



ELECTRONICS, INC.  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089  
<http://www.nteinc.com>

## 2N5172 Silicon NPN Transistor Audio Power Amplifier TO-92 Type Package

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$ , Note 1 unless otherwise specified)

Collector-Base Voltage, $V_{CBO}$ .....	25V
Collector-Emitter Voltage, $V_{CEO}$ .....	25V
Emitter-Base Voltage, $V_{EBO}$ .....	5V
Collector Current, $I_C$ .....	500mA
Total Device Dissipation, $P_D$ .....	625mW
Derate Above $+25^\circ\text{C}$ .....	5.0mW/ $^\circ\text{C}$
Operating Junction Temperature Range, $T_J$ .....	$-55^\circ$ to $+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	83.3 $^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient, $R_{thJA}$ .....	200 $^\circ\text{C}/\text{W}$

Note 1. These ratings are limiting values above which the serviceability of any device may be impaired.

Note 2. These are steady state limits and are based on a maximum junction temperature of  $150^\circ\text{C}$ .

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}$ , $I_E = 0$	25	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$ , $I_B = 0$ , Note 3	25	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}$ , $I_C = 0$	5	-	-	V
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 25\text{V}$ , $I_E = 0$	-	-	100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5\text{V}$ , $I_C = 0$	-	-	100	nA
DC Current Gain	$h_{FE}$	$V_{CE} = 10\text{V}$ , $I_C = 10\text{mA}$ , Note 3	100	-	500	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}$ , $I_B = 1.0\text{mA}$ , Note 3	-	-	0.25	V
Base-Emitter On Voltage	$V_{BE(on)}$	$V_{CE} = 10\text{V}$ , $I_C = 10\text{mA}$ , Note 3	0.5	-	1.2	V
Small-Signal Current Gain	$h_{fe}$	$I_C = 10\text{mA}$ , $V_{CE} = 10\text{V}$ , $f = 1.0\text{ kHz}$	100	-	750	pF
Collector-Base Capacitance	$C_{cb}$	$V_{CB} = 10\text{V}$ , $f = 1.0\text{ MHz}$	1.6	-	10	pF

Note 3. Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

