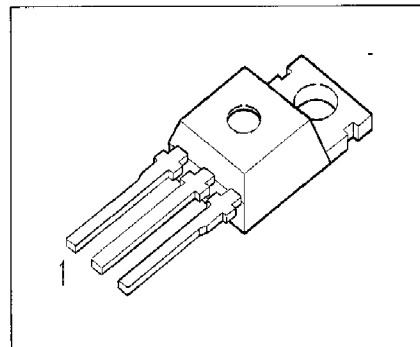


BUZ 10

SIPMOS[®] Power Transistor

- N channel
- Enhancement mode
- Avalanche-rated

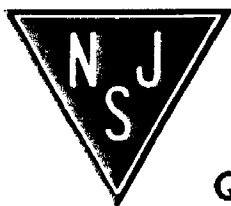


Pin 1	Pin 2	Pin 3
G	D	S

Type	V _{DS}	I _D	R _{DS(on)}	Package
BUZ 10	50 V	23 A	0.07 Ω	TO-220 AB

Maximum Ratings

Parameter	Symbol	Values	Unit
Continuous drain current $T_C = 26\text{ }^{\circ}\text{C}$	I_D	23	A
Pulsed drain current $T_C = 25\text{ }^{\circ}\text{C}$	$I_{D\text{puls}}$	92	
Avalanche current, limited by $T_{j\text{max}}$	I_{AR}	23	
Avalanche energy, periodic limited by $T_{j\text{max}}$	E_{AR}	1.3	mJ
Avalanche energy, single pulse $I_D = 23\text{ A}$, $V_{DD} = 25\text{ V}$, $R_{GS} = 25\text{ }\Omega$ $L = 15.1\text{ }\mu\text{H}$, $T_j = 25\text{ }^{\circ}\text{C}$	E_{AS}	8	
Gate source voltage	V_{GS}	± 20	V
Power dissipation $T_C = 25\text{ }^{\circ}\text{C}$	P_{tot}	75	W
Operating temperature	T_j	-55 ... + 150	$^{\circ}\text{C}$
Storage temperature	T_{stg}	-55 ... + 150	
Thermal resistance, chip case	R_{thJC}	≤ 1.67	K/W
Thermal resistance, chip to ambient	R_{thJA}	≤ 75	
DIN humidity category, DIN 40 040		E	
IEC climatic category, DIN IEC 68-1		55 / 150 / 56	



Quality Semi-Conductors

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

Static Characteristics

Drain- source breakdown voltage $V_{GS} = 0\text{ V}$, $I_D = 0.25\text{ mA}$, $T_j = 25^\circ\text{C}$	$V_{(BR)DSS}$	50	-	-	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 $V_{DS} = 50\text{ V}$, $V_{GS} = 0\text{ V}$, $T_j = 25^\circ\text{C}$ $V_{DS} = 50\text{ V}$, $V_{GS} = 0\text{ V}$, $T_j = 125^\circ\text{C}$	I_{DSS}	- -	0.1 10	1 100	μA
Gate-source leakage current $V_{GS} = 20\text{ V}$, $V_{DS} = 0\text{ V}$	I_{GSS}	-	10	100	
Drain-Source on-resistance $V_{GS} = 10\text{ V}$, $I_D = 14\text{ A}$	$R_{DS(on)}$	-	0.05	0.07	Ω

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

Dynamic Characteristics

Transconductance $V_{DS} \geq 2 \cdot I_D \cdot R_{DS(on)max}$, $I_D = 14\text{ A}$	g_{fs}	7	13	-	S
Input capacitance $V_{GS} = 0\text{ V}$, $V_{DS} = 25\text{ V}$, $f = 1\text{ MHz}$	C_{iss}	-	650	820	pF
Output capacitance $V_{GS} = 0\text{ V}$, $V_{DS} = 25\text{ V}$, $f = 1\text{ MHz}$	C_{oss}	-	300	450	
Reverse transfer capacitance $V_{GS} = 0\text{ V}$, $V_{DS} = 25\text{ V}$, $f = 1\text{ MHz}$	C_{rss}	-	110	170	
Turn-on delay time $V_{DD} = 30\text{ V}$, $V_{GS} = 10\text{ V}$, $I_D = 3\text{ A}$ $R_{GS} = 50\ \Omega$	$t_{d(on)}$	-	20	35	ns
Rise time $V_{DD} = 30\text{ V}$, $V_{GS} = 10\text{ V}$, $I_D = 3\text{ A}$ $R_{GS} = 50\ \Omega$	t_r	-	40	65	
Turn-off delay time $V_{DD} = 30\text{ V}$, $V_{GS} = 10\text{ V}$, $I_D = 3\text{ A}$ $R_{GS} = 50\ \Omega$	$t_{d(off)}$	-	80	110	
Fall time $V_{DD} = 30\text{ V}$, $V_{GS} = 10\text{ V}$, $I_D = 3\text{ A}$ $R_{GS} = 50\ \Omega$	t_f	-	60	75	

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Reverse Diode					
Inverse diode continuous forward current $T_C = 25\text{ }^{\circ}\text{C}$	I_S	-	-	23	A
Inverse diode direct current,pulsed $T_C = 25\text{ }^{\circ}\text{C}$	I_{SM}	-	-	92	
Inverse diode forward voltage $V_{GS} = 0\text{ V}, I_F = 46\text{ A}$	V_{SD}	-	1.5	1.9	V
Reverse recovery time $V_R = 30\text{ V}, I_F=I_S, di_F/dt = 100\text{ A}/\mu\text{s}$	t_{rr}	-	60	-	ns
Reverse recovery charge $V_R = 30\text{ V}, I_F=I_S, di_F/dt = 100\text{ A}/\mu\text{s}$	Q_{rr}	-	0.1	-	μC

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www.DatasheetCatalog.com

Datasheets for electronic components.