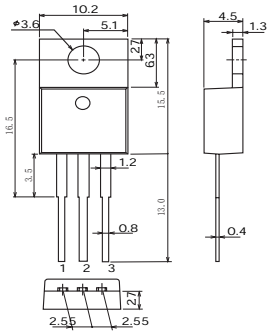
BUZ20LF

N-CHANNEL 100V - 0.20Ω - 13.5A
Power MOSFET

TYPE	V_{DSS}	$R_{DS(on)}$	I_D
BUZ20LF	100 V	0.20Ω	13.5A

- Dynamic dv/dt Rating
- Repetitive Avalanche Rated
- 150℃ Operating Temperature
- Fast Switching
- Simple Drive Requirements

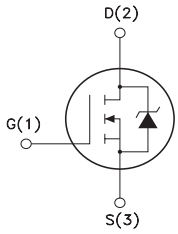
[BUZ20LF]



1:G
2:D
3:S
TO-220

unit:mm

INTERNAL SCHEMATIC DIAGRAM



DESCRIPTION

The BUZ20LF provide the designer with the best combination of fast switching,ruggedized device design,low on-resistance and cost-effectiveness.

The TO-220 package is universally preferred for all commercial-industrial applications at power dissipation levels to approximately 50 watts.The low thermal resistance and low package cost of the TO-220 contribute to its wide acceptance throughout the industry.

ABSOLUTE MAXIMUM RATINGS

Symbol	Paramete	Value	Unit
V_{DS}	Drain-source Voltage (V_{GS}=0)	110	V
V_{DGR}	Drain-gate Voltage (R_{GS}=20KΩ)	110	V
V_{GS}	Gate- source Voltage	±20	V
I_D	Drain Current(continuos)at T_C=25℃	13.5	A
I_D	Drain Current(continuos)at T_C=100℃	8.5	A
I_{DM}(1)	Drain Current(pulsed)	37	A
P_D	Power Dissipation at T_C=25℃	70	W
dv/dt(2)	Peak Diode Recovery voltage slope	5.5	V/ns
T_{stg}	Storage Temperature	-55to150	℃
T_j	Max.Operating Junction Temperature	150	℃

THERMAL DATA

Rthj-case	Thermal Resistance Junction-case Max	2.5	℃/W
Rthj-amb	Thermal Resistance Junction-ambient Max	62	℃/W
T_l	Maximum Lead Temperature For Soldering Purpose	300	℃

AVALANCHE CHARACTERISTICS

Symbol	Parameter	Max Value	Unit
I_{AR}	Avalanche Current, Repetitive or Not-Repetitive (pulse width limited by T_j max)	13.5	A
E_{AS}	Single Pulse Avalanche Energy (starting T_j=25℃, I_D=I_{AR}, V_{DD}=25V)	200	mJ

ELECTRICAL CHARACTERISTICS(TCASE = 25℃UNLESS OTHERWISE SPECIFIED)

OFF

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	Drain-source Breakdown Voltage	I_D=250μA, V_{GS}=0V	100			V
I_{DSS}	Zero Gate Voltage Drain Current (V_{GS}=0)	V_{DS}= Max Rating			25	μA
		V_{DS}= Max Rating, T_C=125℃			250	μA
I_{GSS}	Gate-body Leakage Current (V_{GS}=0)	V_{GS}=±20V			±100	nA

ON (1)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS}, I_D=1 mA	2		4	V
$R_{DS(on)}$	Static Drain-source On Resistance	V_{GS}=10V, I_D=8.5A			0.20	Ω

DYNAMIC

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
g_{fs}(3)	Forward Transconductance	V_{DS}＞I_D(on)xR_{DS}(on)max, I_D=8.5A	3			S
C_{iss}	Input Capacitance	V_{DS}=25V, f=1.0MHz, V_{GS}=0V		400		pF
C_{oss}	Output Capacitanc			120		pF
C_{rss}	Reverse Transfer Capacitance			70		pF

ELECTRICAL CHARACTERISTICS(CONTINUED)

SWITCHING ON

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=50V, I_D=13.5A R_G=18Ω, R_D=5.2Ω		8.8		ns
t_r	Rise Tim	V_{GS}=10V		30		ns
Qg	Total Gate Charge	V_{DS}=80V, I_D=13.5A V_{GS}=10V			16	nC
Qgs	Gate-Source Charge				4.4	nC
Qgd	Gate-Drain Charge				7.7	nC

SWITCHING OFF

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$t_{r(Voff)}$	Off-voltage Rise Time	V_{DD}=50V, I_D=13.5A		30		ns
t_f	Fall Time	R_G=18Ω, R_D=5.2Ω		20		ns

SOURCE DRAIN DIODE

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{SD}	Source-drain Current				13.5	A
I_{SDM}(4)	Source-drain Current(pulsed)				37	A
V_{SD}(3)	Forward On Voltage	ISD=13.5A			1.8	V
t_{rr}	Reverse Recovery Time	Tj=25℃, I_F=13.5A di/dt=100A/μs		110	260	ns
Q_{rr}	Reverse Recovery Charge			0.53	1.3	μs

Note: (1)Pulse width limited by safe operating area

(2) I_{SD}≤13.5A, di/dt≤110A/μS, V_{DD}≤$V_{(BR)DSS}$, T_J≤T_{JMAX}

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

(4)Pulse width limited by safe operating area.