

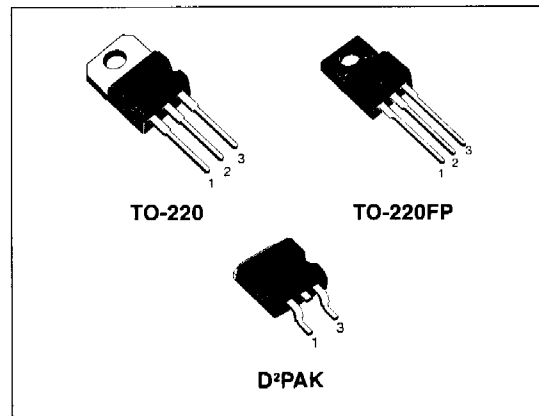
## STB75NF75 STP75NF75 - STP75NF75FP

N-channel 75V - 0.0095Ω - 80A - TO-220 - TO-220FP - D<sup>2</sup>PAK  
STripFET™ II Power MOSFET

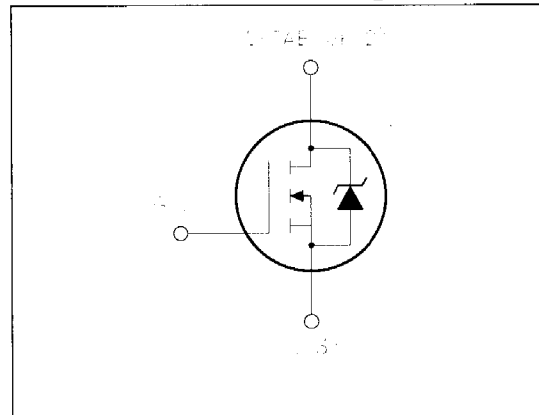
### General features

Type	V <sub>DSS</sub>	R <sub>DS(on)</sub>	I <sub>D</sub>
STB75NF75	75V	<0.011Ω	80A <sup>(1)</sup>
STP75NF75	75V	<0.011Ω	80A <sup>(1)</sup>
STP75NF75FP	75V	<0.011Ω	80A <sup>(1)</sup>

- 1. Current limited by package
- Exceptional dv/dt capability
- 100% avalanche tested

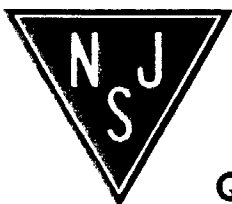


### Internal schematic diagram



### Applications

- Switching application



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## Electrical ratings

**Table 1. Absolute maximum ratings**

Symbol	Parameter	Value		Unit
		D <sup>2</sup> PAK /TO-220	TO-220FP	
V <sub>DS</sub>	Drain-source voltage (V <sub>GS</sub> = 0)	75		V
V <sub>DGR</sub>	Drain-gate voltage (R <sub>GS</sub> = 20KΩ)	75		V
V <sub>GS</sub>	Gate-source voltage	± 20		V
I <sub>D</sub> <sup>(1)</sup>	Drain current (continuous) at T <sub>C</sub> = 25°C	80	80	A
I <sub>D</sub> <sup>(1)</sup>	Drain current (continuous) at T <sub>C</sub> = 100°C	70	70	A
I <sub>DM</sub> <sup>(2)</sup>	Drain current (pulsed)	320	320	A
P <sub>TOT</sub>	Total dissipation at T <sub>C</sub> = 25°C	300	45	W
	Derating factor	2.0	0.3	W/°C
dv/dt <sup>(3)</sup>	Peak diode recovery voltage slope	12		V/ns
E <sub>AS</sub> <sup>(4)</sup>	Single pulse avalanche energy	700		mJ
V <sub>ISO</sub>	Insulation withstand voltage (RMS) from all three leads to external heat sink (t = 1s; T <sub>C</sub> = 25°C)	--	2000	V
T <sub>J</sub> T <sub>stg</sub>	Operating junction temperature Storage temperature	-55 to 175		°C

1. Current limited by package
2. Pulse width limited by safe operating area
3. I<sub>SD</sub> ≤ 30A, di/dt ≤ 300A/μs, V<sub>DD</sub> ≤ V<sub>(BR)DSS</sub>, T<sub>J</sub> ≤ T<sub>JMAX</sub>
4. Starting T<sub>J</sub> = 25 °C, I<sub>D</sub> = 40A, V<sub>DD</sub> = 37.5V

**Table 2. Thermal data**

Symbol	Parameter	Value		Unit
		D <sup>2</sup> PAK /TO-220	TO-220FP	
R <sub>thJC</sub>	Thermal resistance junction-case max	0.5	3.33	°C/W
R <sub>thJA</sub>	Thermal resistance junction-ambient max	62.5		°C/W
T <sub>I</sub>	Maximum lead temperature for soldering purpose <sup>(1)</sup>	300		°C

1. 1.6mm from case for 10sec)

## Electrical characteristics

( $T_{CASE}=25^{\circ}C$  unless otherwise specified)

**Table 3. On/off states**

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	Drain-source breakdown voltage	$I_D = 250\mu A, V_{GS} = 0$	75			V
$I_{DSS}$	Zero gate voltage drain current ( $V_{GS} = 0$ )	$V_{DS} = \text{Max rating},$ $V_{DS} = \text{Max rating @ } 125^{\circ}C$			1 10	$\mu A$ $\mu A$
$I_{GSS}$	Gate body leakage current ( $V_{DS} = 0$ )	$V_{GS} = \pm 20V$			$\pm 100$	nA
$V_{GS(th)}$	Gate threshold voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	3	4	V
$R_{DS(on)}$	Static drain-source on resistance	$V_{GS} = 10V, I_D = 40A$		0.0095	0.011	$\Omega$

**Table 4. Dynamic**

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$g_{fs}^{(1)}$	Forward transconductance	$V_{DS} = 15V, I_D = 40A$		20		S
$C_{iss}$	Input capacitance	$V_{DS} = 25V, f = 1 \text{ MHz},$ $V_{GS} = 0$		3700		pF
$C_{oss}$	Output capacitance			730		pF
$C_{rss}$	Reverse transfer capacitance			240		pF
$Q_g$	Total gate charge	$V_{DD} = 60V, I_D = 80A$ $V_{GS} = 10V$		117	160	nC
$Q_{gs}$	Gate-source charge			27		nC
$Q_{gd}$	Gate-drain charge			47		nC

1. Pulsed: pulse duration=300 $\mu s$ , duty cycle 1.5%