



# BUZ10

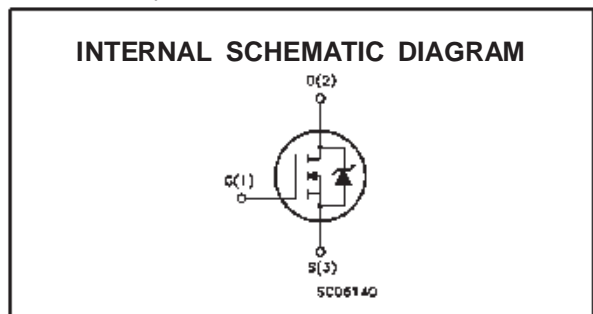
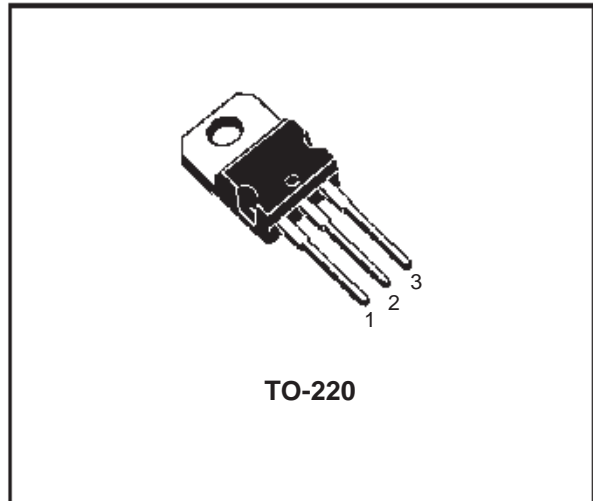
## N - CHANNEL 50V - 0.06Ω - 23A TO-220 STripFET™ MOSFET

TYPE	V <sub>DSS</sub>	R <sub>DS(on)</sub>	I <sub>D</sub>
BUZ10	50 V	< 0.07 Ω	23 A

- TYPICAL R<sub>DS(on)</sub> = 0.06 Ω
- AVALANCHE RUGGED TECHNOLOGY
- 100% AVALANCHE TESTED
- HIGH CURRENT CAPABILITY
- 175°C OPERATING TEMPERATURE

### APPLICATIONS

- HIGH CURRENT, HIGH SPEED SWITCHING
- SOLENOID AND RELAY DRIVERS
- REGULATORS
- DC-DC & DC-AC CONVERTERS
- MOTOR CONTROL, AUDIO AMPLIFIERS
- AUTOMOTIVE ENVIRONMENT (INJECTION, ABS, AIR-BAG, LAMPDRIVERS, Etc.)



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V <sub>DS</sub>	Drain-source Voltage (V <sub>GS</sub> = 0)	50	V
V <sub>DGR</sub>	Drain- gate Voltage (R <sub>GS</sub> = 20 kΩ)	50	V
V <sub>GS</sub>	Gate-source Voltage	± 20	V
I <sub>D</sub>	Drain Current (continuous) at T <sub>c</sub> = 25 °C	23	A
I <sub>DM</sub>	Drain Current (pulsed)	92	A
P <sub>tot</sub>	Total Dissipation at T <sub>c</sub> = 25 °C	75	W
T <sub>stg</sub>	Storage Temperature	-65 to 175	°C
T <sub>j</sub>	Max. Operating Junction Temperature	175	°C
	DIN HUMIDITY CATEGORY (DIN 40040)	E	
	IEC CLIMATIC CATEGORY (DIN IEC 68-1)	55/150/56	

First digit of the datecode being Z or K identifies silicon characterized in this datasheet.

## BUZ10

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	2.0	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	62.5	°C/W

### AVALANCHE CHARACTERISTICS

Symbol	Parameter	Value	Unit
I <sub>AR</sub>	Avalanche Current, Repetitive or Not-Repetitive (pulse width limited by T <sub>j</sub> max, δ < 1%)	10	A
E <sub>AS</sub>	Single Pulse Avalanche Energy (starting T <sub>j</sub> = 25 °C, I <sub>D</sub> = I <sub>AR</sub> , V <sub>DD</sub> = 30 V)	150	mJ

### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

#### OFF

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V <sub>(BR)DSS</sub>	Drain-source Breakdown Voltage	I <sub>D</sub> = 250 μA V <sub>GS</sub> = 0	50			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current (V <sub>GS</sub> = 0)	V <sub>DS</sub> = Max Rating V <sub>DS</sub> = Max Rating T <sub>j</sub> = 125 °C			1 10	μA μA
I <sub>GSS</sub>	Gate-body Leakage Current (V <sub>DS</sub> = 0)	V <sub>GS</sub> = ± 20 V			± 100	nA

#### ON (\*)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> I <sub>D</sub> = 1 mA	2.1	3	4	V
R <sub>DS(on)</sub>	Static Drain-source On Resistance	V <sub>GS</sub> = 10V I <sub>D</sub> = 14 A		0.06	0.07	Ω

### DYNAMIC

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
g <sub>fs</sub> (*)	Forward Transconductance	V <sub>DS</sub> = 25 V I <sub>D</sub> = 14 A	6	11		S
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> = 25 V f = 1 MHz V <sub>GS</sub> = 0		900		pF
C <sub>oss</sub>	Output Capacitance			130		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			40		pF

### SWITCHING

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
t <sub>d(on)</sub>	Turn-on Time	V <sub>DD</sub> = 30 V I <sub>D</sub> = 10 A R <sub>GS</sub> = 4.7 Ω V <sub>GS</sub> = 10 V		20		ns	
t <sub>r</sub>	Rise Time			45		ns	
t <sub>d(off)</sub>	Turn-off Delay Time				48		ns
t <sub>f</sub>	Fall Time				10		ns

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