



2N3390 2N3391 2N3391A 2N3392 2N3393



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		V
I _C	Collector Current - Continuous 500 mA		mA
T _J , T _{sta}	Operating and Storage Junction Temperature Range -55 to +150 °C		∘C

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

These ratings are based on a maximum junction temperature of 150 degrees C.
 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	625	mW
	Derate above 25°C	5.0	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)

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF 0114	ADA OTEDIOTICO				
OFF CHA	ARACTERISTICS				
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 10 \text{ mA}, I_B = 0$	25		V
V _{(BR)CBO}	Collector-Base Breakdown Voltage	$I_C = 10 \mu\text{A}, I_E = 0$	25		V
V _{(BR)EBO}	Emitter-Base Breakdown Voltage	$I_E = 10 \mu A, I_C = 0$	5.0		V
I _{CBO}	Collector-Cutoff Current	$V_{CB} = 18 \text{ V}, I_{E} = 0$		100	nA
	Emitter-Cutoff Current	V _{EB} = 5.0 V, I _C = 0		100	nA
ON CHAI	Emitter-Cutoff Current RACTERISTICS* DC Current Gain			100	nA
ON CHAI	RACTERISTICS*	$V_{EB} = 5.0 \text{ V}, I_C = 0$ $V_{CE} = 4.5 \text{ V}, I_C = 2.0 \text{ mA}$ 2N3390	400	800	nA
ON CHAI	RACTERISTICS*	V _{CE} = 4.5 V, I _C = 2.0 mA 2N3390 2N3391/A	250	800 500	nA
	RACTERISTICS*	V _{CE} = 4.5 V, I _C = 2.0 mA 2N3390 2N3391/A 2N3392	250 150	800 500 300	nA
	RACTERISTICS*	V _{CE} = 4.5 V, I _C = 2.0 mA 2N3390 2N3391/A	250	800 500	nA
ON CHAR	RACTERISTICS*	V _{CE} = 4.5 V, I _C = 2.0 mA 2N3390 2N3391/A 2N3392	250 150	800 500 300	nA
ON CHAI	RACTERISTICS* DC Current Gain	V _{CE} = 4.5 V, I _C = 2.0 mA 2N3390 2N3391/A 2N3392	250 150	800 500 300	nA pF
ON CHAP h _{FE} SMALL S C _{Ob}	RACTERISTICS* DC Current Gain SIGNAL CHARACTERISTICS	V _{CE} = 4.5 V, I _C = 2.0 mA 2N3390 2N3391/A 2N3392 2N3393	250 150 90	800 500 300 180	
ON CHAR h _{FE} SMALL S	RACTERISTICS* DC Current Gain SIGNAL CHARACTERISTICS Output Capacitance	V _{CE} = 4.5 V, I _C = 2.0 mA 2N3390 2N3391/A 2N3392 2N3393	250 150 90	800 500 300 180	

2N3392 2N3393

 $V_{CE} = 4.5 \text{ V}, I_{C} = 100 \mu\text{A},$ $R_{G} = 500 \Omega,$ **2N3391A only** $B_{W} = 15.7 \text{ kHz}$

500 400

5.0

dΒ

150

90

Noise Figure

NF

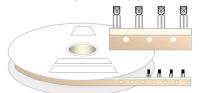
^{*}Pulse Test: Pulse Width \leq 300 μ s, Duty Cycle \leq 2.0%

TO-92 Tape and Reel Data FAIRCHILD SEMICONDUCTOR TM **TO-92 Packaging** Configuration: Figure 1.0 **TAPE and REEL OPTION** FSCINT Label sample See Fig 2.0 for various Reeling Styles CBVK//418019 **FSCINT** Label 5 Reels per Intermediate Box Customized F63TNR Label sample Label F63TNR LOT: CBVK741B019 QTY: 2000 FSID: PN222N Customized QTY1: QTY2: Label 375mm x 267mm x 375mm Intermediate Box TO-92 TNR/AMMO PACKING INFROMATION **AMMO PACK OPTION** See Fig 3.0 for 2 Ammo Packing Style Quantity EOL code **Pack Options** 2,000 D26Z Е 2,000 D27Z Ammo М 2,000 D74Z D75Z 2,000 **FSCINT** Unit weight = 0.22 gm Reel weight with components = 1.04 kg Ammo weight with components = 1.02 kg Max quantity per intermediate box = 10,000 units Label 5 Ammo boxes per Intermediate Box 327mm x 158mm x 135mm Immediate Box Customized F63TNR Customized Label Label 333mm x 231mm x 183mm Intermediate Box (TO-92) BULK PACKING INFORMATION **BULK OPTION** See Bulk Packing DESCRIPTION QUANTITY Information table J18Z TO-18 OPTION STD 2.0 K / BOX Anti-static Bubble Sheets TO-5 OPTION STD NO LEAD CLIP 1.5 K / BOX J05Z **FSCINT Label** NO EOL TO-92 STANDARD STRAIGHT FOR: PKG 92, NO LEADCLIP 2.0 K / BOX 94 (NON PROELECTRON SERIES), 96 TO-92 STANDARD STRAIGHT FOR: PKG 94 (PROELECTRON SERIES BCXXX, BFXXX, BSRXXX), 97, 98 L34Z NO LEADCLIP 2.0 K / BOX 2000 units per 114mm x 102mm x 51mm EO70 box for std option Immediate Box 5 EO70 boxes per intermediate Box 530mm x 130mm x 83mm Customized Intermediate box Label FSCINT Label 10,000 units maximum per intermediate box for std option

TO-92 Tape and Reel Data, continued

TO-92 Reeling Style Configuration: Figure 2.0

Machine Option "A" (H)

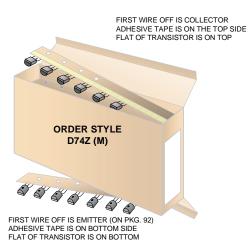


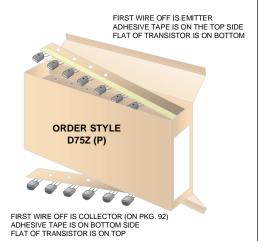
Style "A", D26Z, D70Z (s/h)

Machine Option "E" (J)

Style "E", D27Z, D71Z (s/h)

TO-92 Radial Ammo Packaging Configuration: Figure 3.0



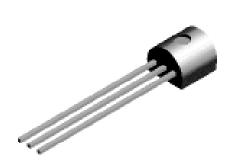


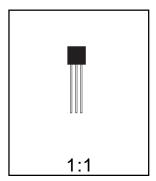


TO-92 Package Dimensions



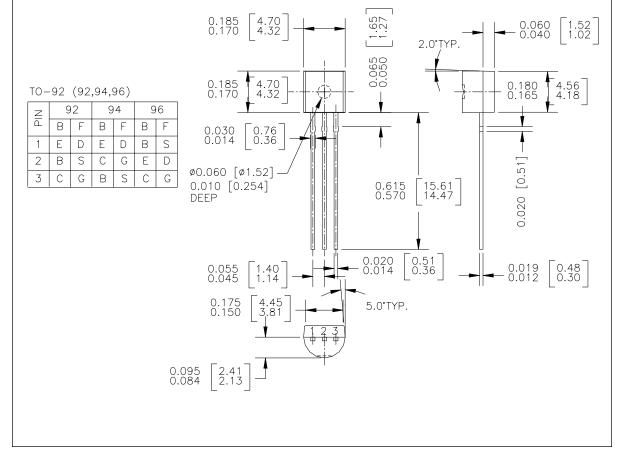
TO-92 (FS PKG Code 92, 94, 96)





Scale 1:1 on letter size paper
Dimensions shown below are in:
inches [millimeters]

Part Weight per unit (gram): 0.1977



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