

# isc Silicon NPN Power Transistor

# 2SA1412-Z

## DESCRIPTION

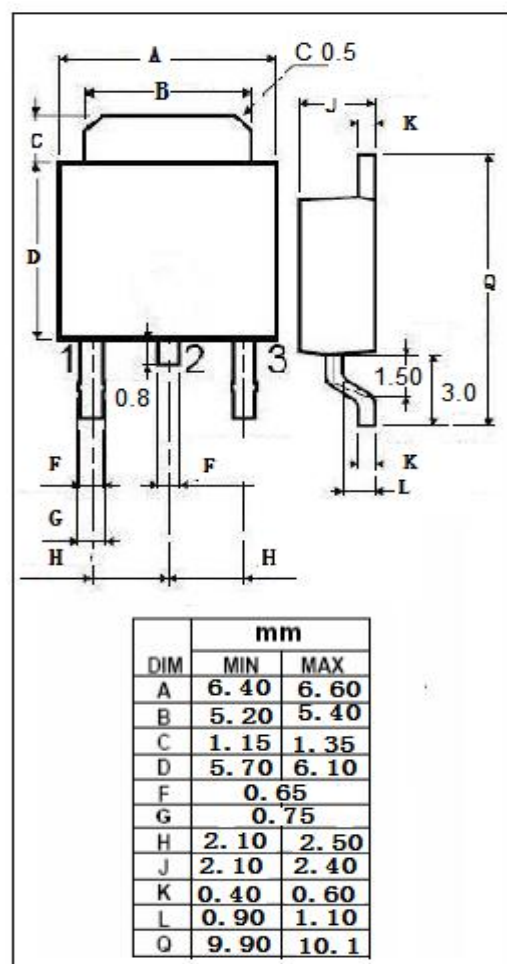
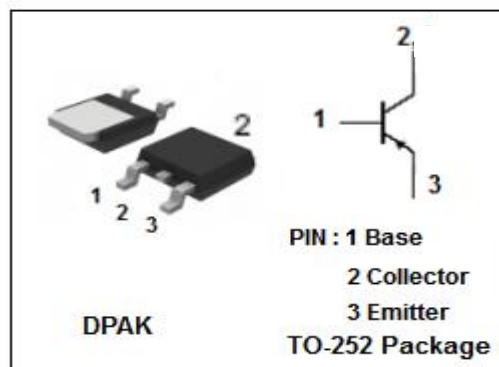
- With TO-252(DPAK) packaging
- Excellent linearity of  $h_{FE}$
- Low collector-to-emitter saturation voltage
- Fast switching speed
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

- Relay drivers
- High-speed inverters
- Converters
- High current switching applications

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

| SYMBOL    | PARAMETER                                                 | VALUE   | UNIT               |
|-----------|-----------------------------------------------------------|---------|--------------------|
| $V_{CBO}$ | Collector-Base Voltage                                    | -500    | V                  |
| $V_{CEO}$ | Collector-Emitter Voltage                                 | -400    | V                  |
| $V_{EBO}$ | Emitter-Base Voltage                                      | -7      | V                  |
| $I_C$     | Collector Current-Continuous                              | -2      | A                  |
| $P_C$     | Collector Power Dissipation<br>@ $T_C=25^{\circ}\text{C}$ | 2       | W                  |
| $T_J$     | Junction Temperature                                      | 150     | $^{\circ}\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                                 | -55~150 | $^{\circ}\text{C}$ |



## isc Silicon NPN Power Transistor

## 2SA1412-Z

## ELECTRICAL CHARACTERISTICS

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

| SYMBOL        | PARAMETER                            | CONDITIONS                             | MIN  | TYP. | MAX  | UNIT          |
|---------------|--------------------------------------|----------------------------------------|------|------|------|---------------|
| $BV_{CBO}$    | Collector-Base Breakdown Voltage     | $I_C=-1\text{mA}; I_B=0$               | -500 |      |      | V             |
| $BV_{CEO}$    | Collector-Emitter Breakdown Voltage  | $I_C=-10\text{mA}; I_B=0$              | -400 |      |      | V             |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=-1.0\text{A}; I_B=-0.2\text{A}$   |      |      | -1.0 | V             |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage      | $I_C=-1.0\text{A}; I_B=-0.2\text{A}$   |      |      | -1.5 | V             |
| $I_{CBO}$     | Collector Cutoff Current             | $V_{CB}=-500\text{V}; I_E=0$           |      |      | -10  | $\mu\text{A}$ |
| $I_{EBO}$     | Emitter Cutoff Current               | $V_{EB}=-7\text{V}; I_C=0$             |      |      | -10  | $\mu\text{A}$ |
| $h_{FE-1}$    | DC Current Gain                      | $I_C=-100\text{mA}; V_{CE}=-5\text{V}$ | 40   |      | 120  |               |
| $h_{FE-2}$    | DC Current Gain                      | $I_C=-1\text{A}; V_{CE}=-5\text{V}$    | 6    |      |      |               |