

isc Silicon NPN Darlington Power Transistor

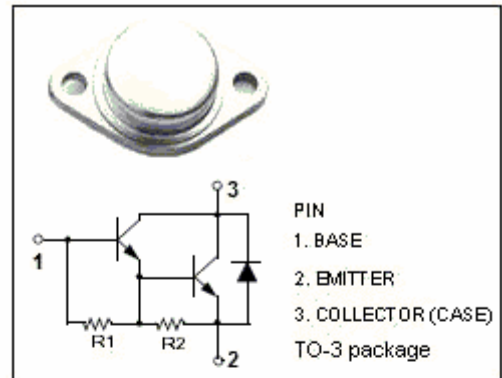
MJ11014

DESCRIPTION

- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 90V(\text{Min.})$
- High DC Current Gain-
: $h_{FE} = 1000(\text{Min.}) @ I_C = 20A$
- Low Collector Saturation Voltage-
: $V_{CE(sat)} = 3.0V(\text{Max.}) @ I_C = 20A$
- Complement to Type MJ11013

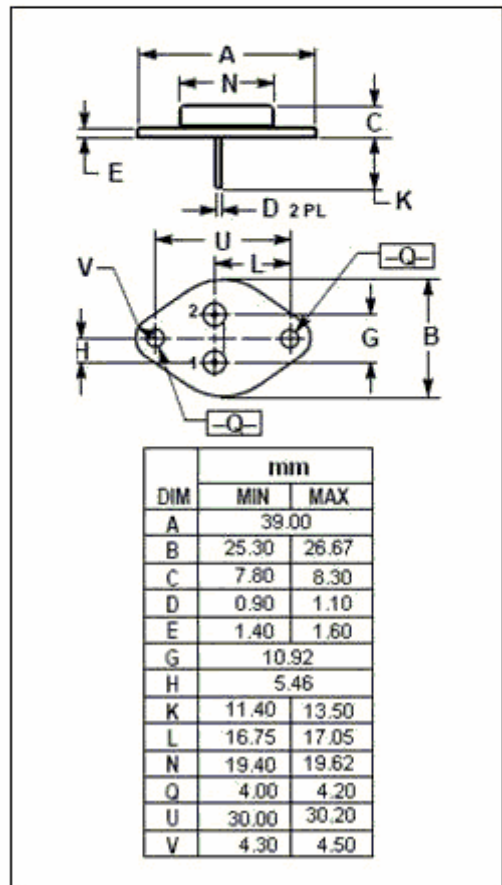
APPLICATIONS

- Designed for use as output devices in complementary general purpose amplifier applications.



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

| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|---|----------|------------|
| V_{CBO} | Collector-Base Voltage | 90 | V |
| V_{CEO} | Collector-Emitter Voltage | 90 | V |
| V_{EBO} | Emitter-Base Voltage | 5 | V |
| I_C | Collector Current-Continuous | 30 | A |
| I_{CM} | Collector Current-Peak | 50 | A |
| I_B | Base Current-Continuous | 1 | A |
| P_C | Collector Power Dissipation @ $T_C = 25^\circ C$ | 200 | W |
| T_j | Junction Temperature | 200 | $^\circ C$ |
| T_{stg} | Storage Temperature Range | -55~+200 | $^\circ C$ |



THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---------------|--------------------------------------|------|--------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 0.87 | $^\circ C/W$ |

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ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|-----------------|--------------------------------------|---|------|------|------------|------|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | $I_C=0.1\text{A}; I_B=0$ | 90 | | | V |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage | $I_C=20\text{A}; I_B=0.2\text{A}$ | | | 3.0 | V |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage | $I_C=30\text{A}; I_B=0.3\text{A}$ | | | 4.0 | V |
| $V_{BE(sat)-1}$ | Base-Emitter Saturation Voltage | $I_C=20\text{A}; I_B=0.2\text{A}$ | | | 3.5 | V |
| $V_{BE(sat)-2}$ | Base-Emitter Saturation Voltage | $I_C=30\text{A}; I_B=0.3\text{A}$ | | | 5.0 | V |
| I_{CER} | Collector Cutoff Current | $V_{CE}=90\text{V}; R_{BE}=1\text{k}\Omega$ $V_{CE}=90\text{V}; R_{BE}=1\text{k}\Omega; T_C=150^{\circ}\text{C}$ | | | 1.0 5.0 | mA |
| I_{CEO} | Collector Cutoff Current | $V_{CE}=50\text{V}; I_B=0$ | | | 1.0 | mA |
| I_{EBO} | Emitter Cutoff Current | $V_{EB}=5\text{V}; I_C=0$ | | | 5.0 | mA |
| h_{FE-1} | DC Current Gain | $I_C=20\text{A}, V_{CE}=5\text{V}$ | 1000 | | | |
| h_{FE-2} | DC Current Gain | $I_C=30\text{A}, V_{CE}=5\text{V}$ | 200 | | | |