## / Descriptions

TO-220F NPN Silicon NPN transistor in a TO-220F Plastic Package.

## / Features

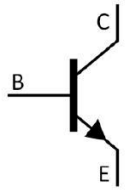
, , 2SB1063

Excellent $h_{FE}$, wide ASO, high $f_T$. complementary to 2SB1063.

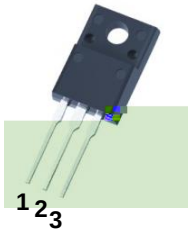
## / Applications

High power amplifier application.

## / Equivalent Circuit




## / Pinning




PIN1 Base PIN 2 Collector PIN 3 Emitter

## / $h_{FE}$ Classifications & Marking

| $h_{FE}$ Classifications Symbol | Q | P |
|---|---|---|
| $h_{FE}$ Range | 60 120 | 100 200 |

## / Absolute Maximum Ratings(Ta=25 )

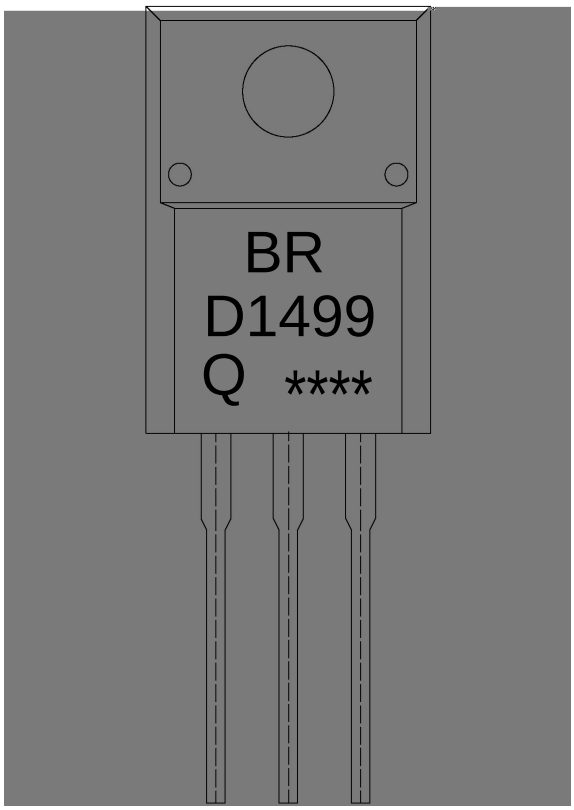
| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Collector to Base Voltage | $V_{CBO}$ | 100 | V |
| Collector to Emitter Voltage | $V_{CEO}$ | 100 | V |
| Emitter to Base Voltage | $V_{EBO}$ | 5.0 | V |
| Collector Current - Continuous | $I_C$ | 5.0 | A |
| Collector Current – Continuous(Pulse) | $I_{CP}$ | 8.0 | A |
| Collector Power Dissipation | $P_C$ | 2.0 | W |
| Collector Power Dissipation | $P_C(T_C=25$ ) | 40 | W |
| Junction Temperature | $T_j$ | 150 | |
| Storage Temperature Range | $T_{stg}$ | -55 150 | |

## / Electrical Characteristics(Ta=25 )

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector Cut-Off Current | $I_{CBO}$ | $V_{CB}$=100V $I_E$=0 | | | 50 | μA |
| Emitter Cut-Off Current | $I_{EBO}$ | $V_{EB}$=3.0V $I_C$=0 | | | 50 | μA |
| DC Current Gain | $h_{FE(1)}$ | $V_{CE}$=5.0V $I_C$=1.0A | 60 | | 200 | |
| | $h_{FE(2)}$ | $V_{CE}$=5.0V $I_C$=3.0A | 20 | | | |
| | $h_{FE(3)}$ | $V_{CE}$=5.0V $I_C$=20mA | 20 | | | |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C$=3.0A $I_B$=0.3A | | | 2.0 | V |
| Base to Emitter Voltage | $V_{BE}$ | $V_{CE}$=5.0V $I_C$=3.0A | | | 1.8 | V |
| Transition Frequency | $f_T$ | $V_{CE}$=5.0V $I_C$=0.5A f=1.0MHz | | 20 | | MHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$=10V f=1.0MHz | | 90 | | pF |

**2SD1499**

## / Marking Instructions




BR

D1499

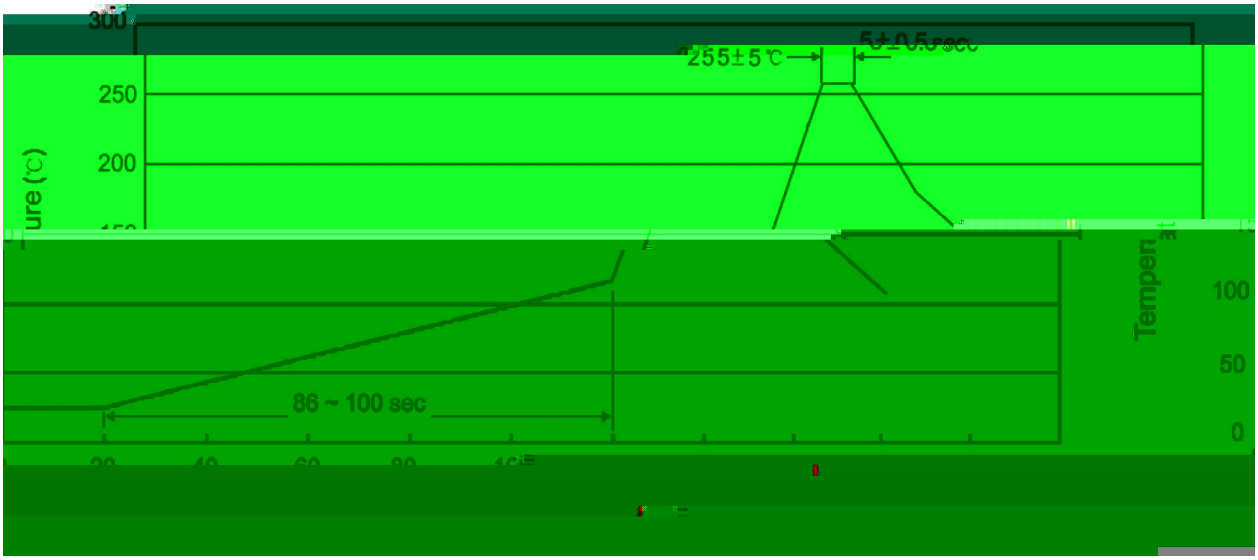
Q: $h_{FE}$

****

Note:

| | |
|---|---|
| BR: | Company Code. |
| D1499: | Product Type. |
| Q: | $h_{FE}$ Classifications Symbol |
| ****: | Lot No. Code, code change with Lot No. |

## ( ) / Temperature Profile for Dip Soldering(Pb-Free)




| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Note: | |
| 1 | | 25 | 150 | | | 60 | 90sec; | 1.Preheating:25~150 | , Time:60~90sec. |
| 2 | | 255±5 | | | | | 5±0.5sec; | 2.Peak Temp.:255±5 | , Duration:5±0.5sec. |
| 3 | | | | | 2 | 10 | /sec. | 3. Cooling Speed: 2~10 | /sec. |

## / Resistance to Soldering Heat Test Conditions

| | | | |
|---|---|---|---|
| 270±5 | 10±1 sec. | Temp.:270±5 | Time:10±1 sec |

## / Packaging SPEC.

/ BULK

| Package Type | Units | | | Dimension (unit mm$^3$) |
|---|---|---|---|---|
| | Units/Bag / | Bags/Inner Box / | Units/Inner Box / | |