AP018SN200MTB

N-Channel Enhancement Mode Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
200V	150mΩ@10V	18A

Feature

- Self-aligned planar technology
- Low conduction loss

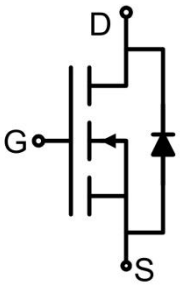
Application

- Uninterruptible power supply (UPS)
- Power factor correction (PFC)

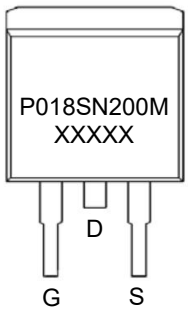
Package

TO-263AB

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V_{GS} =0V)	V_{DS}	200	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	18	A
Pulsed Drain Current[1)]	I_{DM}	72	A
Power Dissipation[2)]	P_D	104	W
Single pulse avalanche energy[3)]	E_{AS}	340	mJ
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	1.2	℃/W
Junction Temperature	T_J	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	200			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =200V, V_{GS} =0V			5	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2	3	4	V
Drain-source on-resistance[4)]	$R_{DS(on)}$	V_{GS} =10V, I_D =9A		120	150	mΩ
Dynamic characteristics[5)]						
Input Capacitance	C_{iss}	V_{DS} =25V, V_{GS} =0V, f =1MHz		1318		pF
Output Capacitance	C_{oss}			180		
Reverse Transfer Capacitance	C_{rss}			75		
Total Gate Charge	Q_g	V_{DS} =160V, V_{GS} =10V, I_D =18A		41		nC
Gate-Source Charge	Q_{gs}			5.5		
Gate-Drain Charge	Q_{gd}			19.5		
Turn-on delay time	$t_{d(on)}$	V_{DS} =100V, I_D =18A, R_G =25Ω		24		nS
Turn-on rise time	t_r			45		
Turn-off delay time	$t_{d(off)}$			101		
Turn-off fall time	t_f			95		
Source-Drain Diode characteristics						
Diode Forward Current	I_S	T_C =25℃			18	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =18A			1.4	V
Reverse Recovery Time	t_{rr}	V_{GS} =0V, I_S =18A di/dt =100A/μs		230		nS
Reverse Recovery Charge	Q_{rr}			1.8		μC

Notes:

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

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

3) The EAS data shows Max. rating . I_{AS}=15A,V_{DD}=50V,R_G =25Ω, Starting T_J = 25 ºC.

4) The test condition is Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 1%.

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

Typical Characteristics

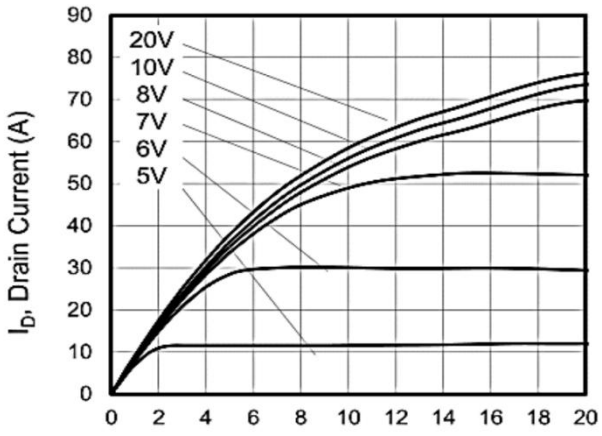


Figure 1. Output Characteristics (T_J = 25°C)

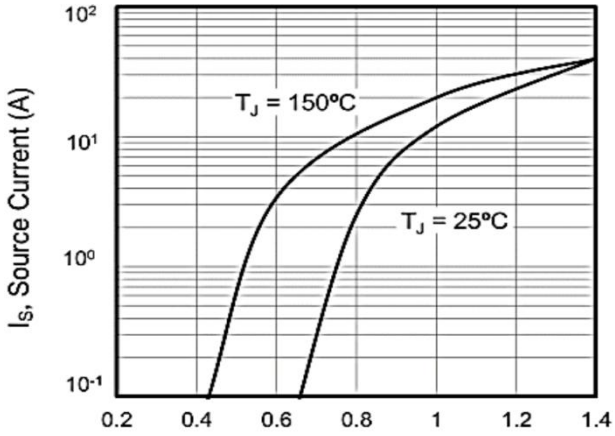


Figure 2. Body Diode Forward Voltage

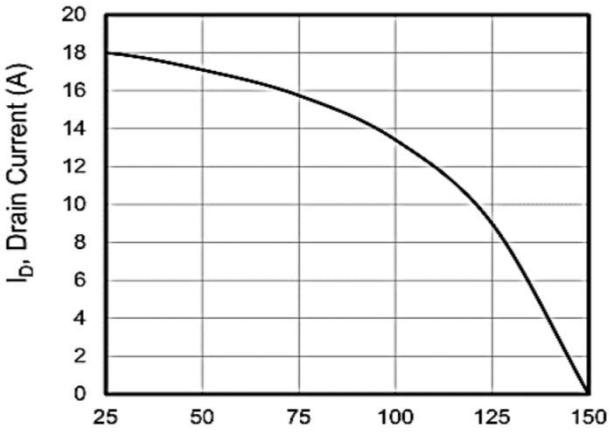


Figure 3. Drain Current vs. Temperature

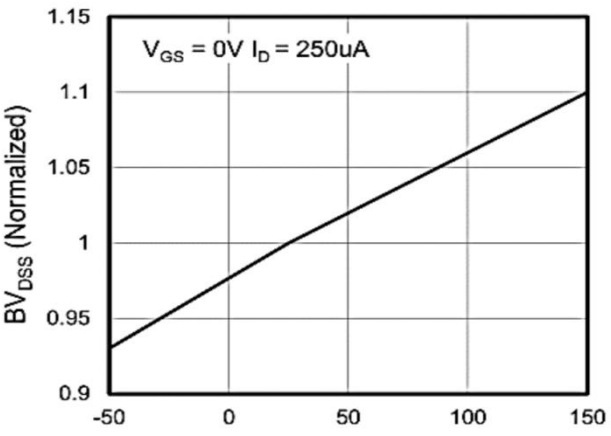


Figure 4. BV_{DSS} Variation vs. Temperature

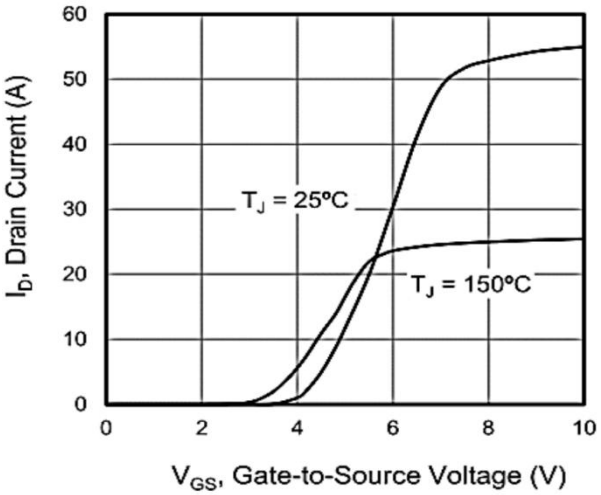


Figure 5. Transfer Characteristics

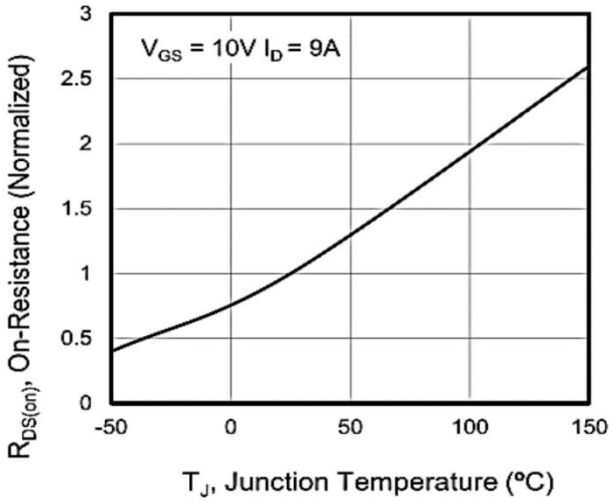


Figure 6. On-Resistance vs. Temperature

Typical Characteristics

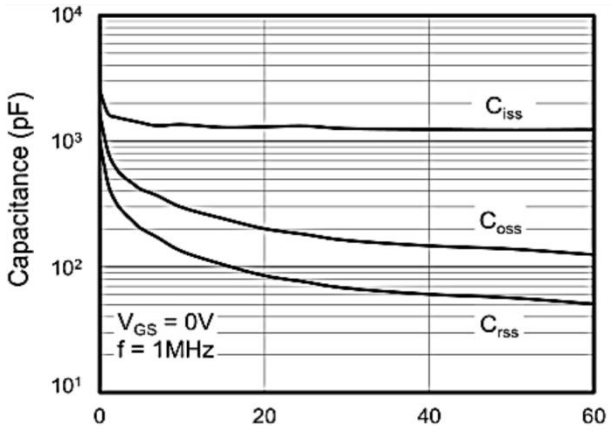


Figure 7. Capacitance

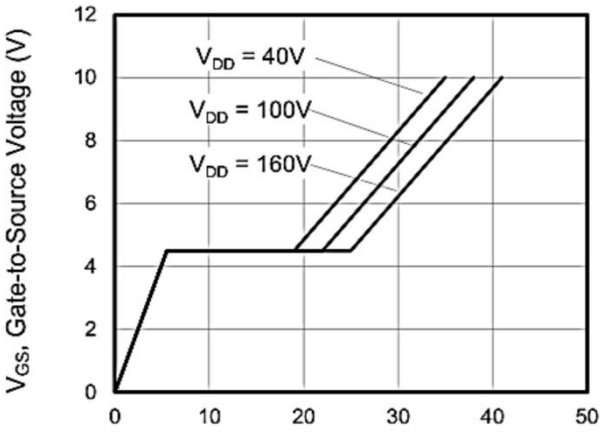


Figure 8. Gate Charge

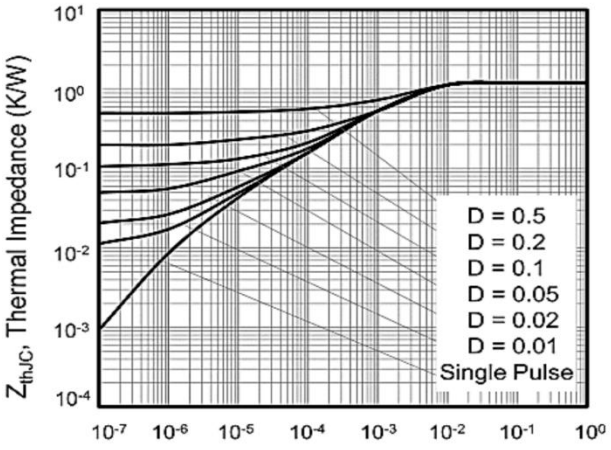
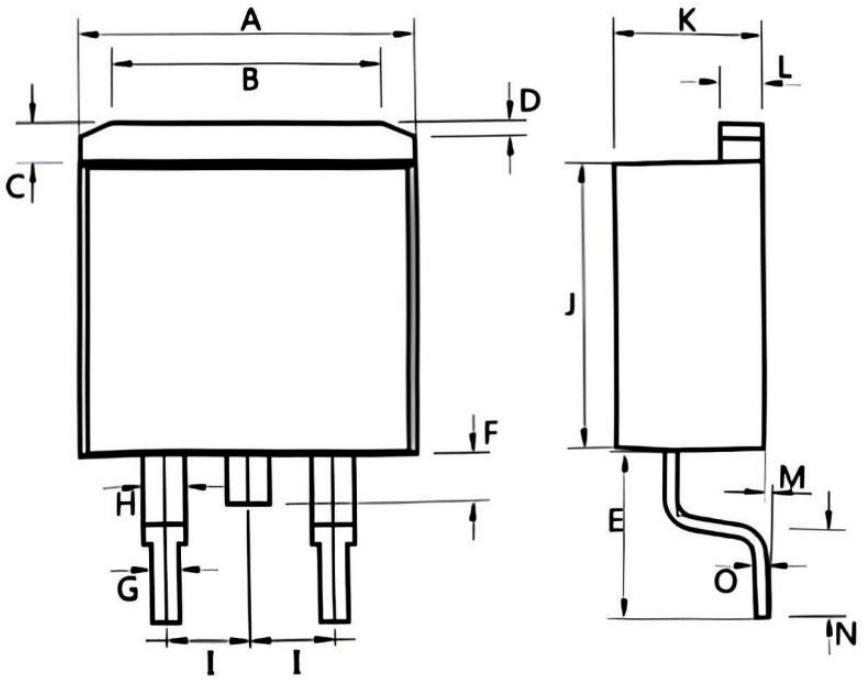


Figure 9 . Transient Thermal Impedance

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 BSC		0.100 BSC	
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