

**isc Silicon PNP Power Transistors****MJE5170/5171/5172****DESCRIPTION**

- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = -120V(\text{Min})$ - MJE5170  
=  $-140V(\text{Min})$ - MJE5171  
=  $-160V(\text{Min})$ - MJE5172
- Low Saturation Voltage
- Complement to Type MJE5180/5181/5182

**APPLICATIONS**

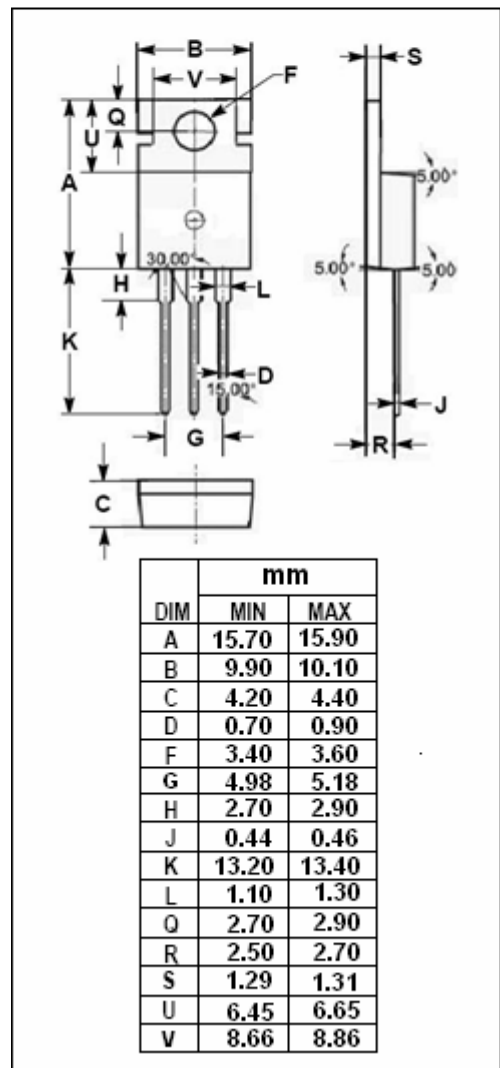
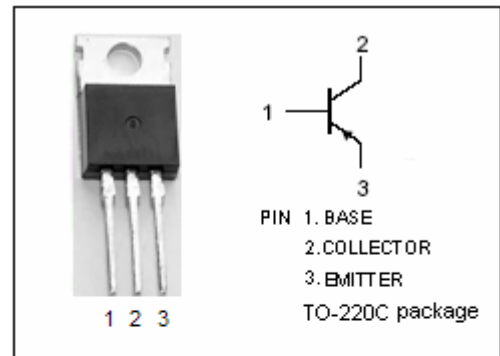
- Designed for use in general purpose amplifier and switching applications.

**ABSOLUTE MAXIMUM RATINGS( $T_a=25^\circ\text{C}$ )**

| SYMBOL    | PARAMETER                                               |         | VALUE   | UNIT             |
|-----------|---------------------------------------------------------|---------|---------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                                  | MJE5170 | -120    | V                |
|           |                                                         | MJE5171 | -140    |                  |
|           |                                                         | MJE5172 | -160    |                  |
| $V_{CEO}$ | Collector-Emitter Voltage                               | MJE5170 | -120    | V                |
|           |                                                         | MJE5171 | -140    |                  |
|           |                                                         | MJE5172 | -160    |                  |
| $V_{EBO}$ | Emitter-Base Voltage                                    |         | -5      | V                |
| $I_C$     | Collector Current-Continuous                            |         | -6      | A                |
| $I_{CM}$  | Collector Current-Peak                                  |         | -10     | A                |
| $I_B$     | Base Current-Continuous                                 |         | -2      | A                |
| $P_C$     | Collector Power Dissipation<br>@ $T_C=25^\circ\text{C}$ |         | 65      | W                |
| $P_C$     | Collector Power Dissipation<br>@ $T_a=25^\circ\text{C}$ |         | 2       |                  |
| $T_J$     | Junction Temperature                                    |         | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                               |         | -65~150 | $^\circ\text{C}$ |

**THERMAL CHARACTERISTICS**

| SYMBOL        | PARAMETER                               | MAX  | UNIT               |
|---------------|-----------------------------------------|------|--------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case    | 1.92 | $^\circ\text{C/W}$ |
| $R_{th\ j-a}$ | Thermal Resistance, Junction to Ambient | 62.5 | $^\circ\text{C/W}$ |



## isc Silicon PNP Power Transistors

## MJE5170/5171/5172

## ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL         | PARAMETER                            |         | CONDITIONS                                                           | MIN  | MAX  | UNIT |
|----------------|--------------------------------------|---------|----------------------------------------------------------------------|------|------|------|
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage | MJE5170 | $I_C = -30\text{mA}; I_B = 0$                                        | -120 |      | V    |
|                |                                      | MJE5171 |                                                                      | -140 |      |      |
|                |                                      | MJE5172 |                                                                      | -160 |      |      |
| $V_{CE(sat)}$  | Collector-Emitter Saturation Voltage |         | $I_C = -6\text{A}; I_B = -0.6\text{A}$                               |      | -1.5 | V    |
| $V_{BE(on)}$   | Base-Emitter On Voltage              |         | $I_C = -6\text{A}; V_{CE} = -4\text{V}$                              |      | -2.0 | V    |
| $I_{CEO}$      | Collector Cutoff Current             | MJE5170 | $V_{CE} = -60\text{V}; I_B = 0$                                      |      | -0.7 | mA   |
|                |                                      | MJE5171 | $V_{CE} = -70\text{V}; I_B = 0$                                      |      | -0.7 |      |
|                |                                      | MJE5172 | $V_{CE} = -80\text{V}; I_B = 0$                                      |      | -0.7 |      |
| $I_{CES}$      | Collector Cutoff Current             | MJE5170 | $V_{CE} = -120\text{V}; V_{EB} = 0$                                  |      | -0.4 | mA   |
|                |                                      | MJE5171 | $V_{CE} = -140\text{V}; V_{EB} = 0$                                  |      | -0.4 |      |
|                |                                      | MJE5172 | $V_{CE} = -160\text{V}; V_{EB} = 0$                                  |      | -0.4 |      |
| $I_{EBO}$      | Emitter Cutoff Current               |         | $V_{EB} = -5\text{V}; I_C = 0$                                       |      | -1.0 | mA   |
| $h_{FE-1}$     | DC Current Gain                      |         | $I_C = -0.3\text{A}; V_{CE} = -4\text{V}$                            | 30   |      |      |
| $h_{FE-2}$     | DC Current Gain                      |         | $I_C = -3\text{A}; V_{CE} = -4\text{V}$                              | 15   | 100  |      |
| $f_T$          | Current-Gain—Bandwidth Product       |         | $I_C = -0.5\text{A}; V_{CE} = -10\text{V}; f_{test} = 1.0\text{MHz}$ | 1.0  |      | MHz  |