*New Jersey Semi-Conductor Products, Inc.*

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (201) 376-29
(212) 227-60
FAX: (201) 376-89

# 2N5189
# SILICON N-P-N HIGH-VOLTAGE TRANSISTOR

***Maximum Ratings, Absolute-Maximum Values:***

COLLECTOR-TO-BASE VOLTAGE, $V_{CBO}$ . . . . . 60 max. V

COLLECTOR-TO-EMITTER VOLTAGE, $V_{CEO}$ . . . . . 35 max. V

EMITTER-TO-BASE VOLTAGE, $V_{EBO}$ . . . . . 5 max. V

COLLECTOR CURRENT, $I_C$ . . . . . Limited by dissipation

TRANSISTOR DISSIPATION, $P_T$:

For case temperatures* { up to 25°C . . . . . 5 max. W; above 25°C . . . . . Derate at 28.5mW/°C

For ambient temperatures { up to 25°C . . . . . 1 max. W; above 25°C . . . . . Derate at 5.7mW/°C

TEMPERATURE RANGE:

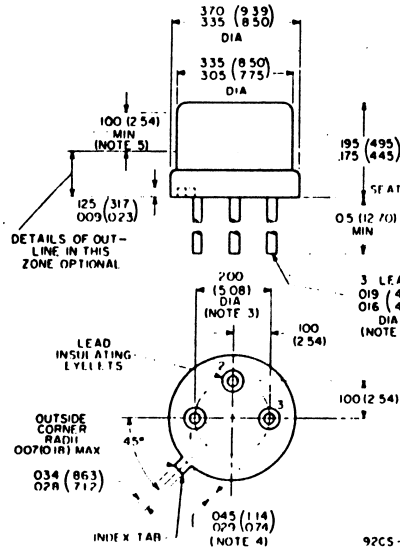
Storage and Operating (Junction) . . . . . −65 to +200 °C

**ELECTRICAL CHARACTERISTICS, at $T_A$ = 25°C**

| Characteristics | Symbols | TEST CONDITIONS | | | | | | | LIMITS | | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $T_A$ | f | $V_{CB}$ | $V_{CE}$ | $I_C$ | $I_E$ | $I_B$ | Type 2N5189 | | |
| | | °C | MHz | Volts | | | mA | | Min. | Max. | |
| Collector-Cutoff Current | $I_{CBO}$ | 25 | | | 30 | | | | - | 0.5 | μA |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | 25 | | | | 0.1 | | | 60 | - | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 25 | | | | 10 | | | 35 | - | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | 25 | | | | | -0.1 | | - | 5 | V |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | 25 | | | | 1000 | | 100 | - | 1 | V |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | 25 | | | | 1000 | | 100 | - | 1.5 | V |
| Static Forward Current-Transfer Ratio | $h_{FE}$ | 25<br>25<br>25 | | | 1<br>1<br>1 | 100<br>500<br>1000 | | | -<br>-<br>- | 30<br>35<br>15* | |
| Small-Signal Forward-Current Transfer Ratio | $h_{fe}$ | | 100 | | 10 | 50 | | | 2.5 | - | |
| Common-Base, Open-Circuit Output Capacitance | $C_{ob}$ | | 0.1 | 10 | | | 0 | | - | 12 | pF |
| Turn-On Time (Delay Time + Rise Time) | $t_{on}$ = ($t_d$ + $t_r$) | | | | | $I_C$<br>1000 | $I_{B1}$<br>100 | $I_{B2}$<br>- | - | 40 | ns |
| Turn-Off Time (Storage Time + Fall Time) | $t_{off}$ = ($t_s$ + $t_f$) | | | | | 1000 | 100 | -100 | - | 70 | ns |

*Pulsed condition—Pulse duration ≤ 400 μs, duty factor ≤ 0.03.

**DIMENSIONAL OUTLINE**




Dimensions in Inches and Millimeters

**Note 1:** *Dimensions in parentheses are in millim are derived from the basic inch dimensions as indica*

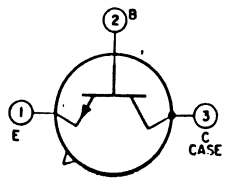
**Note 2:** The specified lead diameter applies in between 0.050" (1.27 mm) and 0.250" (6.35 mm) from ing plane. From 0.250" (6.35 mm) to the end of t maximum diameter of 0.021" (0.533 mm) is held. C these zones, the lead diameter is not controlled.

**Note 3:** Leads having a maximum diameter of 0.01 mm) at a gauging plane of 0.054" (1.372 mm) + 0.00 mm) - 0.000" (0.000 mm) below seating plane shall 0.007" (0.177 mm) of their true position (location) r a maximum width of tab.

**Note 4:** Measured from actual maximum diameter.

**Note 5:** This zone is controlled for automatic The variation in actual diameter within the zone exceed 0.010" (0.25 mm).

**TERMINAL DIAGRAM**
**Bottom View**




LEAD 1 — EMITTER
LEAD 2 — BASE
LEAD 3 — COLLECTOR, CASE

Quality Semi-Conductors