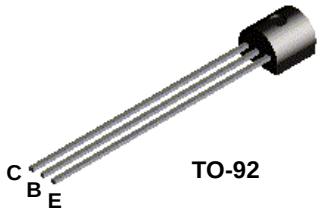
FAIRCHILD SEMICONDUCTOR™

Discrete POWER & Signal Technologies

PN3645



TO-92

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
I_C	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.

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
		PN3645	
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

PNP 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	60		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 100 µA, I_E = 0	60		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10 µA, I_C = 0	5.0		V
I_{CES}	Collector-Cutoff Current	V_{CB} = 50 V, I_E = 0 V_{CB} = 50 V, I_E = 0, T_A = 65°C		35 2.0	nA µA
I_{BL}	Base-Cutoff Current	V_{CE} = 50 V, I_C = 0		35	nA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	V_{CE} = 10 V, I_C = 0.1 mA V_{CE} = 10 V, I_C = 1.0 mA 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 V_{CE} = 1.0 V, I_C = 50 mA	40 80 100 100 20 80	 300 240	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 50 mA, I_B = 2.5 mA I_C = 150 mA, I_B = 15 mA		0.25 0.4	V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 50 mA, I_B = 2.5 mA I_C = 150 mA, I_B = 15 mA		1.0 1.3	V V
SMALL SIGNAL CHARACTERISTICS					
C_{ob}	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 mA, V_{CE} = 20 V, f = 100 MHz	2.0		
SWITCHING CHARACTERISTICS					
t_{on}	Turn-on Time	V_{CC} = 30 V, I_C = 300 mA,		40	ns
t_d	Delay Time	I_{B1} = 30 mA		25	ns
t_r	Rise Time			35	ns
t_{off}	Turn-off Time	V_{CC} = 30 V, I_C = 300 mA		100	ns
t_s	Storage Time	I_{B1} = I_{B2} = 30 mA		70	ns
t_f	Fall Time			50	ns

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

FSCINT Label sample

F63TNR Label sample

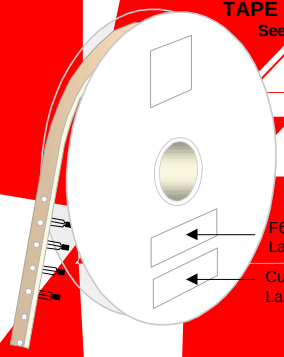
LOT: CBVK741B019 QTY: 2000
FSID: PN222N SPEC:
D/C1: D9842 QTY1: SPEC REV:
D/C2: QTY2: CPN:
N/F: F (F63TNR)3

TO-92 TNR/AMMO PACKING INFROMATIO

Packing	Style	Quantity	EOL
Reel	A	2,000	
	E	2,000	
Ammo	M	2,000	
	P	2,0	

Unit weight
Reel weight with compo
Ammo weight with co
Max quantity per in

TAPE and REEL OPTION
See Fig 2.0 for various Reeling Styles



5 Reels per Intermediate Box

F63TNR Label

Customized Label

Label

mized

abel

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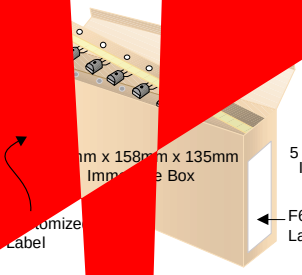
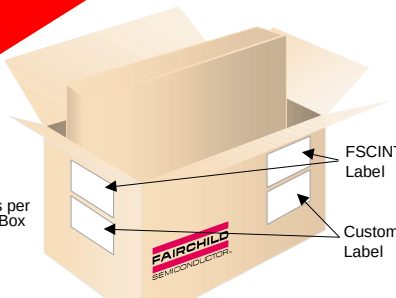
mm x 375mm
mediate Box



5 Ammo boxes per Intermediate Box

F63TNR Label



FSCINT Label

Customized Label

FAIRCHILD SEMICONDUCTOR

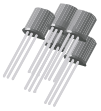
333mm x 231mm x 183mm Intermediate Box

omize Label

INFORMATION

	DESCRIPTION	LEADCLIP DIMENSION	QUA
	TO-18 OPTION STD	NO LEAD CLIP	2.0 K
J05Z	TO-5 OPTION STD	NO LEAD CLIP	1.5 K
NO EOL CODE	TO-92 STANDARD STRAIGHT FOR: PKG 92, 94 (NON PROELECTRON SERIES), 96	NO LEADCLIP	2.0 K
L34Z	TO-92 STANDARD STRAIGHT FOR: PKG 94 (PROELECTRON SERIES BCXXX, BFXXX, BSRXXX), 97, 98	NO LEADCLIP	2.0 K / BOX

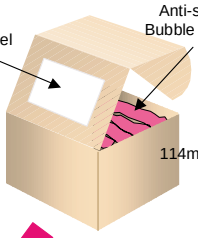
BULK OPTION
See Bulk Packing Information table



2000 units per EO70 box for std option

FSCINT Label

Anti-static Bubble Sheets

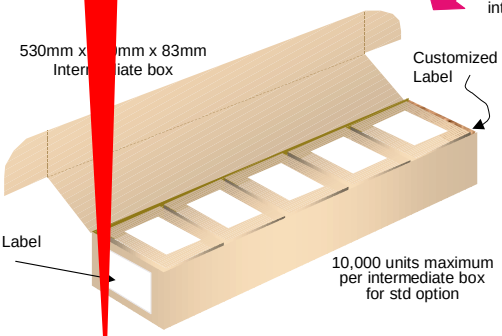


114mm x 102mm x 51mm Immediate Box

5 EO70 boxes per intermediate Box

530mm x mm x 83mm Inter iate box

Customized Label



FSCINT Label

10,000 units maximum per intermediate box for std option

TO-92 Tape and Reel Data, continued

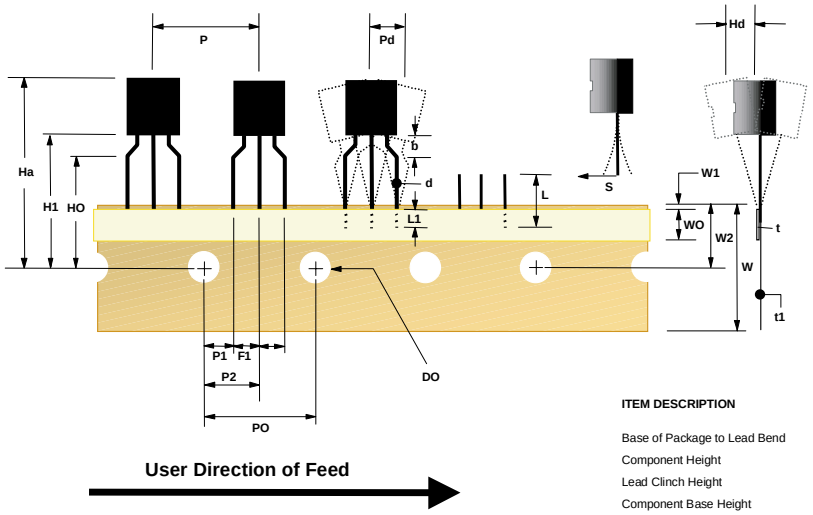
TO-92 Reeling Style
Configuration: Figure 2.0

Machine Option “A” (H)

Style “A”, D26Z, D70Z (s/h)

TO-92 Tape and Reel Data, continued

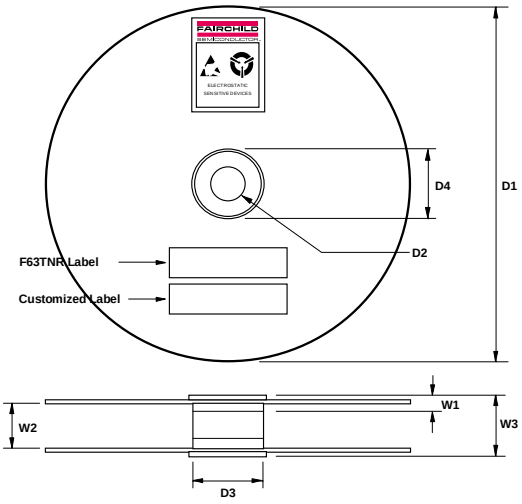
TO-92 Tape and Reel Taping
Dimension Configuration: Figure 4.0



ITEM DESCRIPTION	SYMBOL	DIMENSION
Base of Package to Lead Bend	b	0.098 (max)
Component Height	Ha	0.928 (+/- 0.025)
Lead Clinch Height	HO	0.630 (+/- 0.020)
Component Base Height	H1	0.748 (+/- 0.020)
Component Alignment (side/side)	Pd	0.040 (max)
Component Alignment (front/back)	Hd	0.031 (max)
Component Pitch	P	0.500 (+/- 0.020)
Feed Hole Pitch	PO	0.500 (+/- 0.008)
Hole Center to First Lead	P1	0.150 (+0.009, -0.010)
Hole Center to Component Center	P2	0.247 (+/- 0.007)
Lead Spread	F1/F2	0.104 (+/- 0 .010)
Lead Thickness	d	0.018 (+0.002, -0.003)
Cut Lead Length	L	0.429 (max)
Taped Lead Length	L1	0.209 (+0.051, -0.052)
Taped Lead Thickness	t	0.032 (+/- 0.006)
Carrier Tape Thickness	t1	0.021 (+/- 0.006)
Carrier Tape Width	W	0.708 (+0.020, -0.019)
Hold - down Tape Width	WO	0.236 (+/- 0.012)
Hold - down Tape position	W1	0.035 (max)
Feed Hole Position	W2	0.360 (+/- 0.025)
Sprocket Hole Diameter	DO	0.157 (+0.008, -0.007)
Lead Spring Out	S	0.004 (max)

Note : All dimensions are in inches.

TO-92 Reel
Configuration: Figure 5.0



ITEM DESCRIPTION	SYSMBOL	MINIMUM	MAXIMUM
Reel Diameter	D1	13.975	14.025
Arbor Hole Diameter (Standard)	D2	1.160	1.200
(Small Hole)	D2	0.650	0.700
Core Diameter	D3	3.100	3.300
Hub Recess Inner Diameter	D4	2.700	3.100
Hub Recess Depth	W1	0.370	0.570
Flange to Flange Inner Width	W2	1.630	1.690
Hub to Hub Center Width	W3		2.090

Note: All dimensions are inches

TO-92 Package Dimensions

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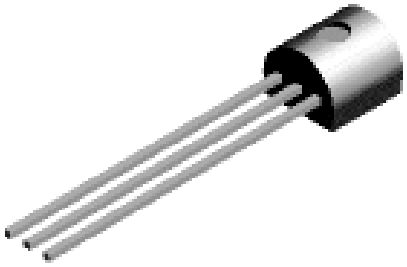
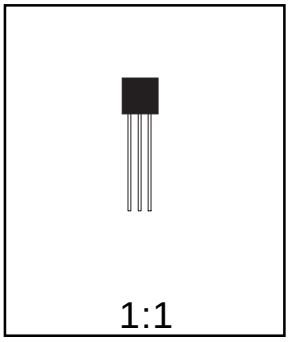
TO-92 (FS PKG Code 92, 94, 96)





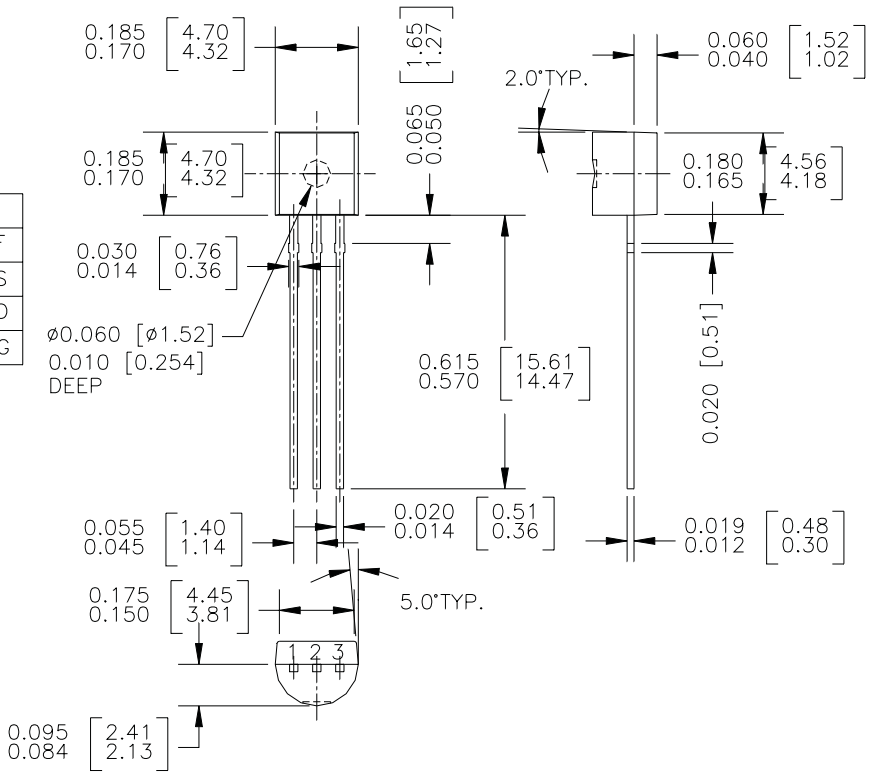
Scale 1:1 on letter size paper

Dimensions shown below are in:
inches [millimeters]

Part Weight per unit (gram): 0.1977

TO−92 (92,94,96)

PIN	92		94		96	
	B	F	B	F	B	F
1	E	D	E	D	B	S
2	B	S	C	G	E	D
3	C	G	B	S	C	G



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