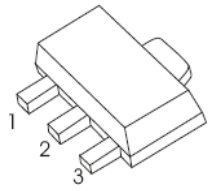
# NPN Epitaxial Planar Silicon Transistors

## FEATURES

- Fast switching speed.
- Low collector-to-emitter saturation voltage.
- Large current capacity and wide ASO.

**SOT-89-3L**




1. BASE
2. COLLECTOR
3. EMITTER

## ORDERING INFORMATION

| Type No. | Marking | Package Code |
|---|---|---|
| 2SD1624□ | DG | SOT-89 |

□: none is for Lead Free package;
"G" is for Halogen Free package.

## MAXIMUM RATING @ Ta=25℃ unless otherwise specified

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 60 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 50 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 6 | V |
| $I_C$ | Collector Current –DC<br>-Pulse | 3<br>6 | A |
| $P_C$ | Collector Dissipation | 0.5<br>1.5(Note1) | W |
| $T_j$, $T_{stg}$ | Junction and Storage Temperature | -55 to+150 | ℃ |

Note
1. Mounted on ceramic board (250mm$^2$×0.8mm)

## ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C$=10μA $I_E$=0 | 60 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C$=1mA $I_B$=0 | 50 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$=10μA $I_C$=0 | 6 | | | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$=40V $I_E$=0 | | | 1 | μA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$=4V,$I_C$=0 | | | 1 | μA |
| DC current gain | $H_{FE}$ | $V_{CE}$=2V $I_C$=100mA<br>$V_{CE}$=2V $I_C$=3A | 100<br>35 | | 560 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$=2A $I_B$=100mA | | 0.35 | 0.7 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C$=2A $I_B$=100mA | | 0.94 | 1.2 | V |
| Transition frequency | $f_T$ | $V_{CE}$=10V,$I_C$=50mA, | | 150 | | MHz |
| Output Capacitance | $C_{ob}$ | $V_{CB}$=10V f=1.0MHz $I_E$=0 | | 39 | | pF |

## CLASSIFICATION OF $h_{FE}$

| Rank | R | S | T | U |
|---|---|---|---|---|
| Range | 100-200 | 140-280 | 200-400 | 280-560 |

## TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified