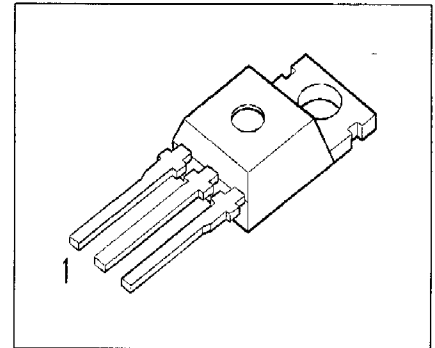


**BUZ 80**

- N channel
- Enhancement mode
- Avalanche-rated



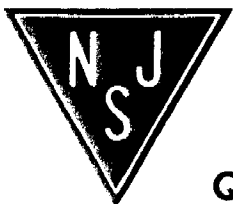
<b>Pin 1</b>	<b>Pin 2</b>	<b>Pin 3</b>
G	D	S

Type	V <sub>DS</sub>	I <sub>D</sub>	R <sub>DS(on)</sub>	Package
BUZ 80	800 V	3.1 A	4 Ω	TO-220 AB

**Maximum Ratings**

Parameter	Symbol	Values	Unit
Continuous drain current <i>T<sub>C</sub></i> = 28 °C	I <sub>D</sub>	3.1	A
Pulsed drain current <i>T<sub>C</sub></i> = 25 °C	I <sub>Dpuls</sub>	12.5	
Avalanche current, limited by <i>T<sub>jmax</sub></i>	I <sub>AR</sub>	3.1	
Avalanche energy, periodic limited by <i>T<sub>jmax</sub></i>	E <sub>AR</sub>	8	mJ
Avalanche energy, single pulse I <sub>D</sub> = 3.1 A, V <sub>DD</sub> = 50 V, R <sub>GS</sub> = 25 Ω L = 62.4 mH, <i>T<sub>j</sub></i> = 25 °C	E <sub>AS</sub>	320	
Gate source voltage	V <sub>GS</sub>	± 20	V
Power dissipation <i>T<sub>C</sub></i> = 25 °C	P <sub>tot</sub>	100	W
Operating temperature	<i>T<sub>j</sub></i>	-55 ... + 150	°C
Storage temperature	<i>T<sub>stg</sub></i>	-55 ... + 150	
Thermal resistance, chip case	R <sub>thJC</sub>	≤ 1.25	K/W
Thermal resistance, chip to ambient	R <sub>thJA</sub>	75	
DIN humidity category, DIN 40 040		E	
IEC climatic category, DIN IEC 68-1		55 / 150 / 56	

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**Electrical Characteristics**, at  $T_j = 25^\circ\text{C}$ , unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>Static Characteristics</b>					
Drain- source breakdown voltage $V_{GS} = 0\text{ V}$ , $I_D = 0.25\text{ mA}$ , $T_j = 25^\circ\text{C}$	$V_{(BR)DSS}$	800	-	-	V
Gate threshold voltage $V_{GS} = V_{DS}$ , $I_D = 1\text{ mA}$	$V_{GS(th)}$	2.1	3	4	
Zero gate voltage drain current $V_{DS} = 800\text{ V}$ , $V_{GS} = 0\text{ V}$ , $T_j = 25^\circ\text{C}$ $V_{DS} = 800\text{ V}$ , $V_{GS} = 0\text{ V}$ , $T_j = 125^\circ\text{C}$	$I_{DSS}$	-	0.1 10	1 100	$\mu\text{A}$
Gate-source leakage current $V_{GS} = 20\text{ V}$ , $V_{DS} = 0\text{ V}$	$I_{GSS}$	-	10	100	nA
Drain-Source on-resistance $V_{GS} = 10\text{ V}$ , $I_D = 2\text{ A}$	$R_{DS(on)}$	-	3.5	4	$\Omega$

Electrical Characteristics, at  $T_j = 25^\circ\text{C}$ , unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

**Dynamic Characteristics**

Transconductance $V_{DS} \geq 2 \cdot I_D \cdot R_{DS(on)max}$ , $I_D = 2 \text{ A}$	$g_{fs}$	1	3.6	-	S
Input capacitance $V_{GS} = 0 \text{ V}$ , $V_{DS} = 25 \text{ V}$ , $f = 1 \text{ MHz}$	$C_{iss}$	-	900	1350	pF
Output capacitance $V_{GS} = 0 \text{ V}$ , $V_{DS} = 25 \text{ V}$ , $f = 1 \text{ MHz}$	$C_{oss}$	-	95	140	
Reverse transfer capacitance $V_{GS} = 0 \text{ V}$ , $V_{DS} = 25 \text{ V}$ , $f = 1 \text{ MHz}$	$C_{rss}$	-	50	75	
Turn-on delay time $V_{DD} = 30 \text{ V}$ , $V_{GS} = 10 \text{ V}$ , $I_D = 3 \text{ A}$ $R_{GS} = 50 \ \Omega$	$t_{d(on)}$	-	15	25	ns
Rise time $V_{DD} = 30 \text{ V}$ , $V_{GS} = 10 \text{ V}$ , $I_D = 3 \text{ A}$ $R_{GS} = 50 \ \Omega$	$t_r$	-	65	85	
Turn-off delay time $V_{DD} = 30 \text{ V}$ , $V_{GS} = 10 \text{ V}$ , $I_D = 3 \text{ A}$ $R_{GS} = 50 \ \Omega$	$t_{d(off)}$	-	200	270	
Fall time $V_{DD} = 30 \text{ V}$ , $V_{GS} = 10 \text{ V}$ , $I_D = 3 \text{ A}$ $R_{GS} = 50 \ \Omega$	$t_f$	-	65	85	

**Electrical Characteristics, at  $T_j = 25^\circ\text{C}$ , unless otherwise specified**

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>Reverse Diode</b>					
Inverse diode continuous forward current $T_C = 25^\circ\text{C}$	$I_S$	-	-	3.1	A
Inverse diode direct current, pulsed $T_C = 25^\circ\text{C}$	$I_{SM}$	-	-	12.5	
Inverse diode forward voltage $V_{GS} = 0\text{ V}, I_F = 6.2\text{ A}$	$V_{SD}$	-	1	1.3	V
Reverse recovery time $V_R = 100\text{ V}, I_F = I_S, di_F/dt = 100\text{ A}/\mu\text{s}$	$t_{rr}$	-	370	-	ns
Reverse recovery charge $V_R = 100\text{ V}, I_F = I_S, di_F/dt = 100\text{ A}/\mu\text{s}$	$Q_{rr}$	-	2.5	-	$\mu\text{C}$