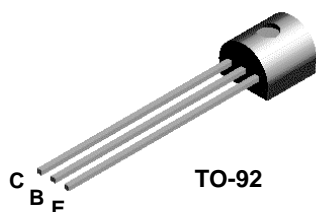


PN3563



NPN RF Amplifier

This device is designed for use as RF amplifiers, oscillators and multipliers with collector currents in the 1.0 mA to 30 mA range. Sourced from Process 43. See PN918 for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CEO}	Collector-Emitter Voltage	15	V
V _{CBO}	Collector-Base Voltage	30	V
V _{EBO}	Emitter-Base Voltage	2.0	V
I _C	Collector Current - Continuous	50	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
		PN3563	
P _D	Total Device Dissipation Derate above 25°C	350	mW
		2.8	mW/°C
R _{θJC}	Thermal Resistance, Junction to Case	125	°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient	357	°C/W

NPN RF Amplifier

(continued)

PN3563

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage*	$I_C = 3.0 \text{ mA}, I_B = 0$	15		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \mu\text{A}, I_E = 0$	30		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \mu\text{A}, I_C = 0$	2.0		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 15 \text{ V}, I_E = 0$ $V_{CB} = 15 \text{ V}, T_A = 150^\circ\text{C}$		0.05 5.0	μA nA

ON CHARACTERISTICS*

h_{FE}	DC Current Gain	$I_C = 8.0 \text{ mA}, V_{CE} = 10 \text{ V}$	20	200	
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SMALL SIGNAL CHARACTERISTICS

f_T	Current Gain - Bandwidth Product	$I_C = 8.0 \text{ mA}, V_{CE} = 10 \text{ V},$ $f = 100 \text{ MHz}$	600	1500	MHz
C_{obo}	Output Capacitance	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$ $V_{CB} = 0, I_E = 0, f = 1.0 \text{ MHz}$		1.7 3.0	pF pF
C_{ibo}	Input Capacitance	$V_{BE} = 0.5 \text{ V}, I_C = 0, f = 140 \text{ MHz}$		2.0	pF
h_{fe}	Small-Signal Current Gain	$I_C = 8.0 \text{ mA}, V_{CE} = 10 \text{ V},$ $f = 1.0 \text{ MHz}$	20	250	
$rb'C_C$	Collector Base Time Constant	$I_C = 8.0 \text{ mA}, V_{CE} = 10 \text{ V},$ $f = 79.8 \text{ MHz}$	8.0	25	pS

FUNCTIONAL TEST

G_{pe}	Amplifier Power Gain	$I_C = 8.0 \text{ mA}, V_{CB} = 10 \text{ V},$ $f = 200 \text{ MHz}$	14	26	dB
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*Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$

TO-92 Tape and Reel Data

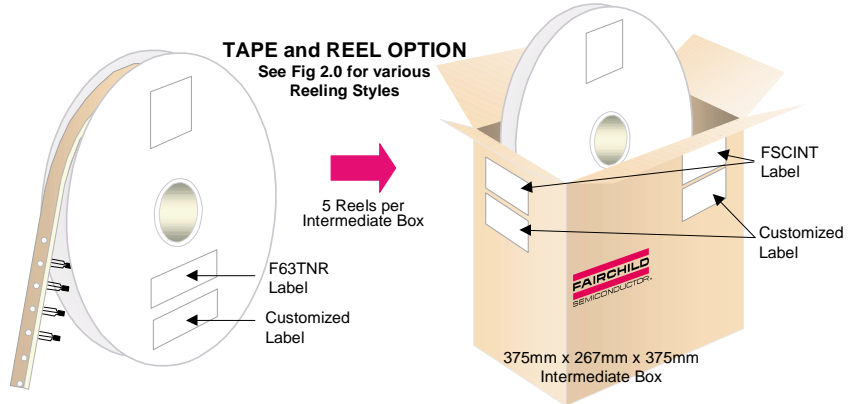


TO-92 Packaging Configuration: Figure 1.0

FSCINT Label sample



F63TNR Label sample



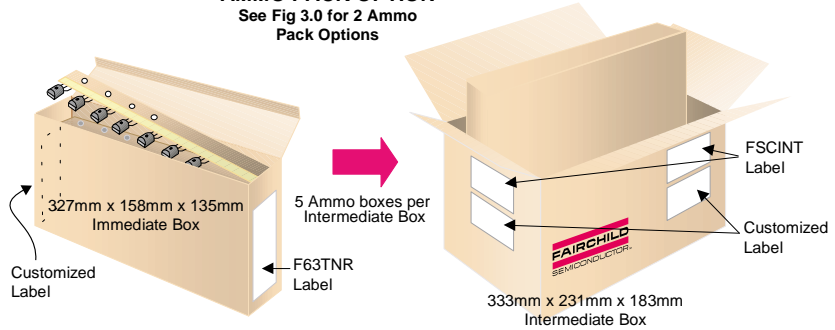
TO-92 TNR/AMMO PACKING INFORMATION

Packing	Style	Quantity	EOL code
Reel	A	2,000	D26Z
	E	2,000	D27Z
Ammo	M	2,000	D74Z
	P	2,000	D75Z

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

AMMO PACK OPTION

See Fig 3.0 for 2 Ammo Pack Options

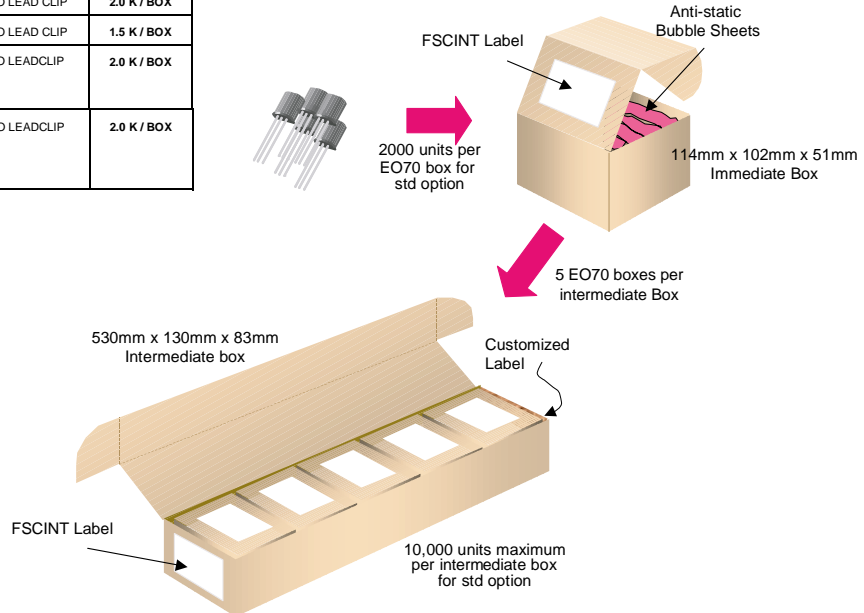


(TO-92) BULK PACKING INFORMATION

EOL CODE	DESCRIPTION	LEADCLIP DIMENSION	QUANTITY
J18Z	TO-18 OPTION STD	NO LEAD CLIP	2.0 K / BOX
J05Z	TO-5 OPTION STD	NO LEAD CLIP	1.5 K / BOX
NO EOL CODE	TO-92 STANDARD STRAIGHT FOR: PKG 92, 94 (NON PROELECTRON SERIES), 96	NO LEADCLIP	2.0 K / BOX
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

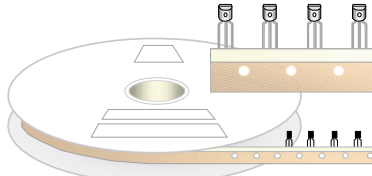


TO-92 Tape and Reel Data, continued

TO-92 Reeling Style

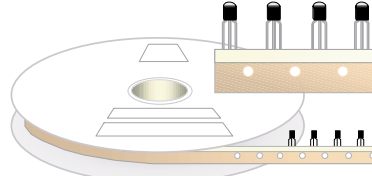
Configuration: Figure 2.0

Machine Option "A" (H)



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

Machine Option "E" (J)

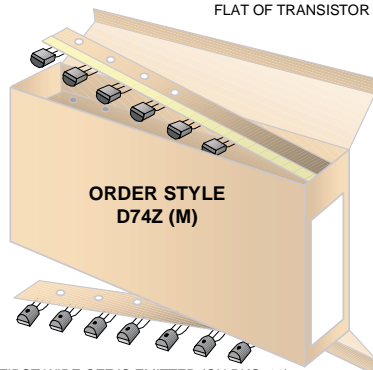


Style "E", D27Z, D71Z (s/h)

TO-92 Radial Ammo Packaging

Configuration: Figure 3.0

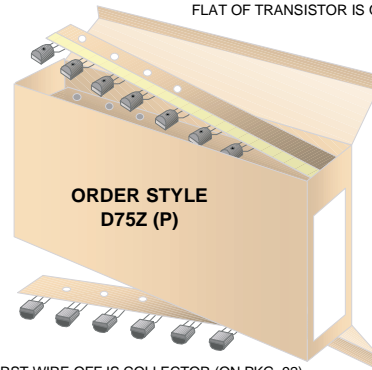
FIRST WIRE OFF IS COLLECTOR
ADHESIVE TAPE IS ON THE TOP SIDE
FLAT OF TRANSISTOR IS ON TOP



ORDER STYLE
D74Z (M)

FIRST WIRE OFF IS EMITTER (ON PKG. 92)
ADHESIVE TAPE IS ON BOTTOM SIDE
FLAT OF TRANSISTOR IS ON BOTTOM

FIRST WIRE OFF IS EMITTER
ADHESIVE TAPE IS ON THE TOP SIDE
FLAT OF TRANSISTOR IS ON BOTTOM



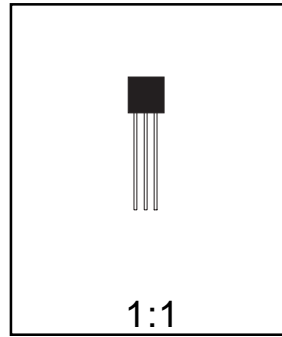
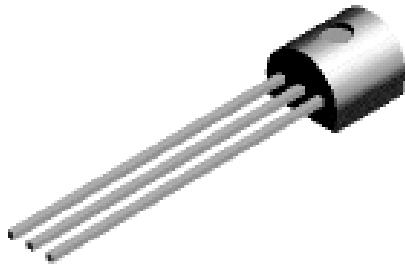
ORDER STYLE
D75Z (P)

FIRST WIRE OFF IS COLLECTOR (ON PKG. 92)
ADHESIVE TAPE IS ON BOTTOM SIDE
FLAT OF TRANSISTOR IS ON TOP

TO-92 Package Dimensions



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



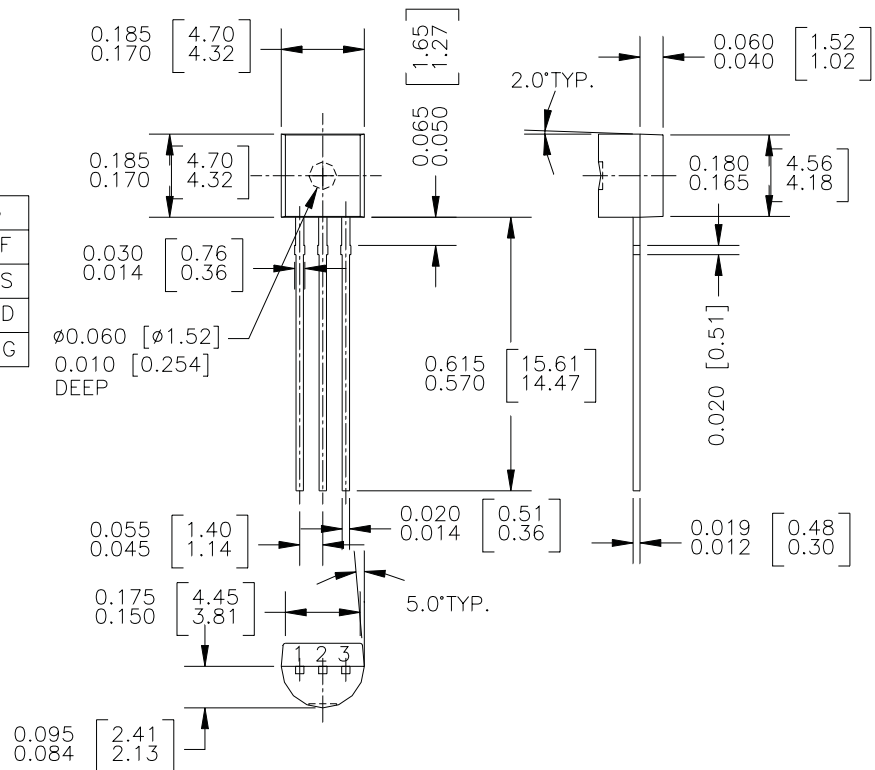
Scale 1:1 on letter size paper

Dimensions shown below are in:
inches [millimeters]

Part Weight per unit (gram): 0.1977

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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DOME TM	ISOPLANAR TM	Quiet Series TM	
E ² CMOS TM	MICROWIRE TM	SILENT SWITCHER [®]	
EnSigna TM	OPTOLOGIC TM	SMART START TM	
FACT TM	OPTOPLANAR TM	SuperSOT TM -3	
FACT Quiet Series TM	PACMAN TM	SuperSOT TM -6	
FAST [®]	POP TM	SuperSOT TM -8	

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