

BUZ11

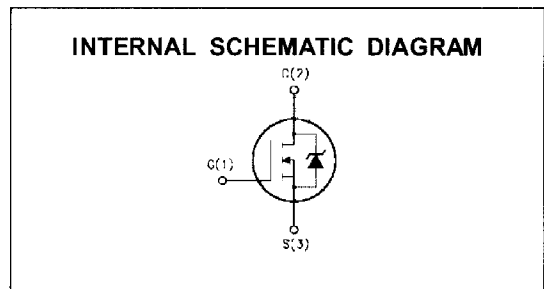
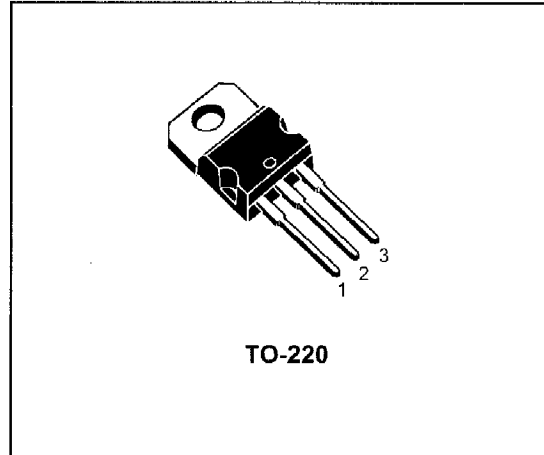
N - CHANNEL 50V - 0.03Ω - 33A TO-220 STripFET™ MOSFET

TYPE	V _{DSS}	R _{DS(on)}	I _D
BUZ11	50 V	< 0.04 Ω	33 A

- TYPICAL R_{DS(on)} = 0.03 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.)

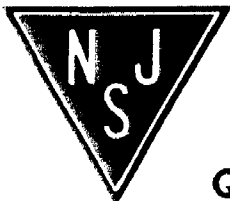


ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V _{DS}	Drain-source Voltage (V _{GS} = 0)	50	V
V _{DGR}	Drain- gate Voltage (R _{GS} = 20 kΩ)	50	V
V _{GS}	Gate-source Voltage	± 20	V
I _D	Drain Current (continuous) at T _c = 25 °C	33	A
I _{DM}	Drain Current (pulsed)	134	A
P _{tot}	Total Dissipation at T _c = 25 °C	90	W
T _{stg}	Storage Temperature	-65 to 175	°C
T _j	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.

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THERMAL DATA

R _{thj-case}	Thermal Resistance Junction-case	Max	1.67	°C/W
R _{thj-amb}	Thermal Resistance Junction-ambient	Max	62.5	°C/W

AVALANCHE CHARACTERISTICS

Symbol	Parameter	Value	Unit
I _{AR}	Avalanche Current, Repetitive or Not-Repetitive (pulse width limited by T _j max, δ < 1%)	33	A
E _{AS}	Single Pulse Avalanche Energy (starting T _j = 25 °C, I _D = I _{AR} , V _{DD} = 25 V)	200	mJ

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

OFF

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

ON (*)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} I _D = 1 mA	2.1	3	4	V
R _{DS(on)}	Static Drain-source On Resistance	V _{GS} = 10V I _D = 19 A		0.03	0.04	Ω

DYNAMIC

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
g _{fs} (*)	Forward Transconductance	V _{DS} = 15 V I _D = 19 A	10	17		S
C _{iss} C _{oss} C _{rss}	Input Capacitance Output Capacitance Reverse Transfer Capacitance	V _{DS} = 25 V f = 1 MHz V _{GS} = 0		2100 260 65		pF pF pF

SWITCHING

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t _{d(on)} t _r t _{d(off)} t _f	Turn-on Time Rise Time Turn-off Delay Time Fall Time	V _{DD} = 30 V I _D = 18 A R _{GS} = 50 Ω V _{GS} = 10 V		40 200 220 110		ns ns ns ns

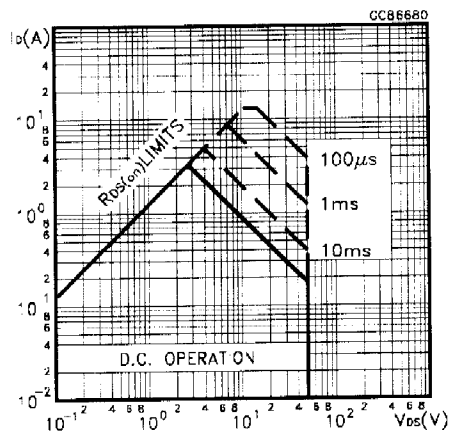
ELECTRICAL CHARACTERISTICS (continued)

SOURCE DRAIN DIODE

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{SD}	Source-drain Current				33	A
I_{SDM}	Source-drain Current (pulsed)				134	A
$V_{SD} (*)$	Forward On Voltage	$I_{SD} = 60 \text{ A}$ $V_{GS} = 0$			1.8	V
t_{rr}	Reverse Recovery Time	$I_{SD} = 36 \text{ A}$ $dI/dt = 100 \text{ A}/\mu\text{s}$ $V_{DD} = 30 \text{ V}$ $T_j = 150 \text{ }^\circ\text{C}$		75		ns
Q_{rr}	Reverse Recovery Charge			0.24		μC

(*) Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %

Safe Operating Area



Thermal Impedance

