AT08130BP/AT08130BL

85V N-Channel MOSFET

Features

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- 100% EAS Guaranteed
- Green Device Available

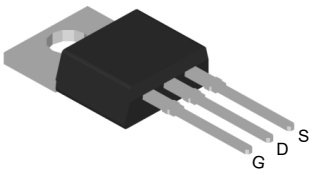
Product Summary

V_{DS}	85	V
I_D	130	A
$R_{DS(ON)}$(at V_{GS}=10V)	4.8	mΩ

Applications

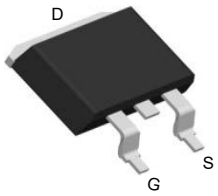
- High Frequency Point-of-Load,Synchronous Buck Converter
- Networking DC-DC Power System
- UPS Inverter

TO-220 Top View



AT08130BP

TO-263 Top View



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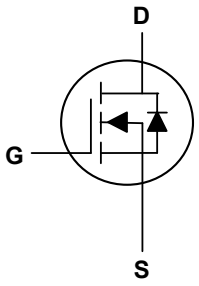


Absolute Maximum Ratings(T_C=25℃, unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	85	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1]	I_D@T_C=25℃	130	A
Continuous Drain Current[1]	I_D@T_C=100℃	92	A
Pulsed Drain Current[2]	I_{DM}	400	A
Single Pulse Avalanche Energy[3]	E_{AS}	211	mJ
Avalanche Current	I_{AS}	65	A
Total Power Dissipation[4]	P_D@T_C=25℃	154	W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Ambient[1]	$R_{\theta JA}$	---	60	℃/W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	---	0.81	℃/W

Electrical Characteristics (T_J=25℃, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V , I_D=250uA	85	---	---	V
Static Drain-Source On-Resistance[2]	$R_{DS(ON)}$	V_{GS}=10V , I_D=30A	---	4	4.8	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS} , I_D =250uA	2	3	4	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=80V , V_{GS}=0V , T_J=25℃	---	---	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
Forward Transconductance	gfs	V_{DS}=10V , I_D=3A	---	13	---	S
Gate Resistance	R_g	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	1.3	---	Ω
Total Gate Charge	Q_g	V_{DS}=40V , V_{GS}=10V , I_D=50A	---	32	---	nC
Gate-Source Charge	Q_{gs}		---	9.5	---	
Gate-Drain Charge	Q_{gd}		---	10	---	
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=40V , V_{GS}=10V , R_G=6Ω, I_D=50A	---	10	---	ns
Rise Time	T_r		---	15	---	
Turn-Off Delay Time	$T_{d(off)}$		---	30	---	
Fall Time	T_f		---	35	---	
Input Capacitance	C_{iss}	V_{DS}=40V , V_{GS}=0V , f=1MHz	---	2400	---	pF
Output Capacitance	C_{oss}		---	540	---	
Reverse Transfer Capacitance	C_{rss}		---	15	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage[2]	V_{SD}	V_{GS}=0V , I_S=1A , T_J=25℃	---	0.8	1.2	V
Reverse Recovery Time	t_{rr}	I_S=10A ,V_R=50V di/dt=100A/μs， T_J=25℃	---	50	---	nS
Reverse Recovery Charge	Q_{rr}		---	80	---	nC

Note:

1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

3.The EAS data shows Max. rating . The test condition is V_{DD}=50V,V_{GS}=10V,L=0.1mH

4.The power dissipation is limited by 150℃ junction temperature

Typical Characteristics

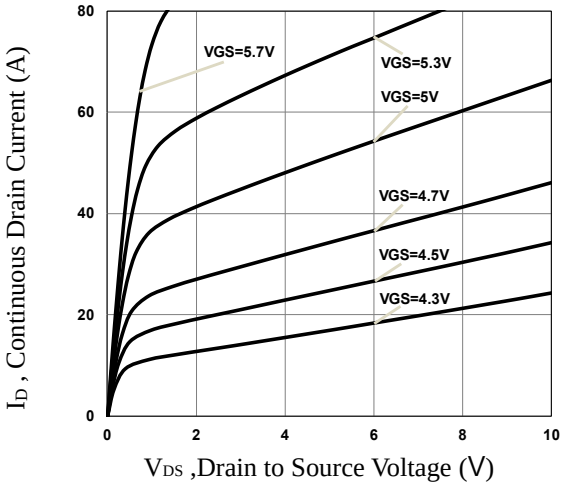


Fig.1 Typical Output Characteristics

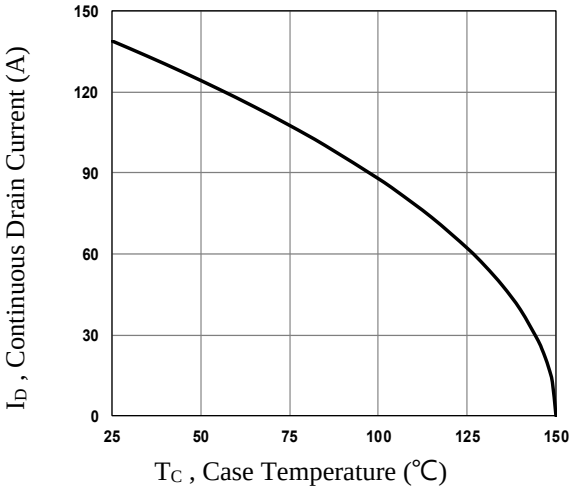


Fig.2 Continuous Drain Current vs. T_C

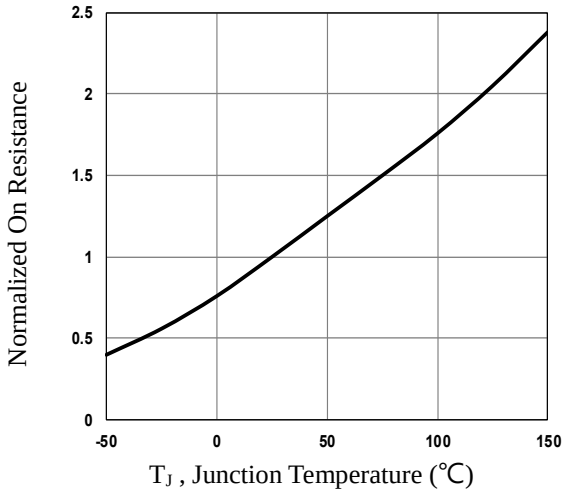


Fig.3 Normalized RDSON vs. T_J

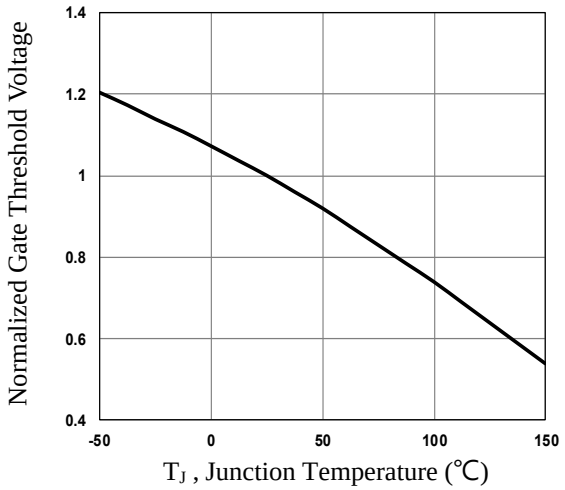


Fig.4 Normalized V_{th} vs. T_J

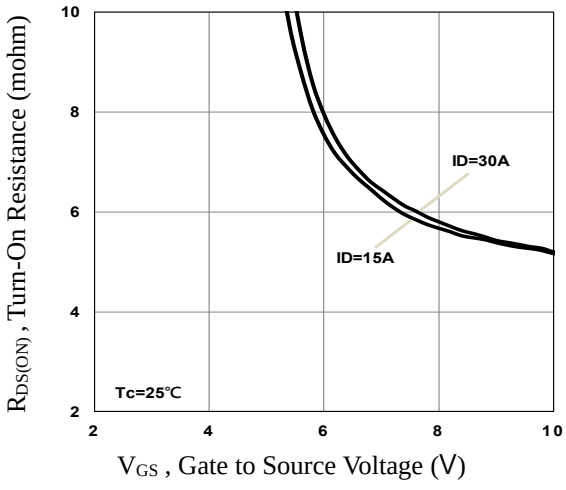


Fig.5 Turn-On Resistance vs. V_{GS}

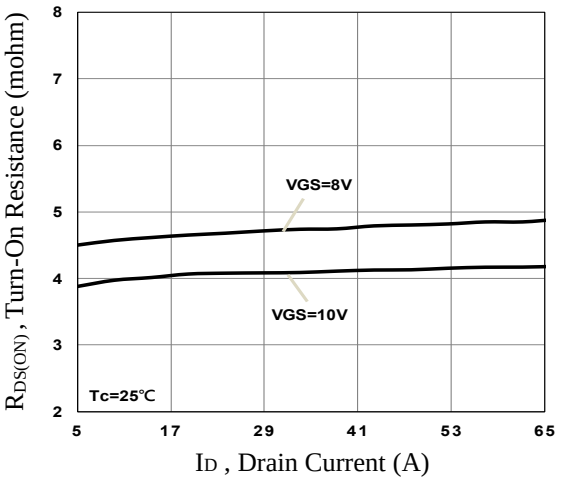


Fig.6 Turn-On Resistance vs. ID

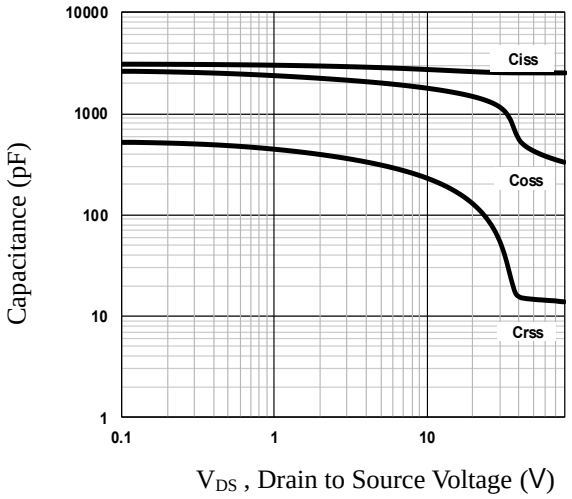


Fig.7 Capacitance Characteristics

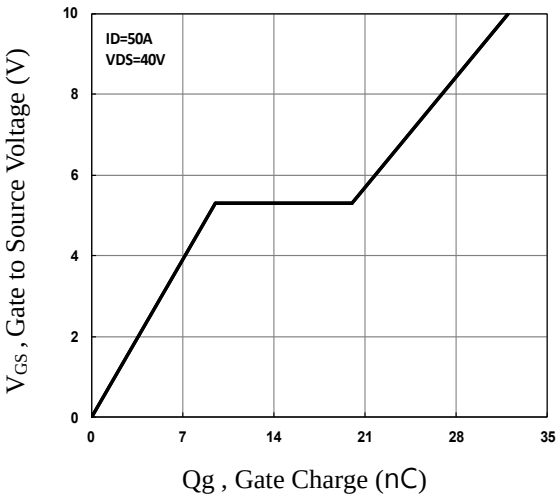


Fig.8 Gate Charge Characteristics

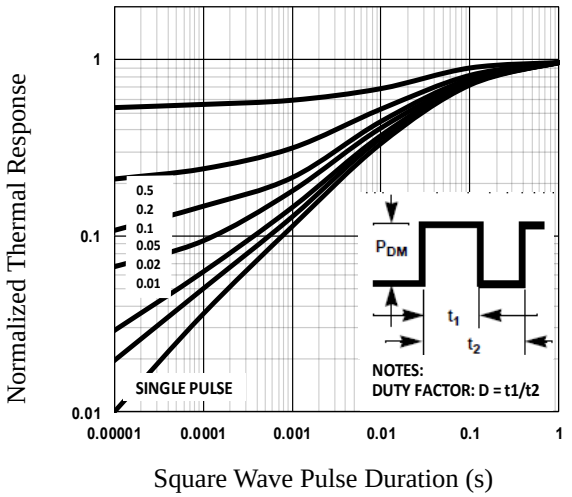


Fig.9 Normalized Transient Impedance

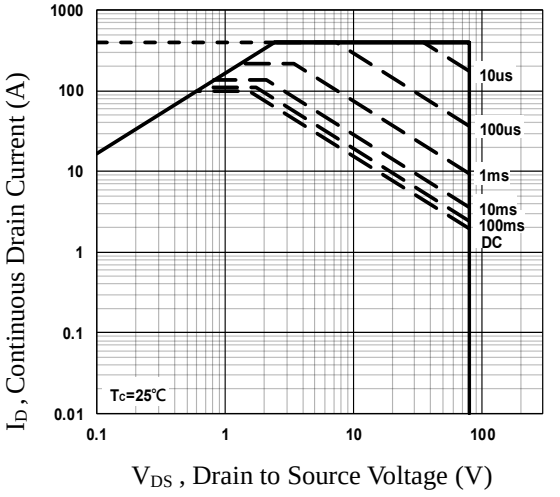
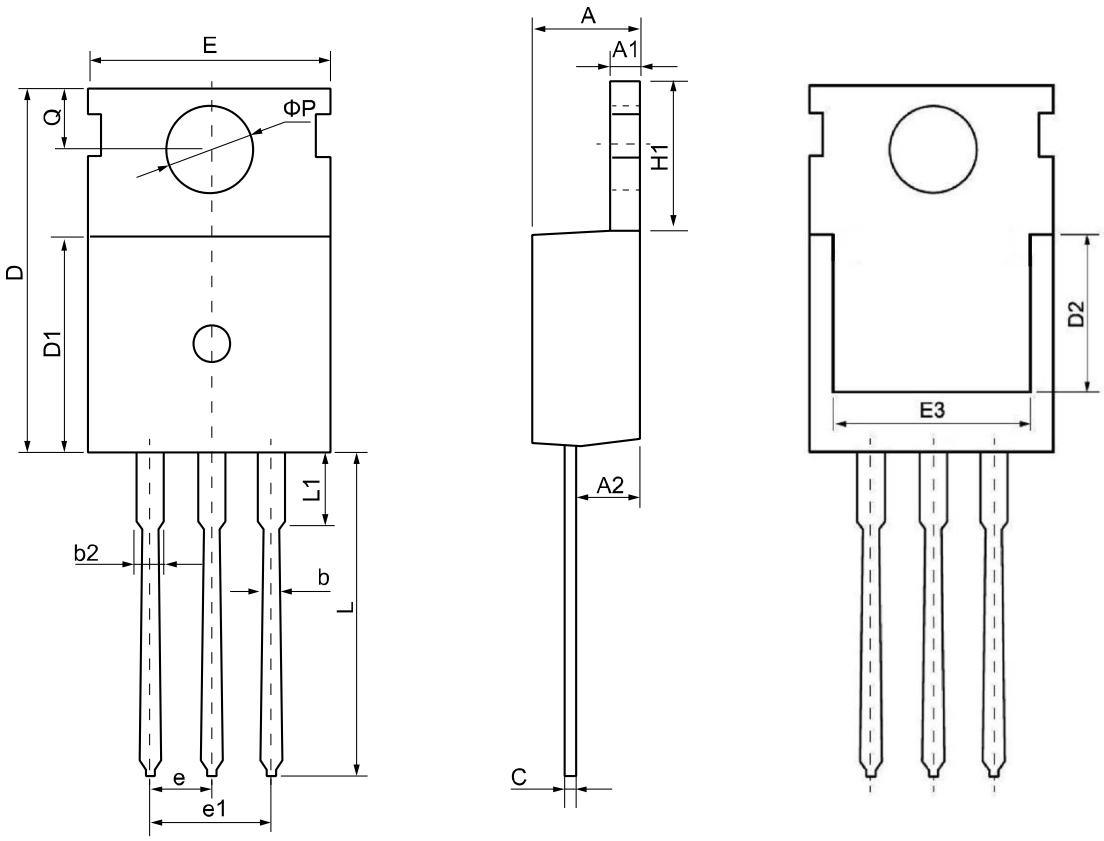


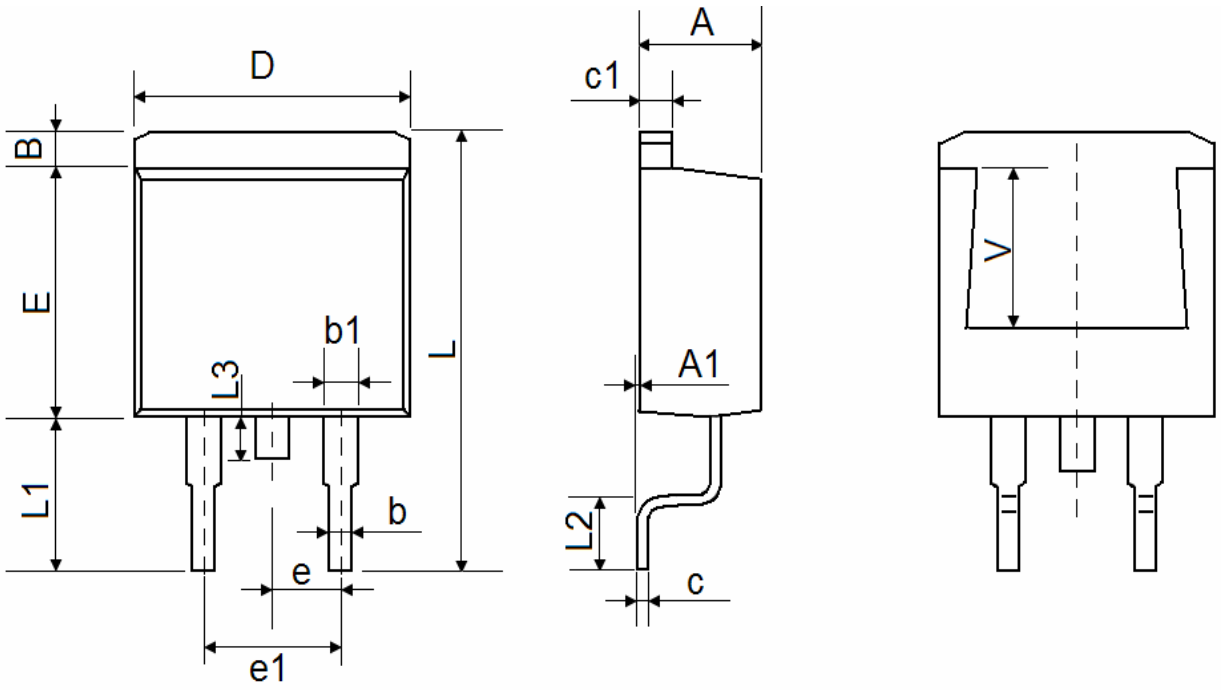
Fig.10 Maximum Safe Operation Area

TO-220 Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	4.30	4.55	4.75	**E**	9.65	10.00	10.25
A1	1.15	1.30	1.45	**E3**	7.00	--	--
A2	2.20	2.40	2.60	**e**	2.54 BSC		
b	0.70	0.80	0.95	**e1**	5.08 BSC		
b2	1.17	1.27	1.47	**H1**	6.30	6.50	6.80
c	0.40	0.50	0.65	**L**	12.70	13.50	14.10
D	15.30	15.60	15.90	**L1**	--	3.20	3.95
D1	8.90	9.10	9.35	**ϕ P**	3.40	3.60	3.80
D2	5.50	--	--	**Q**	2.60	2.80	3.00

TO-263 Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	4.40	4.55	4.70	**A1**	0.00	0.07	0.15
B	1.00	1.20	1.40	**b**	0.65	0.80	0.95
b1	1.10	1.15	1.37	**c**	0.30	0.40	0.53
c1	1.10	1.25	1.37	**D**	9.80	10.00	10.40
E	8.50	8.80	9.20	**e**	2.54 REF		
e1	4.90	5.10	5.40	**L**	14.80	15.20	15.70
L1	5.00	5.25	5.60	**L2**	2.05	2.45	2.80
L3	1.20	1.50	1.80	**V**	5.60 REF		