

2N4237
2N4238
2N4239

**SILICON
NPN TRANSISTORS**



TO-39 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N4237, 2N4238, and 2N4239 are silicon NPN transistors mounted in a hermetically sealed metal case, designed for power amplifier, power driver, and switching power supply applications.

MARKING: FULL PART NUMBER

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

| | SYMBOL | 2N4237 | 2N4238 | 2N4239 | UNITS |
|--|----------------|--------|-------------|--------|--------------------|
| Collector-Base Voltage | V_{CBO} | 50 | 80 | 100 | V |
| Collector-Emitter Voltage | V_{CEO} | 40 | 60 | 80 | V |
| Emitter-Base Voltage | V_{EBO} | | 6.0 | | V |
| Continuous Collector Current | I_C | | 3.0 | | A |
| Continuous Base Current | I_B | | 0.5 | | A |
| Power Dissipation | P_D | | 6.0 | | W |
| Operating and Storage Junction Temperature | T_J, T_{stg} | | -65 to +200 | | $^\circ\text{C}$ |
| Thermal Resistance | θ_{JC} | | 29.2 | | $^\circ\text{C/W}$ |

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

| SYMBOL | TEST CONDITIONS | MIN | MAX | UNITS |
|----------------------|---|-----|-----|---------------|
| I_{CBO} | $V_{CB}=\text{Rated } V_{CBO}$ | | 100 | μA |
| I_{CEV} | $V_{CE}=45\text{V}, V_{EB}=1.5\text{V}$ (2N4237) | | 100 | μA |
| I_{CEV} | $V_{CE}=75\text{V}, V_{EB}=1.5\text{V}$ (2N4238) | | 100 | μA |
| I_{CEV} | $V_{CE}=90\text{V}, V_{EB}=1.5\text{V}$ (2N4239) | | 100 | μA |
| I_{CEV} | $V_{CE}=30\text{V}, V_{EB}=1.5\text{V}, T_C=150^\circ\text{C}$ (2N4237) | | 1.0 | mA |
| I_{CEV} | $V_{CE}=50\text{V}, V_{EB}=1.5\text{V}, T_C=150^\circ\text{C}$ (2N4238) | | 1.0 | mA |
| I_{CEV} | $V_{CE}=70\text{V}, V_{EB}=1.5\text{V}, T_C=150^\circ\text{C}$ (2N4239) | | 1.0 | mA |
| I_{CEO} | $V_{CE}=\text{Rated } V_{CEO}$ | | 700 | μA |
| I_{EBO} | $V_{EB}=6.0\text{V}$ | | 500 | μA |
| BV_{CEO} | $I_C=100\text{mA}$ (2N4237) | 40 | | V |
| BV_{CEO} | $I_C=100\text{mA}$ (2N4238) | 60 | | V |
| BV_{CEO} | $I_C=100\text{mA}$ (2N4239) | 80 | | V |
| $V_{CE(\text{SAT})}$ | $I_C=500\text{mA}, I_B=50\text{mA}$ | | 0.3 | V |
| $V_{CE(\text{SAT})}$ | $I_C=1.0\text{A}, I_B=0.1\text{A}$ | | 0.6 | V |
| $V_{BE(\text{SAT})}$ | $I_C=1.0\text{A}, I_B=0.1\text{A}$ | | 1.5 | V |
| $V_{BE(\text{ON})}$ | $V_{CE}=1.0\text{V}, I_C=250\text{mA}$ | | 1.0 | V |

R3 (26-March 2015)

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2N4238
2N4239

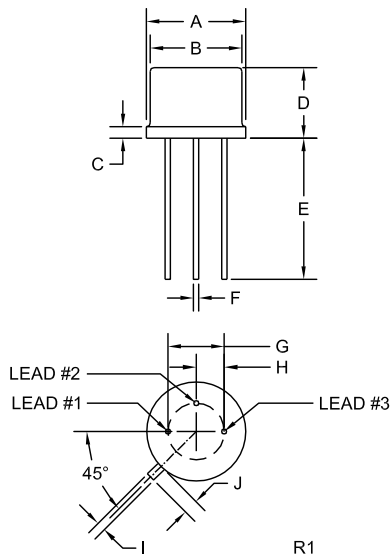
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ELECTRICAL CHARACTERISTICS - Continued: ($T_C=25^\circ\text{C}$ unless otherwise noted)

| SYMBOL | TEST CONDITIONS | MIN | MAX | UNITS |
|----------|--|-----|-----|-------|
| h_{FE} | $V_{CE}=1.0\text{V}, I_C=50\text{mA}$ | 30 | | |
| h_{FE} | $V_{CE}=1.0\text{V}, I_C=250\text{mA}$ | 30 | 250 | |
| h_{FE} | $V_{CE}=1.0\text{V}, I_C=500\text{mA}$ | 30 | | |
| h_{FE} | $V_{CE}=1.0\text{V}, I_C=1.0\text{A}$ | 15 | | |
| h_{fe} | $V_{CE}=10\text{V}, I_C=100\text{mA}, f=1.0\text{kHz}$ | 30 | | |
| f_T | $V_{CE}=10\text{V}, I_C=100\text{mA}, f=1.0\text{kHz}$ | 2.0 | | MHz |
| C_{ob} | $V_{CB}=10\text{V}, I_E=0, f=100\text{kHz}$ | | 100 | pF |

TO-39 CASE - MECHANICAL OUTLINE



| SYMBOL | DIMENSIONS | | | |
|---------|------------|-------|-------------|------|
| | INCHES | | MILLIMETERS | |
| | MIN | MAX | MIN | MAX |
| A (DIA) | 0.335 | 0.370 | 8.51 | 9.40 |
| B (DIA) | 0.315 | 0.335 | 8.00 | 8.51 |
| C | - | 0.040 | - | 1.02 |
| D | 0.240 | 0.260 | 6.10 | 6.60 |
| E | 0.500 | - | 12.70 | - |
| F (DIA) | 0.016 | 0.021 | 0.41 | 0.53 |
| G (DIA) | 0.200 | | 5.08 | |
| H | 0.100 | | 2.54 | |
| I | 0.028 | 0.034 | 0.71 | 0.86 |
| J | 0.029 | 0.045 | 0.74 | 1.14 |

TO-39 (REV: R1)

LEAD CODE:

- 1) Emitter
- 2) Base
- 3) Collector

MARKING: FULL PART NUMBER

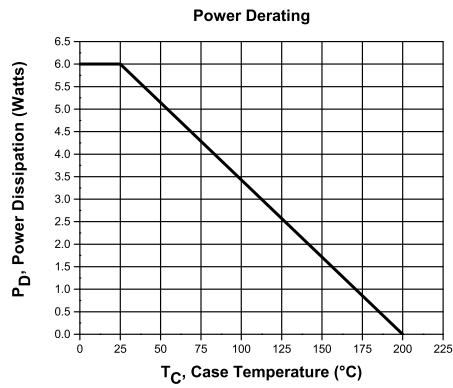
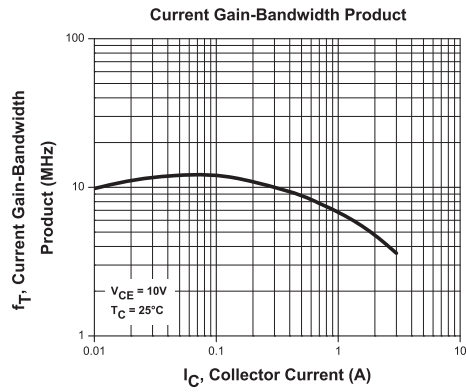
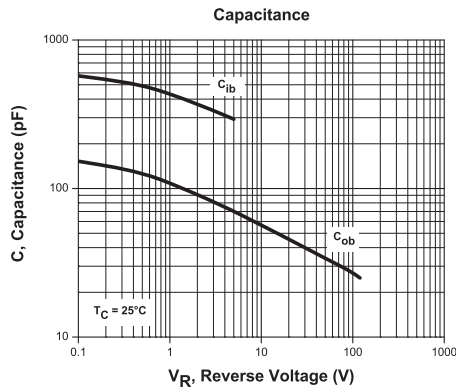
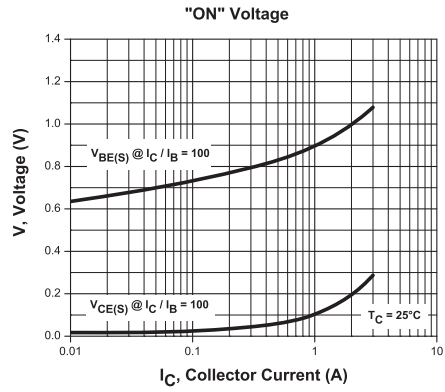
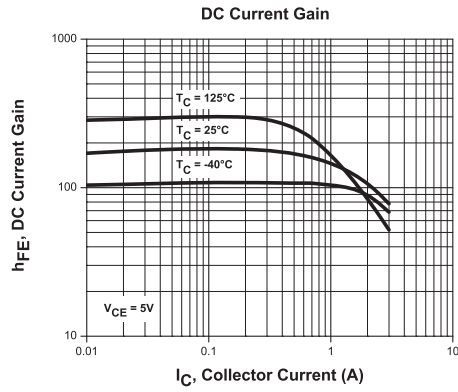
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TYPICAL ELECTRICAL CHARACTERISTICS



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SERVICES

- Bonded Inventory
- Custom Electrical Screening
- Custom Electrical Characteristic Curves
- SPICE Models
- Custom Packaging
- Package Base Options
- Custom Device Development/ Multi Discrete Modules (MDM™)
- Bare Die Available for Hybrid Applications

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