# 2N 5307 & 2N 5308

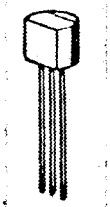
NPN DARLINGTON AMP' IFIER

## GENERAL DESCRIPTION :

The 2N 5307 & 2N 5308 are NPN silicon planar epitaxial Darlington amplifiers. The devices are suitable for preamplifier input stages requiring high input impedance or very high gain low level amplifier.

## MECHANICAL OUTLINE

TO-92B



ECB

## ABSOLUTE MAXIMUM RATINGS:

| | |
|---|---|
| Total Power Dissipation @ $T_A = \leq 25^oC$, $P_t$ | 400mW |
| Collector Junction Temperature, $T_j$ | 150°C |
| Storage Temperature Range, Tstg | -65°C to + 150°C |
| Soldering Temperature (10 sec. time limit) | 260°C |
| Continuous Collector Current, $I_C$ | 300mA |
| Continuous Base Current, $I_B$ | 50mA |
| Collector to Base Voltage, $V_{CBO}$ | 40V |
| Collector to Emitter Voltage, $V_{CEO}$ | 40V |
| Emitter to Base Voltage, $V_{EBO}$ | 12V |

## ELECTRICAL CHARACTERISTICS @ $T_A=25^oC$ (unless otherwise stated) :

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNIT | TEST CONDITIONS |
|---|---|---|---|---|---|---|
| Collector-Emitter Breakdown Voltage | $BV_{CEO}$ | 40 | | | V | $I_C$=10mA $I_B$=0 |
| Collector Cutoff Current | $I_{CBO}$ | | | 100 | nA | $V_{CB}$=40V $I_E$=0 |
| Emitter Cutoff Current | $I_{EBO}$ | | | 100 | nA | $V_{EB}$=12V $I_C$=0 |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | | 1.4 | V | $I_C$=200mA $I_B$=0.2mA |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | | 1.6 | V | $I_C$=200mA $I_B$=0.2mA |
| Base-Emitter Voltage | $V_{BE}$ | | | 1.5 | V | $V_{CE}$=5V $I_C$=200mA |
| D.C. Current Gain 2N 5307 | $h_{FE}$ | 2000 | | 20000 | | $V_{CE}$=5V $I_C$=2mA |

**MICRO ELECTRONICS LTD.**
38 HUNG TO ROAD, KWUN TONG, HONG KONG. TELEX 43510
KWUN TONG P. O. BOX 69477 CABLE ADDRESS "MICROTRON"
TELEPHONE:- 3-430181-6 ~~3-893363, 3-892423~~ FAX: 3-410321

—— CONTINUE 2 ——

| PARAMETER | | SYMBOL | MIN | TYP | MAX | UNIT | TEST CONDITIONS |
|---|---|---|---|---|---|---|---|
| D.C. Current Gain | 2N 5307 | $h_{FE}$ | 6000 | | | | $V_{CE}$=5V $I_C$=100mA |
| D.C. Current Gain | 2N 5308 | $h_{FE}$ | 7000 | | 70000 | | $V_{CE}$=5V $I_C$=2mA |
| D.C. Current Gain | 2N 5308 | $h_{FE}$ | 20000 | | | | $V_{CE}$=5V $I_C$=100mA |
| Transition Frequency | | $f_T$ | 60 | | | MHz | $V_{CE}$=5V $I_C$=2mA f=20MHz |
| Collector-Base Capacitance | | $C_{cb}$ | | | 10 | pF | $V_{CB}$=10V $I_E$=0 f=1MHz |
| Emitter-Base Capacitance | | $C_{eb}$ | | 10.5 | | pF | $V_{EB}$=0.5V $I_C$=0 f=1MHz |
| Small Signal Current Gain | 2N 5307 | $h_{fe}$ | 2000 | | | | $V_{CE}$=5V $I_C$=2mA f=1KHz |
| Small Signal Current Gain | 2N 5308 | $h_{fe}$ | 7000 | | | | $V_{CE}$=5V $I_C$=2mA f=1KHz |
| Input Impedance | | $h_{ie}$ | | 650 | | Kohm | $V_{CE}$=5V $I_C$=2mA f=1KHz |

3-5-1977.