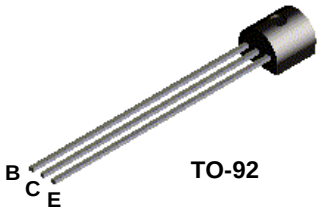
FAIRCHILD SEMICONDUCTOR TM

Discrete POWER & Signal Technologies

2N3390
2N3391
2N3391A
2N3392
2N3393



TO-92

NPN General Purpose Amplifier

This device is designed for use as general purpose amplifiers and switches requiring collector currents to 300 mA. Sourced from Process 10. See PN100A for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	25	V
V_{CBO}	Collector-Base Voltage	25	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current - Continuous	500	mA
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

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

NOTES:
1) These ratings are based on a maximum junction temperature of 150 degrees C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		2N3390 / 3391/A / 3392 / 3393	
P_D	Total Device Dissipation Derate above 25°C	625 5.0	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	°C/W

NPN General Purpose Amplifier
(continued)

Electrical Characteristics
TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	I_C = 10 mA, I_B = 0	25		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 10 μA, I_E = 0	25		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10 μA, I_C = 0	5.0		V
I_{CBO}	Collector-Cutoff Current	V_{CB} = 18 V, I_E = 0		100	nA
I_{EBO}	Emitter-Cutoff Current	V_{EB} = 5.0 V, I_C = 0		100	nA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	V_{CE} = 4.5 V, I_C = 2.0 mA			
		2N3390	400	800	
		2N3391/A	250	500	
		2N3392	150	300	
		2N3393	90	180	
SMALL SIGNAL CHARACTERISTICS					
C_{ob}	Output Capacitance	V_{CB} = 10 V, f = 1.0 MHz	2.0	10	pF
h_{fe}	Small-Signal Current Gain	I_C = 2.0 mA, V_{CE} = 4.5 V, f = 1.0 kHz			
		2N3390	400	1250	
		2N3391/A	250	800	
		2N3392	150	500	
		2N3393	90	400	
NF	Noise Figure	V_{CE} = 4.5 V, I_C = 100 μA, R_G = 500 Ω, **2N3391A only** B_W = 15.7 kHz		5.0	dB

*Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%