AG200SN060HTB-Q1

N-Channel Enhancement Mode Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	2.9mΩ@10V	200A

Feature

- High density cell design for low Rdson
- Split Gate Trench MOSFET technology
- Excellent package for good heat dissipation
- Suffix "-Q1" for AEC-Q101

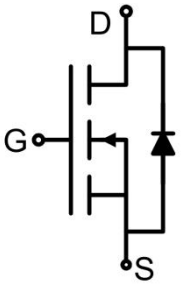
Application

- Consumer electronic power supply
- Isolated DC-DC converters
- Motor control
- Invertors

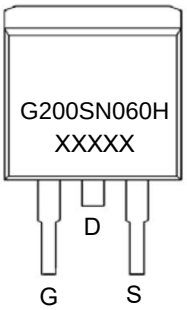
Package

TO-263AB

Circuit diagram



Marking



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N-Channel Enhancement Mode Power MOSFET

Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current [1)]	I_D	200	A
Continuous Drain Current [1)] (100℃)	I_D (100℃)	125	A
Pulsed Drain Current [2)]	I_{DM}	600	A
Single pulse avalanche energy [3)]	E_{AS}	500	mJ
Power Dissipation [4)]	P_D	260	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	28	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.48	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_J=25 °C, 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	60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =60V, V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.0	2.8	4.0	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		2.3	2.9	mΩ
Dynamic characteristics [5)]						
Input Capacitance	C_{iss}	V_{DS} =25V, V_{GS} =0V, f =100KHz		4165		pF
Output Capacitance	C_{oss}			900		
Reverse Transfer Capacitance	C_{rss}			59		
Total Gate Charge	Q_g	V_{DS} =50V, V_{GS} =10V, I_D =50A		65		nC
Gate-Source Charge	Q_{gs}			11.9		
Gate-Drain Charge	Q_{gd}			9.8		
Turn-on delay time	$t_{d(on)}$	V_{DS} =30V, V_{GS} =10V, I_D = 25A R_{GEN}=2Ω		22.5		nS
Turn-on rise time	t_r			6.7		
Turn-off delay time	$t_{d(off)}$			80.3		
Turn-off fall time	t_f			26.9		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				200	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S=20A			1.2	V
Reverse Recovery Time	T_{rr}	TJ = 25°C, IF =25A di/dt = -100A/μs [1)]		58		nS
Reverse Recovery Charge	Q_{rr}			63		nC

Notes: 1) The maximum current rating is package limited.
2) Repetitive rating; pulse width limited by max. junction temperature.
3) EAS condition :VDD=50 V, RG=25 Ω, L=0.5mH, starting Tj=25 ℃.
4) PD is based on max. junction temperature, using junction-case thermal resistance.
5) Guaranteed by design, not subject to production.

Typical Characteristics

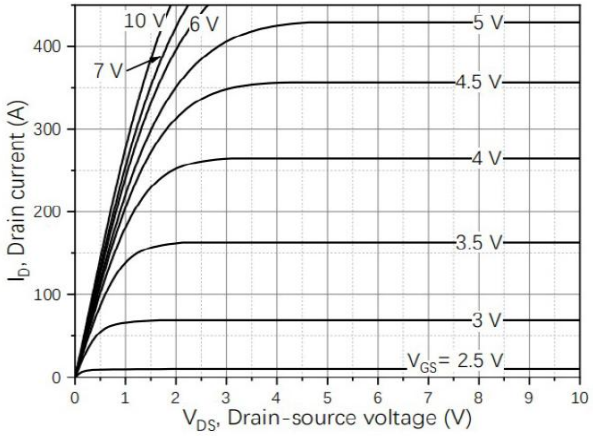


Figure1. Output Characteristics

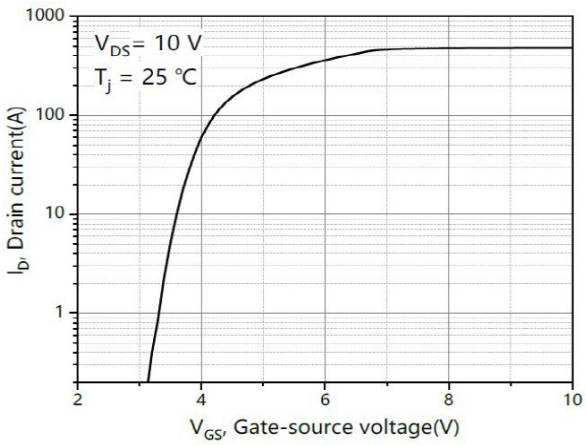


Figure2. Transfer Characteristics

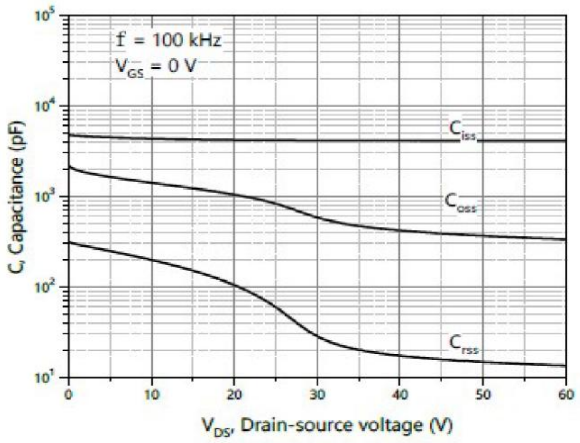


Figure3. Capacitance Characteristics

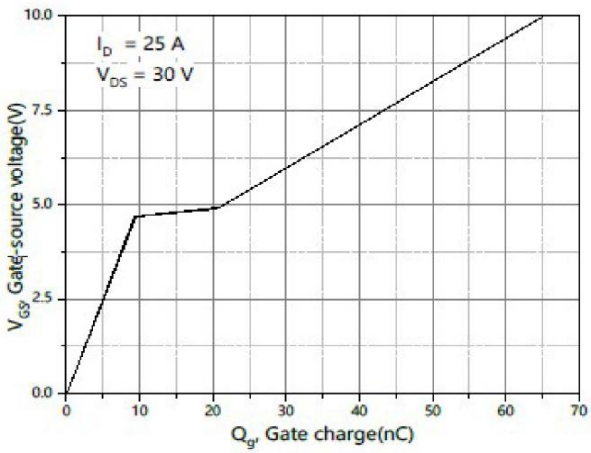


Figure4. Gate Charge

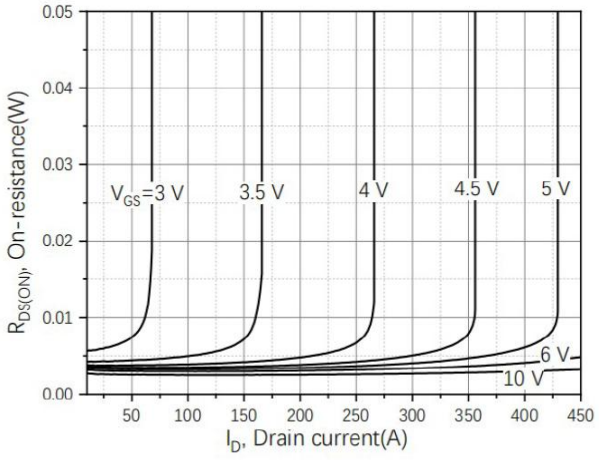


Figure5. Drain-Source on Resistance

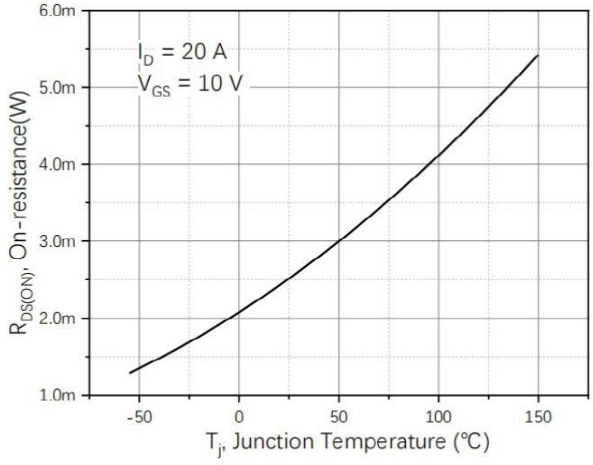


Figure6. Drain-Source on Resistance

Typical Characteristics

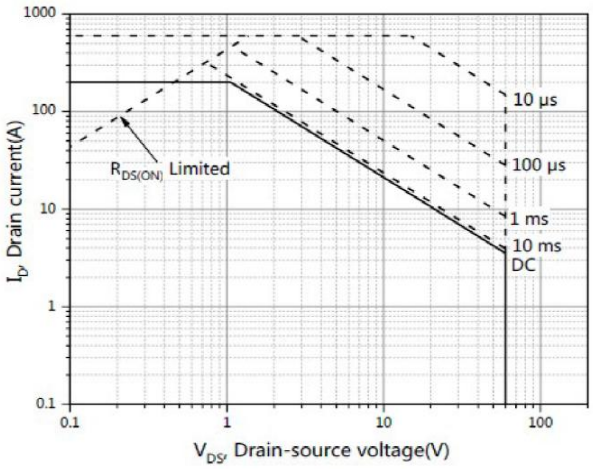


Figure7. Safe Operation Area

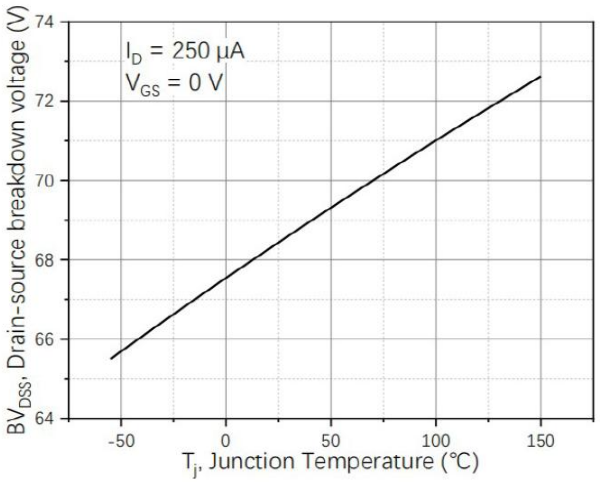


Figure8. Drain-source breakdown voltage

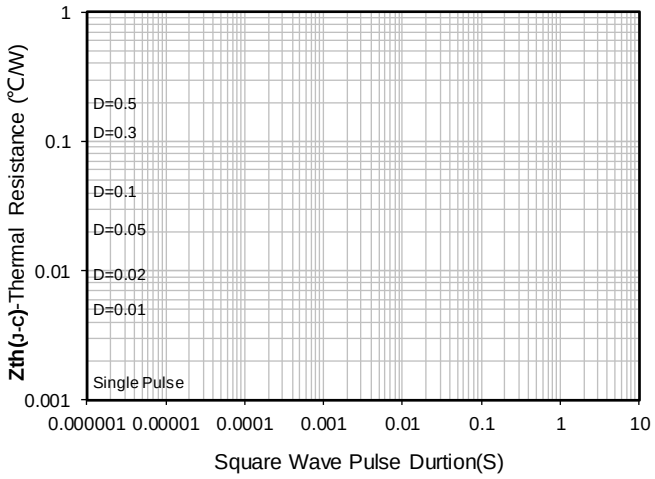
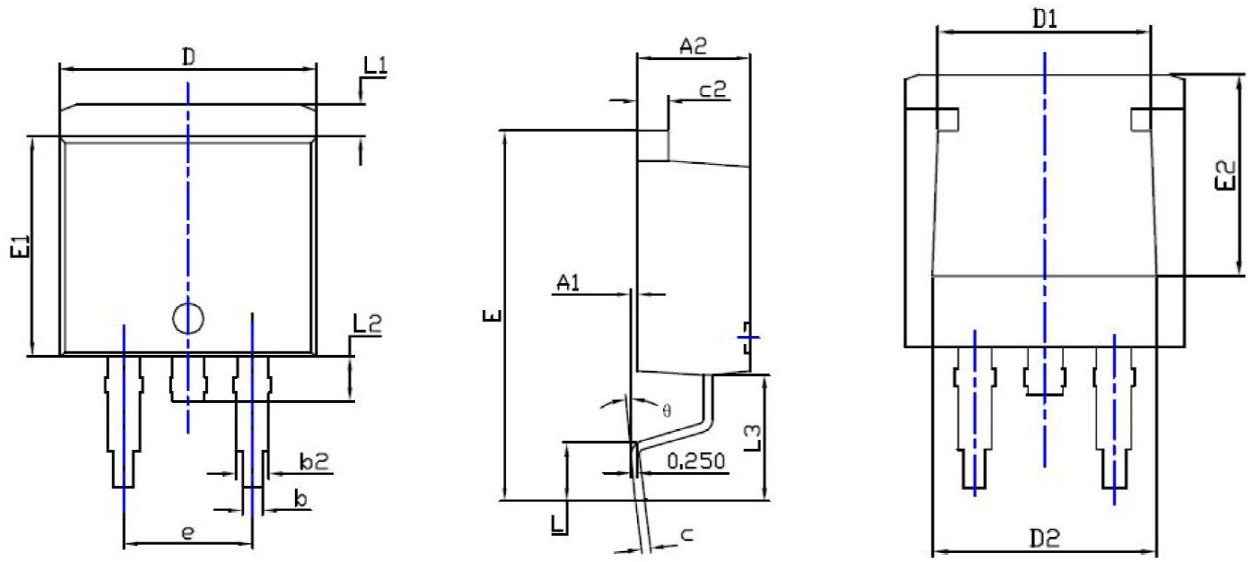


Figure 9. Maximum Transient Thermal Impedance

TO-263AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A1	0.000	0.250	0.000	0.010
A2	4.430	4.730	0.174	0.186
b	0.720	0.920	0.028	0.036
b2	1.180	1.380	0.046	0.054
c	0.330	0.450	0.013	0.018
c2	1.220	1.340	0.048	0.053
D	10.000	10.300	0.394	0.406
D1	7.500	8.100	0.295	0.319
D2	7.700	8.300	0.303	0.327
E	14.500	15.500	0.571	0.610
E1	8.550	8.850	0.337	0.348
E2	7.000	7.600	0.276	0.299
e	5.080 BSC		0.200 BSC	
L	1.790	2.790	0.070	0.110
L1	1.120	1.420	0.044	0.056
L2	0.770	1.770	0.030	0.070
L3	5.000 REF		0.197 REF	
θ	0°	8°	0°	8°