitter-base breakdown voltage        | BV <sub>EBO</sub>    | I <sub>E</sub> = 100μA, I <sub>C</sub> = 0                                                                                                    | 7              |     |                   | V    |
| Collector cut-off current             | I <sub>CBO</sub>     | V <sub>CB</sub> = 100V, I <sub>B</sub> = 0                                                                                                    |                |     | 0.1               | μA   |
| Emitter cut-off current               | I <sub>EBO</sub>     | V <sub>EB</sub> = 7V, I <sub>C</sub> = 0                                                                                                      |                |     | 0.1               | μA   |
| DC current gain*                      | h <sub>FE</sub>      | V <sub>CE</sub> =1V, I <sub>C</sub> = 100mA<br>V <sub>CE</sub> =1V, I <sub>C</sub> = 500mA<br>V <sub>CE</sub> =1V, I <sub>C</sub> = 1.5A      | 50<br>30<br>12 |     | 250               |      |
| Collector-emitter saturation voltage* | V <sub>CE(sat)</sub> | I <sub>C</sub> = 500mA, I <sub>B</sub> = 50mA<br>I <sub>C</sub> = 1.5A, I <sub>B</sub> = 150mA<br>I <sub>C</sub> = 3A, I <sub>B</sub> = 600mA |                |     | 0.3<br>0.9<br>1.7 | V    |
| Base-emitter saturation voltage*      | V <sub>BE(sat)</sub> | I <sub>C</sub> = 1.5A, I <sub>B</sub> = 150mA<br>I <sub>C</sub> = 3A, I <sub>B</sub> = 600mA                                                  |                |     | 1.5<br>2.0        | V    |
| Base-emitter on voltage*              | V <sub>BE(on)</sub>  | V <sub>CE</sub> =1V, I <sub>C</sub> = 500mA                                                                                                   |                |     | 1.2               | V    |
| Transition frequency                  | f <sub>T</sub>       | V <sub>CE</sub> = 10V, I <sub>B</sub> = 100mA                                                                                                 | 50             |     |                   | MHz  |
| Output Capacitance                    | C <sub>ob</sub>      | V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f=1MHz                                                                                             |                |     | 30                | pF   |

\* Pulse test: PW≤300μs, duty cycle≤2% Pulse

## RATING AND CHARACTERISTIC CURVES (MJE182)

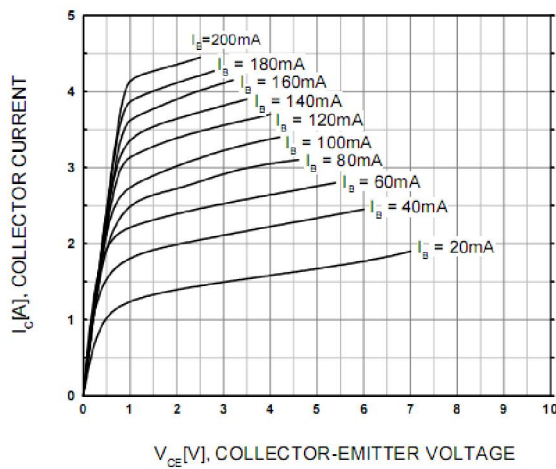


Figure 1. Static Characteristic

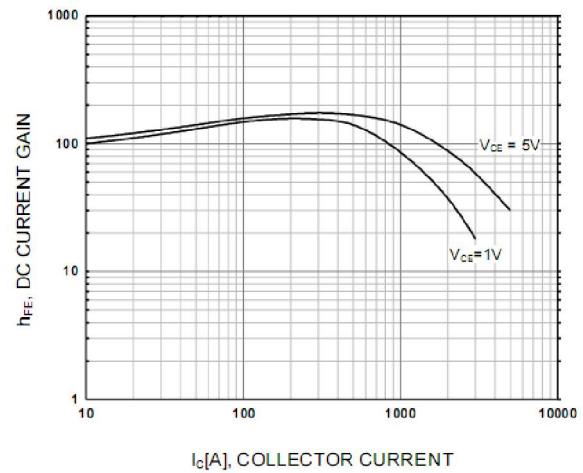


Figure 2. DC current Gain

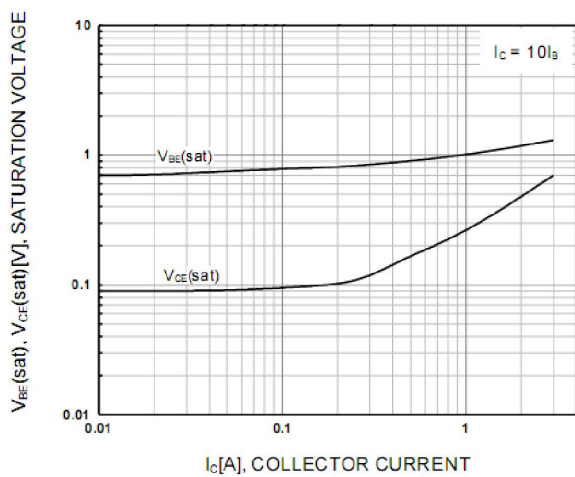


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

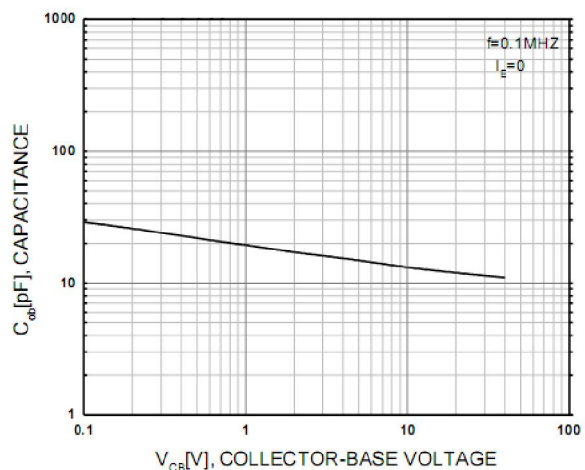


Figure 4. Collector Output Capacitance

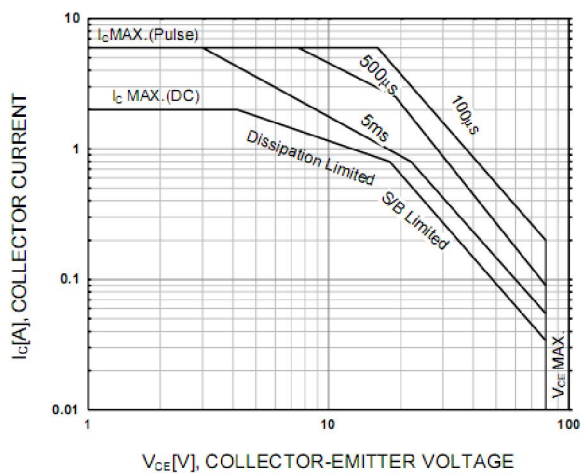


Figure 5. Safe Operating Area

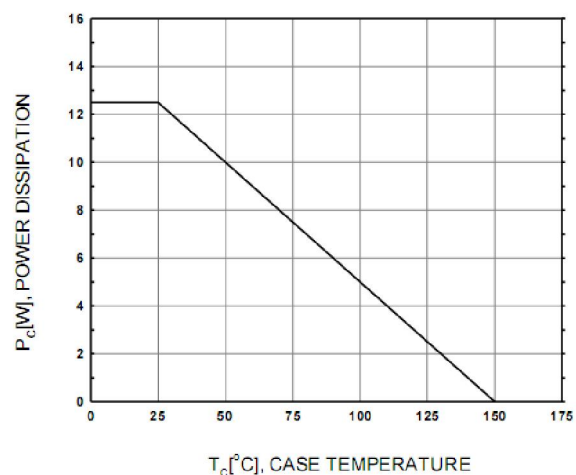


Figure 6. Power Derating