



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

2N3390, 2N3391, 2N3392 Silicon NPN Transistor General Purpose Amplifier TO-92 Type Package

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

Collector-Emitter Voltage, V_{CEO}	25V
Collector-Base Voltage, V_{CBO}	25V
Emitter-Base Voltage, V_{EBO}	5V
Continuous Collector Current, I_C	500mA
Total Device Dissipation ($T_A = +25^\circ\text{C}$), P_D	625mW
Derate Above 25°C	5.0mW/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-55° to $+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° 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 semiconductor may be impaired.

Note 2. These ratings are based on a maximum junction temperature of 150°C .

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$, $I_B = 0$, Note 3	25	-	-	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}$, $I_E = 0$	25	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}$, $I_C = 0$	5.0	-	-	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 18\text{V}$, $I_E = 0$	-	-	100	nA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 5\text{V}$, $I_C = 0$	-	-	100	nA

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

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 3)						
DC Current Gain 2N3390	h_{FE}	$V_{CE} = 4.5\text{V}, I_C = 2\text{mA}$	400	-	800	
2N3391			250	-	500	
2N3392			150	-	300	
Small Signal Characteristics						
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, f = 1.0\text{MHz}$	2.0	-	10	pF
Small-Signal Current Gain 2N3390	h_{fe}	$V_{CE} = 4.5\text{V}, I_C = 2\text{mA}, f = 1.0\text{kHz}$	400	-	1250	
2N3391			250	-	800	
2N3392			150	-	500	
Noise Figure	$V_{BE(sat)}$	$V_{CE} = 4.5\text{V}, I_C = 100\mu\text{A}, B_W = 15.7\text{kHz}$	-	-	5.0	dB

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

