

2N 5307 & 2N 5308

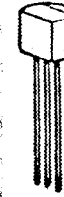
NPN DARLINGTON AMP'IFIER

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 @ $T_A = \leq 25^\circ\text{C}$, P_t	400mW
Collector Junction Temperature, T_j	150°C
Storage Temperature Range, T_{stg}	-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_{CB0}	40V
Collector to Emitter Voltage, V_{CE0}	40V
Emitter to Base Voltage, V_{EB0}	12V

ELECTRICAL CHARACTERISTICS @ $T_A = 25^\circ\text{C}$ (unless otherwise stated) :

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Collector-Emitter Breakdown Voltage	V_{CE0}	40			V	$I_C = 10\text{mA}$ $I_B = 0$
Collector Cutoff Current	I_{CB0}			100	nA	$V_{CB} = 40\text{V}$ $I_E = 0$
Emitter Cutoff Current	I_{EB0}			100	nA	$V_{EB} = 12\text{V}$ $I_C = 0$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			1.4	V	$I_C = 200\text{mA}$ $I_B = 0.2\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			1.6	V	$I_C = 200\text{mA}$ $I_B = 0.2\text{mA}$
Base-Emitter Voltage	V_{BE}			1.5	V	$V_{CE} = 5\text{V}$ $I_C = 200\text{mA}$
D.C. Current Gain	h_{FE}	2000		20000		$V_{CE} = 5\text{V}$ $I_C = 2\text{mA}$

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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.