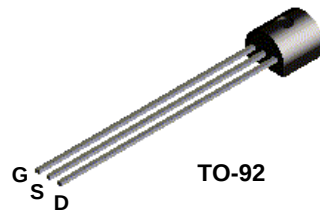


# PN5432 PN5433 PN5434



## N-Channel Switch

This device is designed for analog or digital switching applications where very low On Resistance is mandatory. Sourced from Process 58. See J108 for characteristics.

### Absolute Maximum Ratings\*

TA = 25°C unless otherwise noted

| Symbol                            | Parameter                                        | Value       | Units |
|-----------------------------------|--------------------------------------------------|-------------|-------|
| V <sub>DG</sub>                   | Drain-Gate Voltage                               | 25          | V     |
| V <sub>GS</sub>                   | Gate-Source Voltage                              | -25         | V     |
| I <sub>GF</sub>                   | Forward Gate Current                             | 10          | mA    |
| T <sub>J</sub> , T <sub>stg</sub> | 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       |
|------------------|-----------------------------------------------|----------------------|-------------|
|                  |                                               | PN5432 / 5433 / 5434 |             |
| P <sub>D</sub>   | Total Device Dissipation<br>Derate above 25°C | 350<br>2.8           | mW<br>mW/°C |
| R <sub>θJC</sub> | Thermal Resistance, Junction to Case          | 125                  | °C/W        |
| R <sub>θJA</sub> | Thermal Resistance, Junction to Ambient       | 357                  | °C/W        |

# N-Channel Switch

(continued)

## Electrical Characteristics

$T_A = 25^\circ\text{C}$  unless otherwise noted

| Symbol                     | Parameter                     | Test Conditions                                                                                                                         | Min                                       | Max                  | Units       |
|----------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|----------------------|-------------|
| <b>OFF CHARACTERISTICS</b> |                               |                                                                                                                                         |                                           |                      |             |
| $V_{(BR)GSS}$              | Gate-Source Breakdown Voltage | $I_G = 1.0\ \mu\text{A}$ , $V_{DS} = 0$                                                                                                 | -25                                       |                      | V           |
| $I_{GSS}$                  | Gate Reverse Current          | $V_{GS} = 15\ \text{V}$ , $V_{DS} = 0$<br>$V_{GS} = 15\ \text{V}$ , $V_{DS} = 0$ , $T_A = 150^\circ\text{C}$                            |                                           | -200<br>-200         | pA<br>nA    |
| $I_{D(off)}$               | Drain Cutoff Leakage Voltage  | $V_{GS} = 10\ \text{V}$ , $V_{DS} = 5.0\ \text{V}$<br>$V_{GS} = 10\ \text{V}$ , $V_{DS} = 5.0\ \text{V}$ ,<br>$T_A = 150^\circ\text{C}$ |                                           | -200<br>-200         | pA<br>nA    |
| $V_{GS(off)}$              | Gate-Source Cutoff Voltage    | $V_{DS} = 5.0\ \text{V}$ , $I_D = 3.0\ \text{nA}$                                                                                       | <b>5432</b><br><b>5433</b><br><b>5434</b> | -4.0<br>-3.0<br>-1.0 | V<br>V<br>V |

## ON CHARACTERISTICS

|                     |                                  |                                                      |                      |                  |                  |                |
|---------------------|----------------------------------|------------------------------------------------------|----------------------|------------------|------------------|----------------|
| I <sub>DSS</sub>    | Zero-Gate Voltage Drain Current* | V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0          | 5432<br>5433<br>5434 | 150<br>100<br>30 |                  | mA<br>mA<br>mA |
| V <sub>DS(on)</sub> | Drain-Source On Voltage          | I <sub>D</sub> = 10 mA, V <sub>GS</sub> = 0          | 5432<br>5433<br>5434 |                  | 50<br>70<br>100  | mV<br>mV<br>mV |
| r <sub>DS(on)</sub> | Drain-Source On Resistance       | I <sub>D</sub> = 10 mA, V <sub>GS</sub> = 0          | 5432<br>5433<br>5434 | 2.0              | 5.0<br>7.0<br>10 | Ω<br>Ω<br>Ω    |
|                     |                                  | I <sub>D</sub> = 0, V <sub>GS</sub> = 0, f = 1.0 kHz | 5432<br>5433<br>5434 | 2.0              | 5.0<br>7.0<br>10 | Ω<br>Ω<br>Ω    |

## SMALL SIGNAL CHARACTERISTICS

|           |                              |                                                                |  |    |    |
|-----------|------------------------------|----------------------------------------------------------------|--|----|----|
| $C_{iss}$ | Input Capacitance            | $V_{DS} = 0$ , $V_{GS} = 10\ \text{V}$ , $f = 1.0\ \text{MHz}$ |  | 30 | pF |
| $C_{rss}$ | Reverse Transfer Capacitance | $V_{DS} = 0$ , $V_{GS} = 10\ \text{V}$ , $f = 1.0\ \text{MHz}$ |  | 15 | pF |

## SWITCHING CHARACTERISTICS

|       |              |                                                                                                                                 |                                           |                   |                |
|-------|--------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------|----------------|
| $t_d$ | Delay Time   | $V_{DD} = 1.5\ \text{V}$ , $V_{GS(on)} = 0$ ,                                                                                   |                                           | 4.0               | ns             |
| $t_r$ | Rise Time    | $I_{D(on)} = 10\ \text{mA}$                                                                                                     |                                           | 1.0               | ns             |
| $t_s$ | Storage Time | $V_{GS(off)} = 12\ \text{V}$ ,<br>$V_{DS(on)} = 50\ \text{mV}$<br>$V_{DS(on)} = 70\ \text{mV}$<br>$V_{DS(on)} = 100\ \text{mV}$ | <b>5432</b><br><b>5433</b><br><b>5434</b> | 6.0<br>6.0<br>6.0 | ns<br>ns<br>ns |
| $t_f$ | Fall Time    | $V_{GS(off)} = 12\ \text{V}$                                                                                                    |                                           | 30                | ns             |

\*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 |

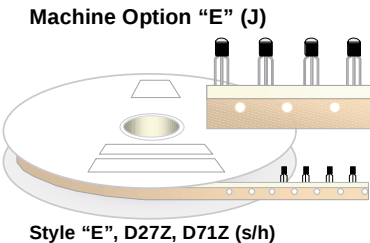
### BULK OPTION

See Bulk Packing Information table

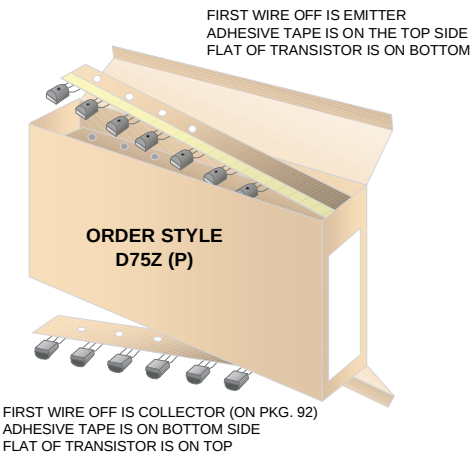


# TO-92 Tape and Reel Data, continued

## TO-92 Reeling Style Configuration: Figure 2.0



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



# 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                 | SYMBOL | MINIMUM | MAXIMUM |
|----------------------------------|--------|---------|---------|
| Reel Diameter                    | D1     | 13.975  | 14.025  |
| Arbor Hole Diameter (Standard)   | D2     | 1.160   | 1.200   |
| Arbor Hole Diameter (Small Hole) | D3     | 0.650   | 0.700   |
| Core Diameter                    | D4     | 3.100   | 3.300   |
| Hub Recess Inner Diameter        | D5     | 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



### 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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