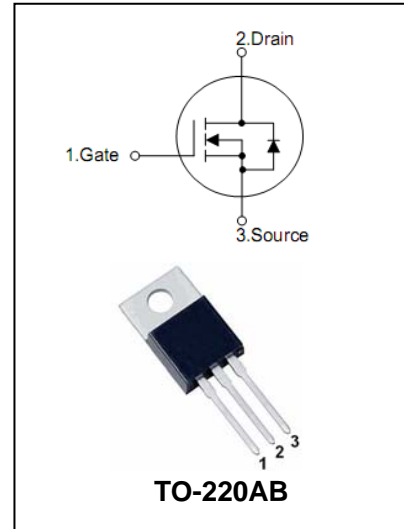


N-Channel Power MOSFET

BL10N30

FEATURES

- High switching speed.
- $R_{DS(ON)}=0.65\Omega$ @ $V_{GS}=10V$.
- 100% avalanche tested.
- Very Good Manufacturing Reliability.



APPLICATIONS

- N-Channel Power MOSFET.
- Switching Applications.

MAXIMUM RATINGS (TC=25°C, unless otherwise specified)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	300	V
V_{GS}	Gate -Source Voltage	± 30	V
I_D	Drain Current Continuous at $T_C=25^\circ C$	10	A
I_{DM}	Drain Current(pulsed)Note1	40	A
P_D	Power Dissipation at $T_C=25^\circ C$	115	W
E_{AS}	Avalanche Energy(Single Pulsed (Note 2))	360	mJ
E_{AR}	Avalanche Energy (Repetitive(Note 3))	13.5	mJ
P_D	Power Dissipation $T_C=25^\circ C$ Derate above $25^\circ C$	135 1.07	W W/ $^\circ C$
$R_{\theta JA}$	Thermal Resistance,Junction-to-Ambient	62.5	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance,Junction-to-Case	0.93	$^\circ C/W$
T_j T_{stg}	Junction and StorageTemperature Range	-55 to +150	$^\circ C$

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Note:1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. $L = 5.7\text{mH}$, $I_{AS} = 10.5\text{A}$, $V_{DD} = 50\text{V}$, $R_G = 25\Omega$, Starting $T_J = 25^\circ\text{C}$

3. $I_{SD} \leq 10.5\text{A}$, $di/dt \leq 200\text{A}/\mu\text{s}$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25^\circ\text{C}$

ELECTRICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$	300	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=300\text{V}, V_{GS}=0\text{V}$	-	-	1	μA
Gate- Source Leakage Current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 30\text{V}$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2.0	-	4.0	V
Static drain-Source On-State resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}, I_D=10\text{A}$	-	0.5	0.65	Ω
Drain-Source Diode Forward Voltage	V_{SD}	$I_{SD}=10\text{A}, V_{GS}=0$	-	-	1.4	V
Input Capacitance	C_{ISS}	$V_{DS}=25\text{V}, V_{GS}=0\text{V}, f=1.0\text{MHz}$	-	840	1090	pF
Output Capacitance	C_{OSS}		-	250	325	pF
Reverse Transfer Capacitance	C_{RSS}		-	80	110	pF
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD} = 30\text{V}, I_D=4\text{A},$ $R_G=25\Omega, V_{GS}=10\text{V}(\text{Note } 1, 2)$	-	14	40	ns
Rise Time	t_R		-	89	190	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	81	170	ns
Fall Time	t_F		-	81	170	ns
Total Gate Charge	Q_g	$V_{DS}=480\text{V}, V_{GS}=10\text{V}$ $I_D=8\text{A}$	-	50	70	nC
Gate-source Charge	Q_{gs}		-	10	-	nC
Gate-drain Charge	Q_{gd}		-	25	-	nC
Maximum Body-Diode Continuous Current	I_S		-	-	10	A
Maximum Body-Diode Pulsed Current	I_{SM}		-	-	40	A

Notes: 1. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$.

2. Essentially independent of operating temperature.

N-Channel Power MOSFET

BL10N30

PACKAGE OUTLINE

Plastic surface mounted package

TO-220AB

