

# Central<sup>TM</sup> Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

MJE700 THRU MJE703 PNP  
MJE800 THRU MJE803 NPN

SILICON POWER DARLINGTON  
COMPLEMENTARY TRANSISTORS

JEDEC TO-126 CASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR MJE700, MJE800 series types are medium power complementary silicon darlington transistors designed for audio amplifier applications as complementary output devices.

## MAXIMUM RATINGS ( $T_C=25^\circ\text{C}$ )

|                                               | SYMBOL         | MJE700<br>MJE800 | MJE701<br>MJE801 | MJE702<br>MJE802 | MJE703<br>MJE803 | UNIT               |
|-----------------------------------------------|----------------|------------------|------------------|------------------|------------------|--------------------|
| Collector-Base Voltage                        | $V_{CB0}$      | 60               |                  | 80               |                  | V                  |
| Collector-Emitter Voltage                     | $V_{CE0}$      | 60               |                  | 80               |                  | V                  |
| Emitter-Base Voltage                          | $V_{EB0}$      |                  | 5.0              |                  |                  | V                  |
| Collector Current                             | $I_C$          |                  | 4.0              |                  |                  | A                  |
| Base Current                                  | $I_B$          |                  | 0.1              |                  |                  | A                  |
| Power Dissipation                             | $P_D$          |                  | 40               |                  |                  | W                  |
| Operating and Storage<br>Junction Temperature | $T_J, T_{STG}$ |                  | -55 to +150      |                  |                  | $^\circ\text{C}$   |
| Thermal Resistance                            | $\theta_{JC}$  |                  | 3.13             |                  |                  | $^\circ\text{C/W}$ |

## ELECTRICAL CHARACTERISTICS ( $T_C=25^\circ\text{C}$ unless otherwise noted)

| SYMBOL               | TEST CONDITIONS                                                        | MJE700<br>MJE701<br>MJE800<br>MJE801 |     | MJE702<br>MJE703<br>MJE802<br>MJE803 |     | UNIT          |
|----------------------|------------------------------------------------------------------------|--------------------------------------|-----|--------------------------------------|-----|---------------|
|                      |                                                                        | MIN                                  | MAX | MIN                                  | MAX |               |
| $I_{CB0}$            | $V_{CB}=\text{Rated } BV_{CB0}$                                        |                                      | 100 |                                      | 100 | $\mu\text{A}$ |
| $I_{CB0}$            | $V_{CB}=\text{Rated } BV_{CB0}, T_C=100^\circ\text{C}$                 |                                      | 500 |                                      | 500 | $\mu\text{A}$ |
| $I_{CE0}$            | $V_{CE}=\text{Rated } V_{CE0}$                                         |                                      | 100 |                                      | 100 | $\mu\text{A}$ |
| $I_{EB0}$            | $V_{BE}=5.0\text{V}$                                                   |                                      | 2.0 |                                      | 2.0 | mA            |
| $BV_{CE0}$           | $I_C=50\text{mA}$                                                      | 60                                   |     | 80                                   |     | V             |
| $V_{CE}(\text{SAT})$ | $I_C=1.5\text{A}, I_B=30\text{mA}$ (MJE700, MJE702, MJE800, MJE802)    |                                      | 2.5 |                                      | 2.5 | V             |
| $V_{CE}(\text{SAT})$ | $I_C=2.0\text{A}, I_B=40\text{mA}$ (MJE701, MJE703, MJE801, MJE803)    |                                      | 2.8 |                                      | 2.8 | V             |
| $V_{CE}(\text{SAT})$ | $I_C=4.0\text{A}, I_B=40\text{mA}$                                     |                                      | 3.0 |                                      | 3.0 | V             |
| $V_{BE}(\text{ON})$  | $V_{CE}=3.0\text{V}, I_C=1.5\text{A}$ (MJE700, MJE702, MJE800, MJE802) |                                      | 2.5 |                                      | 2.5 | V             |
| $V_{BE}(\text{ON})$  | $V_{CE}=3.0\text{V}, I_C=2.0\text{A}$ (MJE701, MJE703, MJE801, MJE803) |                                      | 2.5 |                                      | 2.5 | V             |
| $V_{BE}(\text{ON})$  | $V_{CE}=3.0\text{V}, I_C=4.0\text{A}$                                  |                                      | 3.0 |                                      | 3.0 | V             |
| $h_{FE}$             | $V_{CE}=3.0\text{V}, I_C=1.5\text{A}$ (MJE700, MJE702, MJE800, MJE802) | 750                                  |     | 750                                  |     |               |
| $h_{FE}$             | $V_{CE}=3.0\text{V}, I_C=2.0\text{A}$ (MJE701, MJE703, MJE801, MJE803) | 750                                  |     | 750                                  |     |               |
| $h_{FE}$             | $V_{CE}=3.0\text{V}, I_C=4.0\text{A}$                                  | 100                                  |     | 100                                  |     |               |
| $f_T$                | $V_{CE}=3.0\text{V}, I_C=1.5\text{A}, f=1.0\text{MHz}$                 | 1.0                                  |     | 1.0                                  |     | MHz           |