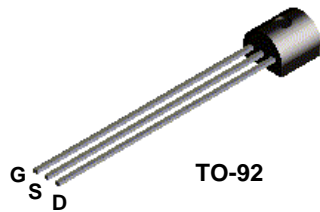**FAIRCHILD**

SEMICONDUCTOR ™

PN5432
PN5433
PN5434

TO-92

G
S D

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_{DG}	Drain-Gate Voltage	25	V
V_{GS}	Gate-Source Voltage	-25	V
I_{GF}	Forward Gate Current	10	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
		PN5432 / 5433 / 5434	
P_D	Total Device Dissipation	350	mW
	Derate above 25°C	2.8	mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	°C/W

Electrical Characteristics T_A = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions		Min	Max	Units
OFF CHARACTERISTICS						
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	I_G = 1.0 µA, V_{DS} = 0		-25		V
I_{GSS}	Gate Reverse Current	V_{GS} = 15 V, V_{DS} = 0			-200	pA
		V_{GS} = 15 V, V_{DS} = 0, T_A = 150 °C			-200	nA
$I_{D(off)}$	Drain Cutoff Leakage Voltage	V_{GS} = 10 V, V_{DS} = 5.0 V			-200	pA
		V_{GS} = 10 V, V_{DS} = 5.0 V, T_A = 150 °C			-200	nA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	V_{DS} = 5.0 V, I_D = 3.0 nA	**5432**	-4.0	-10	V
			5433	-3.0	-9.0	V
			5434	-1.0	-4.0	V
ON CHARACTERISTICS						
I_{DSS}	Zero-Gate Voltage Drain Current*	V_{DS} = 15 V, V_{GS} = 0	**5432**	150		mA
			5433	100		mA
			5434	30		mA
$V_{DS(on)}$	Drain-Source On Voltage	I_D = 10 mA, V_{GS} = 0	**5432**		50	mV
			5433		70	mV
			5434		100	mV
$r_{DS(on)}$	Drain-Source On Resistance	I_D = 10 mA, V_{GS} = 0	**5432**	2.0	5.0	Ω
			5433		7.0	Ω
			5434		10	Ω
		I_D = 0, V_{GS} = 0, f = 1.0 kHz				
			5432	2.0	5.0	Ω
			5433		7.0	Ω
			5434		10	Ω
SMALL SIGNAL CHARACTERISTICS						
C_{iss}	Input Capacitance	V_{DS} = 0 , V_{GS} = 10 V, f = 1.0 MHz			30	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 0 , V_{GS} = 10 V, f = 1.0 MHz			15	pF
SWITCHING CHARACTERISTICS						
t_d	Delay Time	V_{DD} = 1.5 V, $V_{GS(on)}$ = 0,			4.0	ns
t_r	Rise Time	$I_{D(on)}$ = 10 mA			1.0	ns
t_s	Storage Time	$V_{GS(off)}$ = 12 V,				
		$V_{DS(on)}$ = 50 mV	**5432**		6.0	ns
		$V_{DS(on)}$ = 70 mV	**5433**		6.0	ns
		$V_{DS(on)}$ = 100 mV	**5434**		6.0	ns
t_f	Fall Time	$V_{GS(off)}$ = 12 V			30	ns

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

TO-92 Tape and Reel Data

FAIRCHILD
SEMICONDUCTOR ™

TO-92 Packaging
Configuration: Figure 1.0

FSCINT Label sample

FAIRCHILD SEMICONDUCTOR CORPORATION	**HTB:B**
LOT: **CBVK741B019**	QTY: **10000**
NSID: **PN2222N**	SPEC:
D/C1: **D9842**	SPEC REV: **B2**
	QA REV:
	(FSCINT)

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 INFROMATION

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

(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**

TAPE and REEL OPTION
See Fig 2.0 for various Reeling Styles

5 Reels per Intermediate Box

F63TNR Label

Customized Label

FSCINT Label

Customized Label

375mm x 267mm x 375mm Intermediate Box

AMMO PACK OPTION
See Fig 3.0 for 2 Ammo Pack Options

327mm x 158mm x 135mm Immediate Box

Customized Label

F63TNR Label

5 Ammo boxes per Intermediate Box

FSCINT Label

Customized Label

333mm x 231mm x 183mm Intermediate Box

BULK OPTION
See Bulk Packing Information table

FSCINT Label

Anti-static Bubble Sheets

2000 units per EO70 box for std option

114mm x 102mm x 51mm Immediate Box

5 EO70 boxes per intermediate Box

530mm x 130mm x 83mm Intermediate 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)

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 Tape and Reel Data, continued

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

User Direction of Feed

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

FAIRCHILD
SEMICONDUCTOR ™

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

1:1

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

0.185 [4.70]
0.170 [4.32]

0.185 [4.70]
0.170 [4.32]

1.65 [1.27]

0.065 [1.65]
0.050 [1.27]

2.0°TYP.

0.060 [1.52]
0.040 [1.02]

0.180 [4.56]
0.165 [4.18]

0.030 [0.76]
0.014 [0.36]

Ø0.060 [Ø1.52]
0.010 [0.254]
DEEP

0.615 [15.61]
0.570 [14.47]

0.020 [0.51]

0.020 [0.51]
0.014 [0.36]

0.019 [0.48]
0.012 [0.30]

0.055 [1.40]
0.045 [1.14]

0.175 [4.45]
0.150 [3.81]

5.0°TYP.

1 2 3

0.095 [2.41]
0.084 [2.13]

TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

ACEx™	FAST ®	OPTOPLANAR™	SuperSOT™-3
Bottomless™	FASTr™	PACMAN™	SuperSOT™-6
CoolFET™	FRFET™	POP™	SuperSOT™-8
CROSSVOLT™	GlobalOptoisolator™	PowerTrench ®	SyncFET™
DenseTrench™	GTO™	QFET™	TinyLogic™
DOME™	HiSeC™	QS™	UHC™
EcoSPARK™	ISOPLANAR™	QT Optoelectronics™	UltraFET ®
E²CMOS™	LittleFET™	Quiet Series™	VCX™
EnSigna™	MicroFET™	SILENT SWITCHER ®	
FACT™	MICROWIRE™	SMART START™	
FACT Quiet Series™	OPTOLOGIC™	Stealth™	

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.
As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

Rev. H2