

PN3645



PNP General Purpose Amplifier

This device is designed for use as general purpose amplifiers and switches requiring collector currents to 500 mA. Sourced from Process 63. See PN2907A for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units	
V _{CEO}	Collector-Emitter Voltage 60		V	
V _{CBO}	Collector-Base Voltage	60	V	
V _{EBO}	Emitter-Base Voltage 5.0		V	
Ic	Collector Current - Continuous 800		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.

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
		PN3645	
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

PNP General Purpose Amplifier (continued)

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHA	RACTERISTICS				
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 10 \text{ mA}, I_B = 0$	60		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \mu A, I_E = 0$	60		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \mu A, I_C = 0$	5.0		V
I _{CES}	Collector-Cutoff Current	$V_{CB} = 50 \text{ V}, I_E = 0$ $V_{CB} = 50 \text{ V}, I_E = 0, T_A = 65 ^{\circ}\text{C}$		35 2.0	nA μA
I _{BL}	Base-Cutoff Current	V _{CE} = 50 V, I _C = 0		35	nA
h _{FE}	RACTERISTICS* DC Current Gain	V _{CE} = 10 V, I _C = 0.1 mA V _{CE} = 10 V, I _C = 1.0 mA	40 80		
		V _{CE} = 10 V, I _C = 10 mA V _{CE} = 10 V, I _C = 150 mA V _{CE} = 2.0 V, I _C = 300 mA	100 100 20	300	
		$V_{CE} = 1.0 \text{ V}, I_{C} = 50 \text{ mA}$	80	240	
V _{CE(sat)}	Collector-Emitter Saturation Voltage	$I_C = 50 \text{ mA}, I_B = 2.5 \text{ mA}$ $I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$		0.25 0.4	V V
V _{BE} (sat)	Base-Emitter Saturation Voltage	$I_C = 50 \text{ mA}, I_B = 2.5 \text{ mA}$ $I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$		1.0 1.3	V
SMALL S	IGNAL CHARACTERISTICS				
Cob	Output Capacitance	V _{CB} = 10 V, f = 140 kHz		8.0	pF
C _{ib}	Input Capacitance	V _{BE} = 0.5 V, f = 140 kHz		35	pF
h _{fe}	Small-Signal Current Gain	$I_C = 20 \text{ mA}, V_{CE} = 20 \text{ V},$ f = 100 MHz	2.0		
SWITCHI	NG CHARACTERISTICS				
ton	Turn-on Time	$V_{CC} = 30 \text{ V}, I_{C} = 300 \text{ mA},$		40	ns
t _d	Delay Time	I _{B1} = 30 mA		25	ns
	Rise Time			35	ns
tr				100	ns
	Turn-off Time	$V_{CC} = 30 \text{ V}, I_{C} = 300 \text{ mA}$		100	
t _r t _{off}	Tum-off Time Storage Time	$V_{CC} = 30 \text{ V}, I_{C} = 300 \text{ mA}$ $I_{B1} = I_{B2} = 30 \text{ mA}$		70	ns

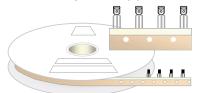
^{*}Pulse Test: Pulse Width \leq 300 μ s, Duty Cycle \leq 2.0%

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)

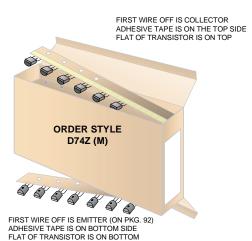


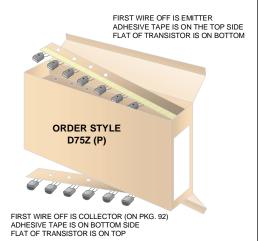
Style "A", D26Z, D70Z (s/h)

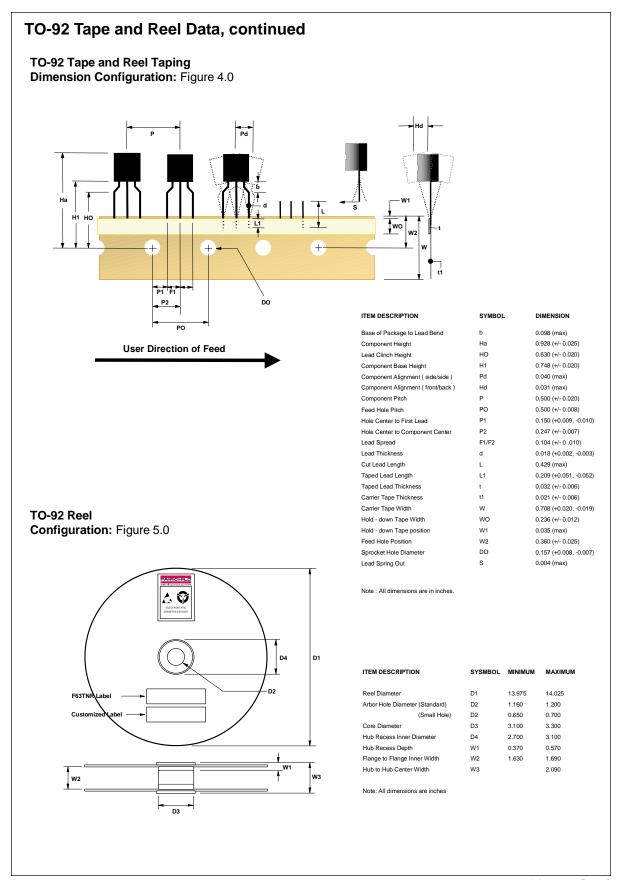
Machine Option "E" (J)

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

TO-92 Radial Ammo Packaging Configuration: Figure 3.0



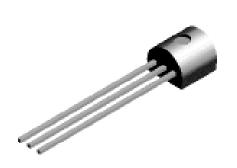


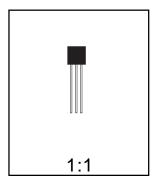


TO-92 Package Dimensions



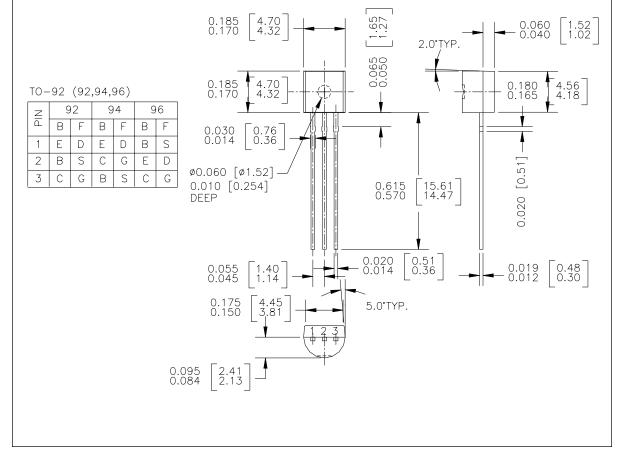
TO-92 (FS PKG Code 92, 94, 96)





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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PRODUCT STATUS DEFINITIONS

Definition of Terms

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