

# MPSA<sub>18</sub>



# **NPN General Purpose Amplifier**

This device is designed for low noise, high gain, applications at collector currents from  $1\mu$  A to 50 mA. Sourced from Process 07. See 2N5088 for characteristics.

# **Absolute Maximum Ratings\***

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units	
$V_{CEO}$	Collector-Emitter Voltage	45	V	
V <sub>CBO</sub>	Collector-Base Voltage	45	V	
V <sub>EBO</sub>	Emitter-Base Voltage 6.5		V	
Ic	Collector Current - Continuous	100	mA	
T <sub>J</sub> , T <sub>stg</sub>	Operating and Storage Junction Temperature Range	-55 to +150	°C	

<sup>\*</sup>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
		MPSA18	
$P_D$	Total Device Dissipation Derate above 25°C	625 5.0	mW mW/∘C
R <sub>θJC</sub>	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)

Electr	Electrical Characteristics TA = 25°C unless otherwise noted					
Symbol	Parameter	Test Conditions	Min	Max	Units	
			•			
OFF CHA	RACTERISTICS					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 10 \text{ mA}, I_B = 0$	45		V	
V <sub>(BR)CBO</sub>	Collector-Base Breakdown Voltage	$I_C = 100  \mu A, I_E = 0$	45		V	
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage	$I_E = 10 \mu\text{A},  I_C = 0$	6.5		V	
I <sub>CBO</sub>	Collector Cutoff Current	$V_{CB} = 30 \text{ V}, I_{E} = 0$		50	nA	
h <sub>FE</sub>	DC Current Gain	$V_{CE} = 5.0 \text{ V}, I_{C} = 10 \mu\text{A}$ $V_{CE} = 5.0 \text{ V}, I_{C} = 100 \mu\text{A}$ $V_{CE} = 5.0 \text{ V}, I_{C} = 1.0 \text{mA}$ $V_{CE} = 5.0 \text{ V}, I_{C} = 10 \text{mA}$	400 500 500 500	1500	V	
$V_{CE(Sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10 \text{ mA}, I_B = 0.5 \text{ mA}$ $I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$		0.2 0.3	V	
V <sub>BE(on)</sub>	Base-Emitter On Voltage	$V_{CE} = 5.0 \text{ V}, I_{C} = 1.0 \text{ mA}$		0.7	V	
	IGNAL CHARACTERISTICS		1			
C <sub>cb</sub>	Collector-Base Capacitance	$V_{CB} = 5.0 \text{ V}, f = 1.0 \text{ MHz}$		3.0	pF	
C <sub>eb</sub>	Emitter-Base Capacitance	$V_{EB} = 0.5 \text{ V}, f = 1.0 \text{ MHz}$		6.5	pF	
f <sub>T</sub>	Current Gain - Bandwidth Product	$I_C = 1.0 \text{ mA}, V_{CE} = 5.0 \text{ V},$ f = 100 MHz	100		MHz	
NF	Noise Figure	$V_{CE} = 5.0 \text{ V}, I_{C} = 100 \mu\text{A},$ $R_{S} = 10 \text{k}\Omega, f = 1.0 \text{kHz},$		1.5	dB	

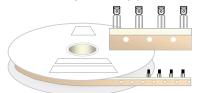
<sup>\*</sup>Pulse Test: Pulse Width  $\leq 300~\mu s$ , Duty Cycle  $\leq 2.0\%$ 

### **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)

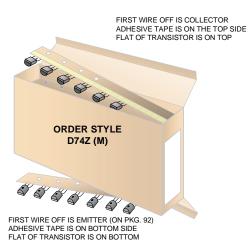


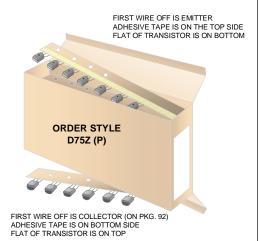
Style "A", D26Z, D70Z (s/h)

# Machine Option "E" (J)

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

# **TO-92 Radial Ammo Packaging Configuration:** Figure 3.0



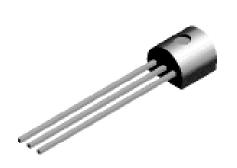


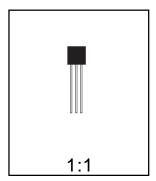


# **TO-92 Package Dimensions**



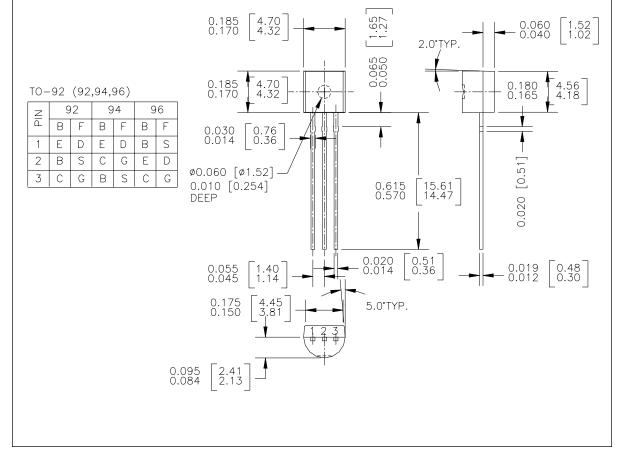
# TO-92 (FS PKG Code 92, 94, 96)





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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