

D40C1
NPN SILICON
DARLINGTON POWER
TRANSISTOR



TO-202 CASE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR D40C1 type is an NPN silicon Darlington power transistor designed for general purpose amplifier applications where high gain is required.

MARKING: FULL PART NUMBER

MAXIMUM RATINGS: ($T_C=25^\circ\text{C}$)

| | | | |
|--|----------------|-------------|--------------------|
| Collector-Emitter Voltage | V_{CES} | 30 | V |
| Collector-Emitter Voltage | V_{CEO} | 30 | V |
| Emitter-Base Voltage | V_{EBO} | 13 | V |
| Continuous Collector Current | I_C | 0.5 | A |
| Peak Collector Current | I_{CM} | 1.0 | A |
| Power Dissipation | P_D | 6.25 | W |
| Operating and Storage Junction Temperature | T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |
| Thermal Resistance | Θ_{JC} | 20 | $^\circ\text{C/W}$ |

SYMBOL

| | | |
|----------------|-------------|--------------------|
| V_{CES} | 30 | V |
| V_{CEO} | 30 | V |
| V_{EBO} | 13 | V |
| I_C | 0.5 | A |
| I_{CM} | 1.0 | A |
| P_D | 6.25 | W |
| T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |
| Θ_{JC} | 20 | $^\circ\text{C/W}$ |

UNITS

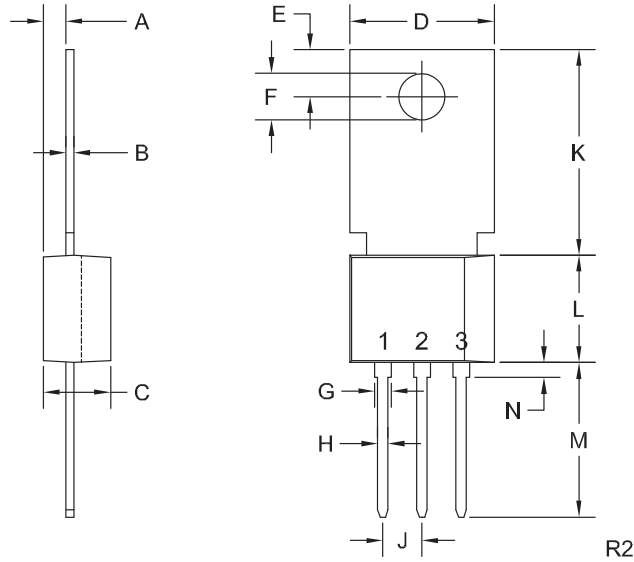
ELECTRICAL CHARACTERISTICS: ($T_C=25^\circ\text{C}$ unless otherwise noted)

| SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|---------------|---|-----|------|-----|---------------|
| I_{CES} | $V_{CE}=30\text{V}$ | | | 500 | nA |
| I_{CBO} | $V_{CE}=30\text{V}, T_C=150^\circ\text{C}$ | | | 20 | μA |
| I_{EBO} | $V_{EB}=13\text{V}$ | | | 100 | nA |
| BV_{CEO} | $I_C=10\text{mA}$ | 30 | | | V |
| $V_{CE(SAT)}$ | $I_C=500\text{mA}, I_B=0.5\text{mA}$ | | | 1.5 | V |
| $V_{BE(SAT)}$ | $I_C=500\text{mA}, I_B=0.5\text{mA}$ | | | 2.0 | V |
| h_{FE} | $V_{CE}=5.0\text{V}, I_C=200\text{mA}$ | 10K | | 70K | |
| f_T | $V_{CE}=5.0\text{V}, I_C=20\text{mA}$ | | 80 | | MHz |
| C_{cb} | $V_{CB}=10\text{V}, f=1.0\text{MHz}$ | | | 10 | pF |
| t_{on} | $I_C=1.0\text{A}, I_{B1}=1.0\text{mA}$ | | 120 | | ns |
| t_{off} | $I_C=1.0\text{A}, I_{B1}=I_{B2}=1.0\text{mA}$ | | 1200 | | ns |

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TO-202 CASE - MECHANICAL OUTLINE



LEAD CODE:
1) Emitter
2) Base
3) Collector
Tab is common to pin 3

MARKING:
FULL PART NUMBER

| SYMBOL | INCHES | | MILLIMETERS | |
|---------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.055 | 0.071 | 1.40 | 1.80 |
| B | 0.016 | 0.024 | 0.40 | 0.60 |
| C | 0.173 | 0.181 | 4.40 | 4.60 |
| D | 0.374 | 0.413 | 9.50 | 10.5 |
| E | 0.118 | 0.154 | 3.00 | 3.90 |
| F (DIA) | 0.124 | 0.150 | 3.15 | 3.80 |
| G | 0.035 | 0.055 | 0.90 | 1.40 |
| H | 0.023 | 0.031 | 0.59 | 0.80 |
| J | 0.094 | 0.106 | 2.39 | 2.69 |
| K | 0.459 | 0.559 | 11.66 | 14.21 |
| L | 0.280 | 0.346 | 7.12 | 8.80 |
| M | 0.406 | 0.531 | 10.3 | 13.5 |
| N | 0.024 | 0.059 | 0.60 | 1.50 |

TO-202 (REV: R2)

R1 (23-January 2012)