

isc Silicon NPN Power Transistor
2SD313
DESCRIPTION

- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 60V(\text{Min})$
- Low Collector-Emitter Saturation Voltage-
: $V_{CE(sat)} = 1.0V(\text{Max}) @ I_C = 2.0A$
- Complement to Type 2SB507
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

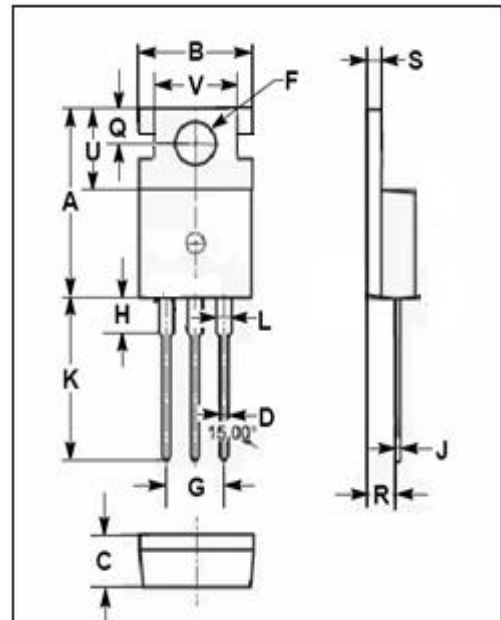
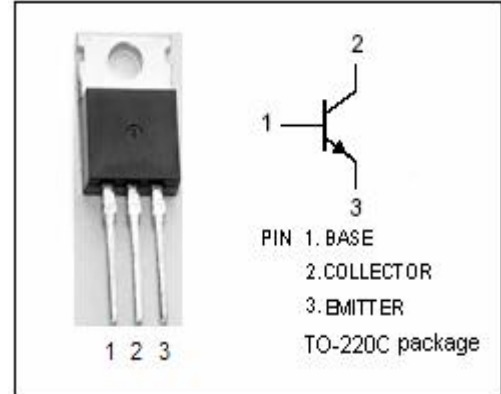
- Designed for the output stage of 15W to 25W AF power amplifier.

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|--|---------|------------------|
| V_{CBO} | Collector-Base Voltage | 60 | V |
| V_{CEO} | Collector-Emitter Voltage | 60 | V |
| V_{EBO} | Emitter-Base Voltage | 5 | V |
| I_C | Collector Current-Continuous | 3.0 | A |
| I_{CM} | Collector Current-Peak | 8.0 | A |
| P_C | Collector Power Dissipation @ $T_a = 25^\circ\text{C}$ | 1.75 | W |
| | Collector Power Dissipation @ $T_c = 25^\circ\text{C}$ | 30 | |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature Range | -40~150 | $^\circ\text{C}$ |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---------------|--------------------------------------|------|---------------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 4.16 | $^\circ\text{C}/\text{W}$ |



| DIM | mm | |
|-----|-------|-------|
| | MIN | MAX |
| A | 15.50 | 15.90 |
| B | 9.80 | 10.20 |
| C | 4.20 | 4.50 |
| D | 0.70 | 0.90 |
| F | 3.40 | 3.70 |
| G | 4.98 | 5.18 |
| H | 2.68 | 2.90 |
| J | 0.44 | 0.60 |
| K | 12.80 | 13.40 |
| L | 1.20 | 1.45 |
| Q | 2.70 | 2.90 |
| R | 2.30 | 2.70 |
| S | 1.29 | 1.35 |
| U | 6.45 | 6.65 |
| V | 8.66 | 8.86 |

isc Silicon NPN Power Transistor**2SD313****ELECTRICAL CHARACTERISTICS****T_c=25°C unless otherwise specified**

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|---|-----|------|-----|------|
| V _{(BR)CEO} | Collector-Emitter Breakdown Voltage | I _C = 10mA ; I _B = 0 | 60 | | | V |
| V _{CE(sat)} | Collector-Emitter Saturation Voltage | I _C = 2A; I _B = 0.2A | | 0.4 | 1.0 | V |
| V _{BE(on)} | Base-Emitter On Voltage | I _C = 1A ; V _{CE} = 2V | | | 1.5 | V |
| I _{CBO} | Collector Cutoff Current | V _{CB} = 60V ; I _E = 0 | | | 100 | μ A |
| I _{CEO} | Collector Cutoff Current | V _{CE} = 60V ; I _B = 0 | | | 5 | mA |
| I _{EBO} | Emitter Cutoff Current | V _{EB} = 4V ; I _C = 0 | | | 1 | mA |
| h _{FE-1} | DC Current Gain | I _C = 1A ; V _{CE} = 2V | 40 | | 320 | |
| h _{FE-2} | DC Current Gain | I _C = 0.1A ; V _{CE} = 2V | 40 | | | |
| f _T | Current-Gain—Bandwidth Product | I _C = 0.5A; V _{CE} = 5V; f _{test} = 1.0MHz | | 8 | | MHz |

◆ **h_{FE-1} Classifications**

| C | D | E | F |
|-------|--------|---------|---------|
| 40-80 | 60-120 | 100-200 | 160-320 |

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