

# New Jersey Semi-Conductor Products, Inc.

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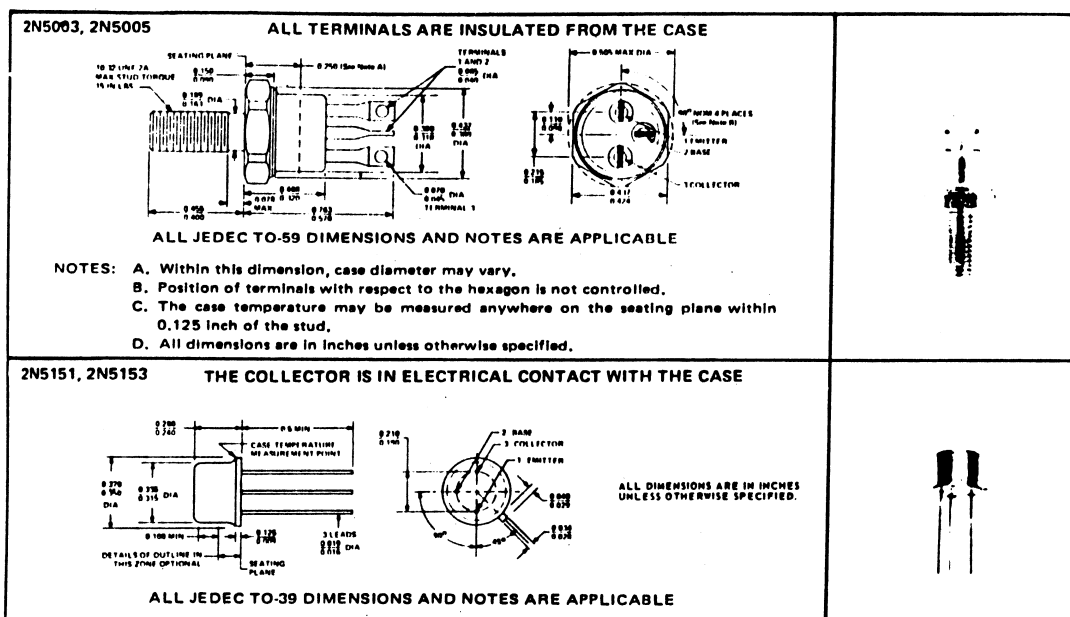
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## TYPES 2N5003, 2N5005, 2N5151, 2N5153 P-N-P SILICON POWER TRANSISTORS

### HIGH-FREQUENCY POWER TRANSISTORS WITH COMPUTER-DESIGNED ISOTHERMAL GEOMETRY

- For Complementary Use With 2N5002, 2N5004, 2N5152, 2N5154
- 15 mJ Reverse Energy Rating with  $I_C = 10$  A and 4 V Reverse Bias

#### \*mechanical data



absolute maximum ratings at 25°C case temperature (unless otherwise noted)

|                                                                                    | 2N5003               | 2N5151  | 2N5005 | 2N5153 |
|------------------------------------------------------------------------------------|----------------------|---------|--------|--------|
| Collector-Base Voltage                                                             | —100 V*              |         |        |        |
| Collector-Emitter Voltage (See Note 1)                                             | —80 V*               |         |        |        |
| Emitter-Base Voltage                                                               | —5.5 V*              |         |        |        |
| Continuous Collector Current                                                       | —5 A*                | —5 A*   |        |        |
| Peak Collector Current (See Note 2)                                                | —10 A*               | —10 A*  |        |        |
| Continuous Base Current                                                            | —2 A*                | —2.5 A* |        |        |
| Safe Operating Areas                                                               | See Figures 7* and 8 |         |        |        |
| Continuous Device Dissipation at 50°C Case Temperature (See Note 3)                | 50 W*                | 10 W*   |        |        |
| Continuous Device Dissipation at 100°C Case Temperature (See Note 3)               | 33.3 W               | 6.7 W   |        |        |
| Continuous Device Dissipation at (or below) 25°C Free-Air Temperature (See Note 4) |                      | 1 W*    |        |        |
| Unclamped Inductive Load Energy (See Note 5)                                       | —15 mJ—              |         |        |        |
| Operating Collector Junction Temperature Range                                     | —65°C to 200°C*      |         |        |        |
| Storage Temperature Range                                                          | —65°C to 200°C*      |         |        |        |
| Lead or Terminal Temperature 1/8 Inch from Case for 60 Seconds                     | —300°C*              |         |        |        |

- NOTES: 1. This value applies when the base-emitter diode is open circuited.  
2. This value applies for  $t_w < 8.3$  ms, duty cycle  $< 1\%$ .  
3. For operation above (or below) 50°C case temperature, refer to Dissipation Derating Curves, Figures 9 and 10.  
4. Derate linearly to 200°C free-air temperature at the rate of 5.7 mW/°C.  
5. This rating is based on the capability of the transistors to operate safely in the unclamped inductive load circuit of Section 3.2 of the forthcoming JEDEC publication *Suggested Standards on Power Transistors*<sup>1</sup>.  $L = 0.3$  mH,  $R_{BB1} = 10$  Ω,  $R_{BB2} = 100$  Ω,  $V_{BB1} = 10$  V,  $V_{BB2} = 4$  V,  $R_L = 0.1$  Ω,  $V_{CC} = 10$  V,  $I_{CM} = 10$  A, Energy  $\approx I_C^2 L/2$ .
- <sup>1</sup> JEDEC registered data. This data sheet contains all applicable registered data in effect at the time of publication.



Quality Semi-Conductors