AJ130SN065MTB

N-Channel Super Junction Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
650V	130mΩ@10V	25A

Feature

- Low on-resistance
- Low gate charge

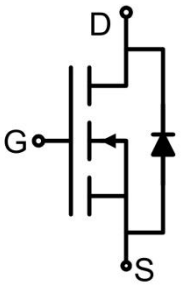
Application

- Power factor correction（PFC）
- Uninterruptible Power Supply（UPS）

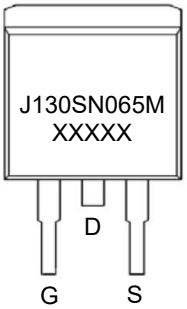
Package

TO-263AB

Circuit diagram



Marking



AJ130SN065MTB

N-Channel Super Junction Power MOSFET

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V_{DS}=0V)	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D	25	A
Pulsed Drain Current[1)]	I_{DM}	75	A
Single Pulse Avalanche Energy[2)]	E_{AS}	750	mJ
Power Dissipation[3)]	P_D	47	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	2.65	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} =0V, I_D =250μA	650			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =650V, V_{GS} =0V			1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±30V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.5	3.5	4.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =12.5A		100	130	mΩ
Dynamic characteristics[4)]						
Input Capacitance	C_{iss}	V_{DS} =100V, V_{GS} =0V, f =1MHz		2113		pF
Output Capacitance	C_{oss}			92		
Reverse Transfer Capacitance	C_{rss}			1		
Total Gate Charge	Q_g	V_{DS} =325V, V_{GS} =10V, I_D =25A		49.4		nC
Gate-Source Charge	Q_{gs}			10.8		
Gate-Drain Charge	Q_{gd}			18.8		
Turn-on delay time	$t_{d(on)}$	V_{DS} =325V, V_{GS} =10V, I_D =25A R_G =25Ω		40		nS
Turn-on rise time	t_r			53		
Turn-off delay time	$t_{d(off)}$			191		
Turn-off fall time	t_f			41		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				25	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =25A			1.3	V
Reverse Recovery Time	T_{rr}	V_{GS} =0V, I_F =25A di/dt =100A/μs		331		nS
Reverse Recovery Charge	Q_{rr}			5.3		μC

Notes:

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

2) The EAS data shows Max. rating . L=60mH, I_{AS} = 5A, V_{DD} = 50V, R_G=25Ω, Starting at T_J = 25℃.

3) The power dissipation is limited by 150℃ junction temperature.

4) Guaranteed by design, not subject to production testing.

Typical Characteristics

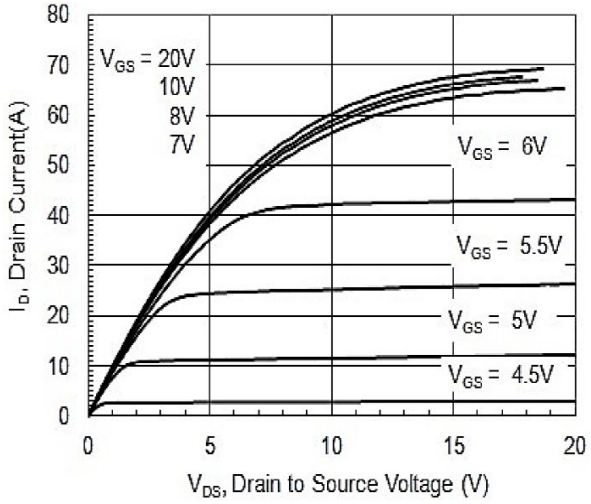


Figure1: Output characteristics

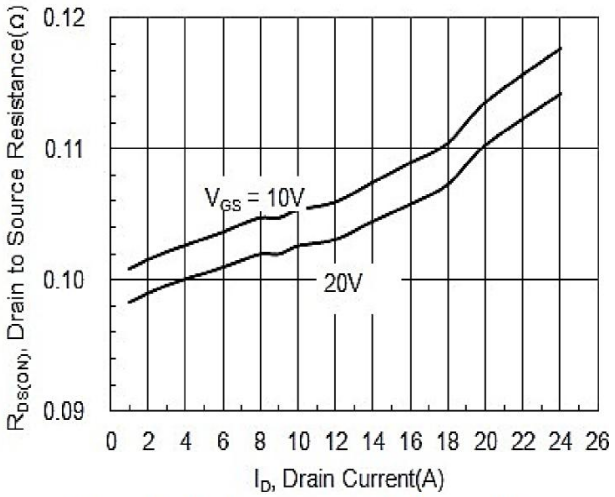


Figure2: Drain ource on state resistance

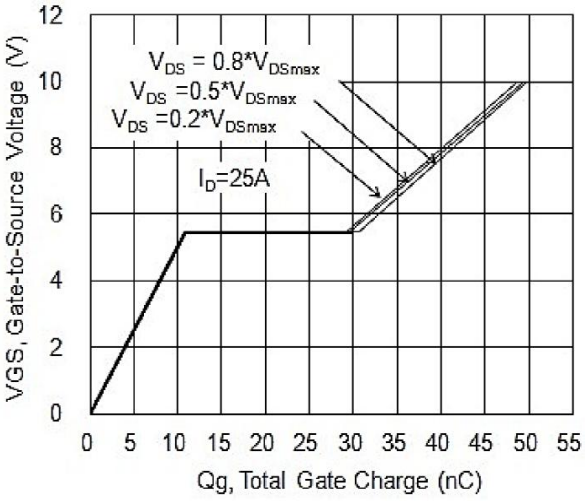


Figure3: Gate charge characteristics

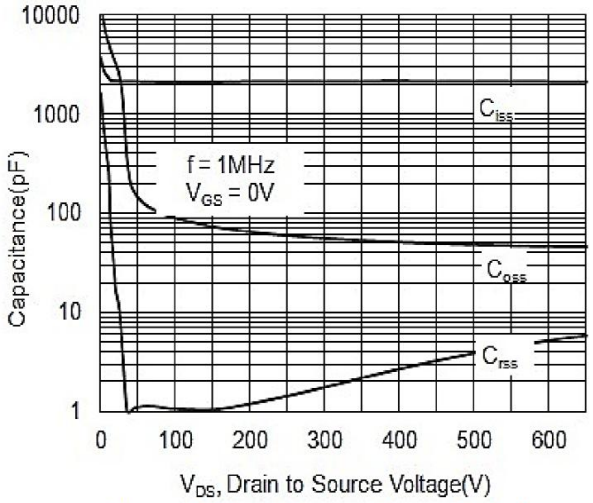


Figure4: Cpacitance Characteristics

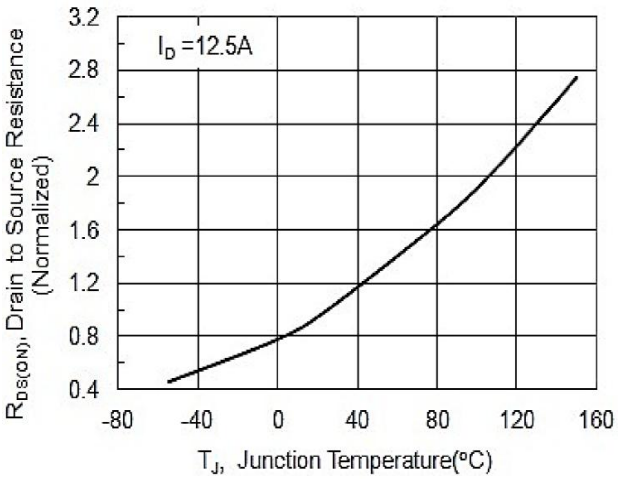


Figure5: Rds（on）Vs junction temperature

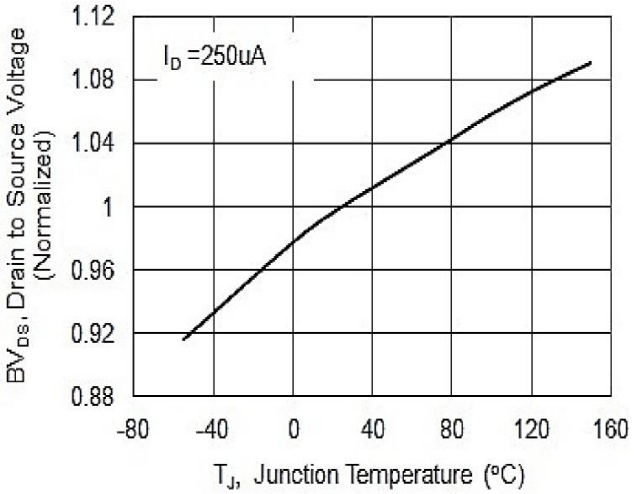


Figure6:Bvdss vs junction temperature

Typical Characteristics

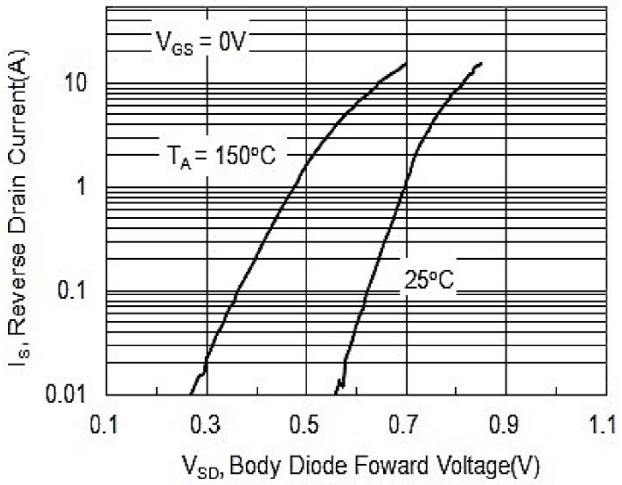


Figure7:VGS（th）vs junction temperature

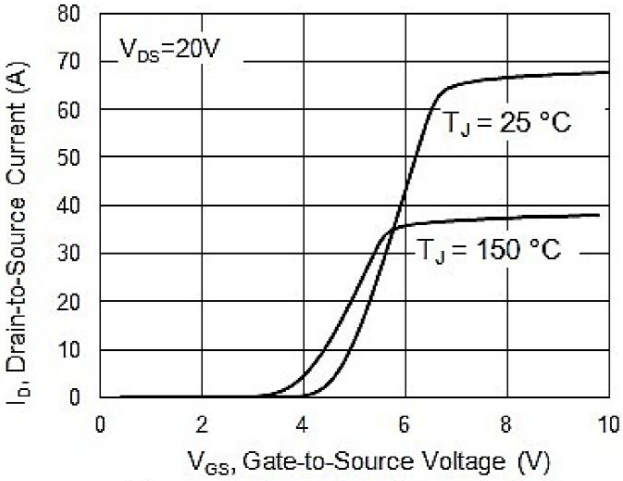


Figure8: Transfer characteristics

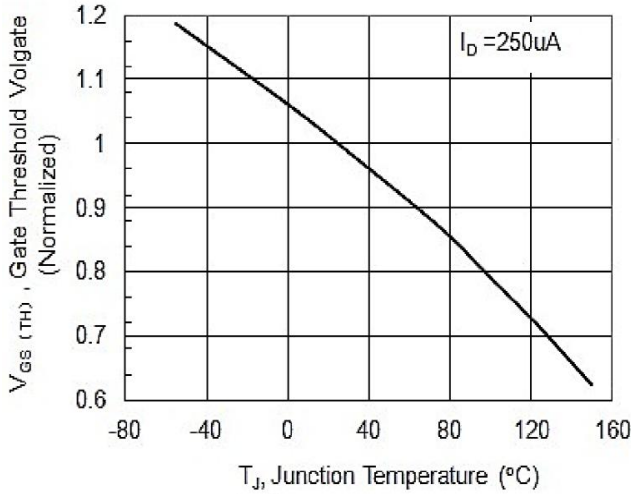


Figure9: VGS（th）vs junction temperature

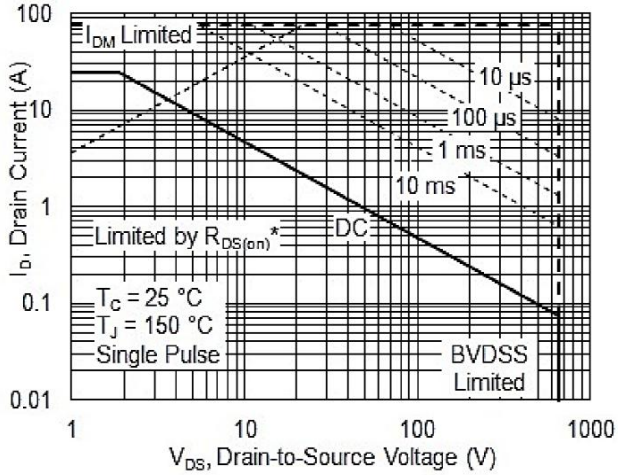


Figure10: Safe operating area

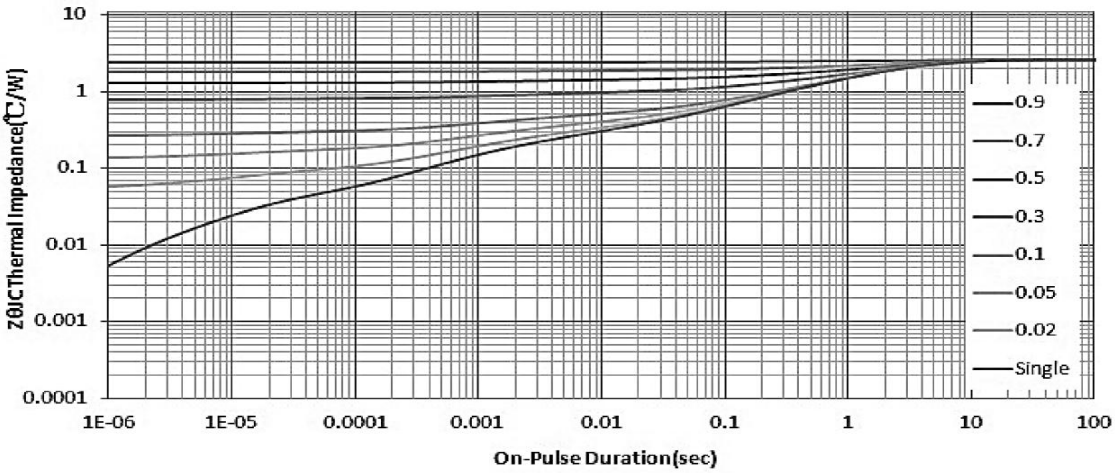
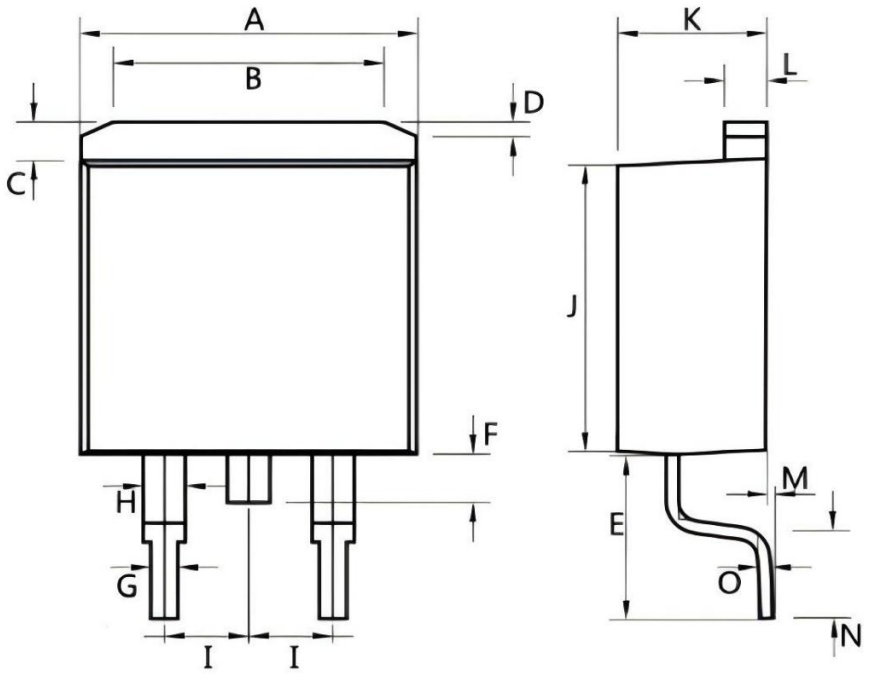


Figure11: Transient thermal impedance

TO-263AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	10.000	10.500	0.394	0.413
B	7.250	7.750	0.285	0.305
C	1.300	1.500	0.051	0.059
D	0.550	0.750	0.022	0.030
E	5.000	6.000	0.197	0.236
F	1.400	1.600	0.055	0.063
G	0.750	0.950	0.030	0.037
H	1.150	1.350	0.045	0.053
I	2.540 TYP.		0.100 TYP.	
J	8.400	8.600	0.331	0.339
K	4.400	4.600	0.173	0.181
L	1.250	1.450	0.049	0.057
M	0.020	0.100	0.001	0.004
N	2.400	2.800	0.094	0.110
O	0.350	0.450	0.014	0.018