AT062SN200MQTB-Q1

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
200V	27mΩ@10V	62A

Feature

- Reliable and rugged
- Suffix “-Q1” for AEC-Q101

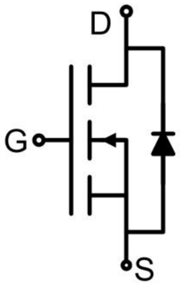
Application

- Load switching application

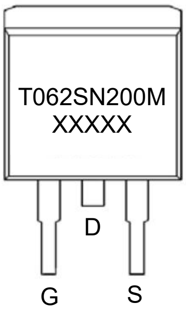
Package

TO-263AB

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	200	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	62	A
Continuous Drain Current (T_C=100℃)	I_D(100℃)	44	A
Pulsed Drain Current$^{1)}$ (t_p =10us)	I_{DM}	360	A
Single Pulse Avalanche Energy$^{2)}$	E_{AS}	784	mJ
Power Dissipation	P_D	375	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	0.4	℃/W
Operating Junction Temperature	T_J	-55 ~ +175	℃
Storage Temperature	T_{STG}	-55 ~ +175	℃

Electrical characteristics (T_C=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			1	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$^{3)}$	$R_{DS(on)}$	V_{GS} =10V, I_D =45A		22	27	mΩ
Dynamic characteristics$^{4)}$						
Input Capacitance	C_{iss}	V_{DS} =25V, V_{GS} =0V, f =1MHz		5871		pF
Output Capacitance	C_{oss}			392		
Reverse Transfer Capacitance	C_{rss}			165		
Total Gate Charge	Q_g	V_{DS} =160V, V_{GS} =10V I_D =45A		130.4		nC
Gate-Source Charge	Q_{gs}			22.1		
Gate-Drain Charge	Q_{gd}			38.2		
Turn-on delay time	$t_{d(on)}$	V_{DS} =100V, V_{GS} =10V, I_D =45A R_G =4Ω		29		nS
Turn-on rise time	t_r			45		
Turn-off delay time	$t_{d(off)}$			22		
Turn-off fall time	t_f			41		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				62	A
Diode Forward voltage$^{3)}$	V_{SD}	V_{GS} =0V, I_S =45A			1.1	V
Reverse Recovery Time	T_{rr}	I_F =45A, di/dt =-100A/μs		80		nS
Reverse Recovery Charge	Q_{rr}			160		nC

Notes:

1) Repetitive rating; pulse width limited by max. junction temperature.

2) The EAS data shows Max. rating. The test condition is R_G = 25Ω, V_{GS} = 10V, L = 0.5mH.

3) The data tested by pulsed , pulse width ≦300μs , duty cycle ≦2%.

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

Typical Characteristics

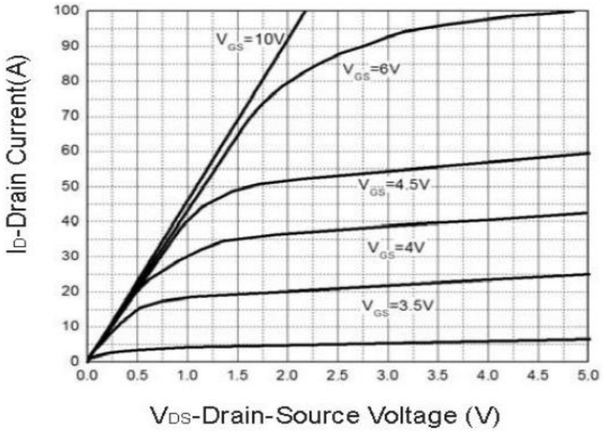


Fig 1 Typical Output Characteristics

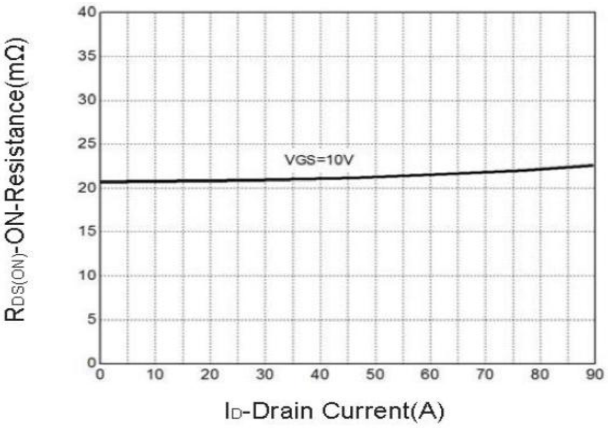


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

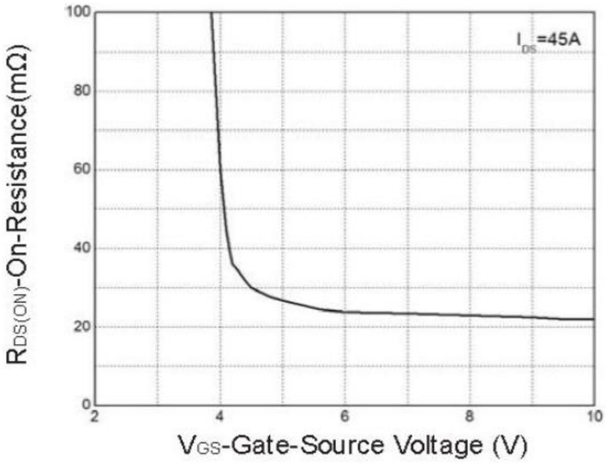


Fig 3 On-Resistance vs. Gate-Source Voltage

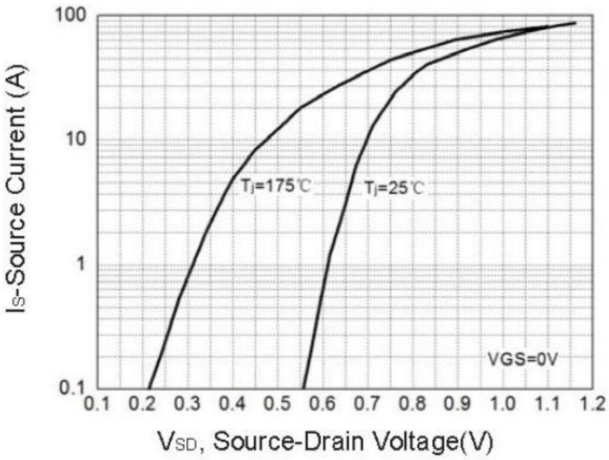


Fig 4 Body-Diode Characteristics

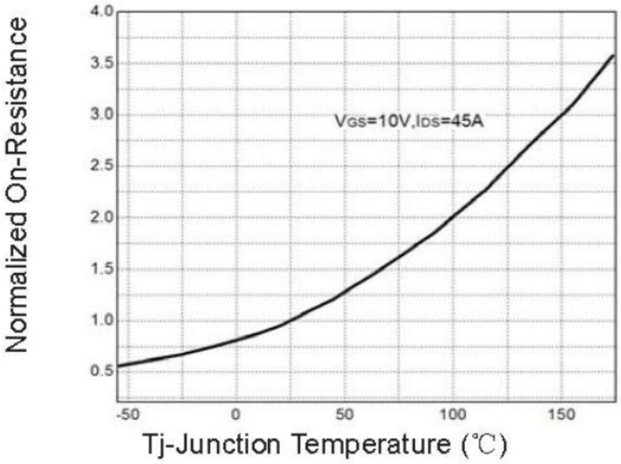


Fig 5 On-Resistance vs. Junction Temperature

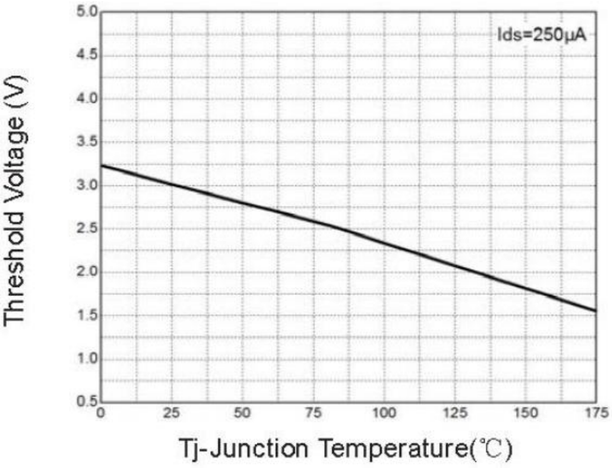


Fig 6 $V_{GS(th)}$ vs. Junction Temperature

Typical Characteristics

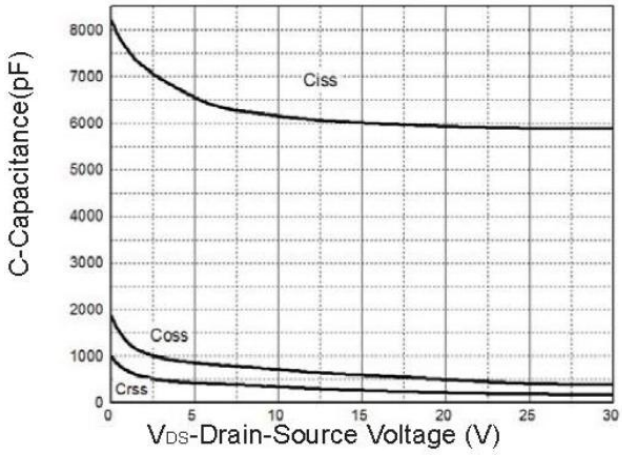


Fig 7 Capacitance Characteristics

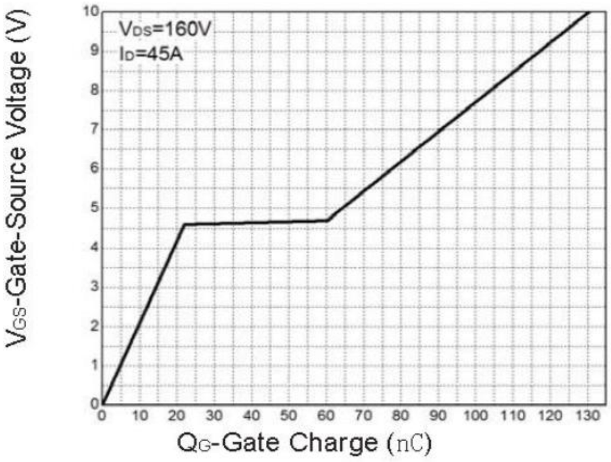


Fig 8 Gate-Charge Characteristics

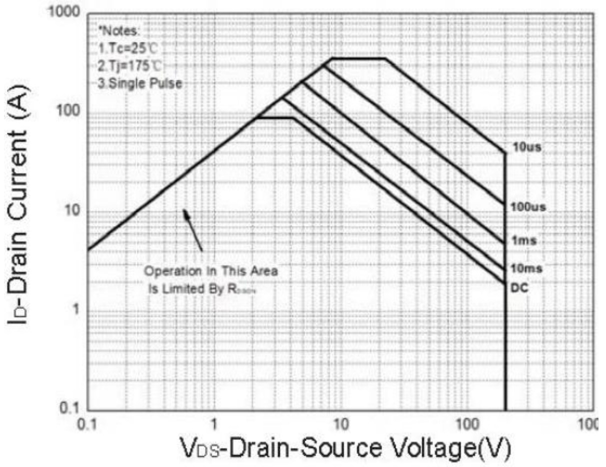


Fig 9 Safe Operation Area

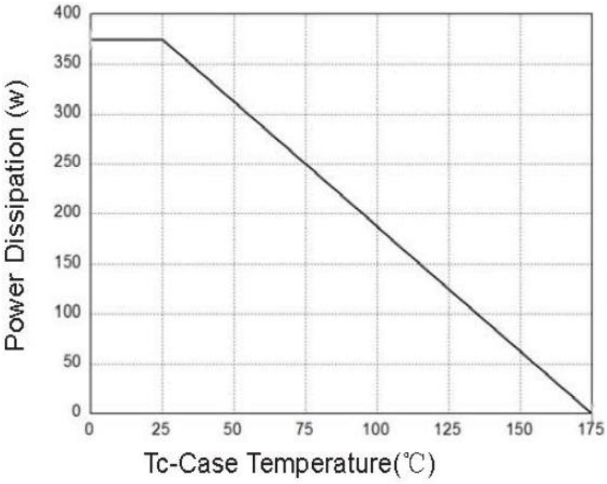
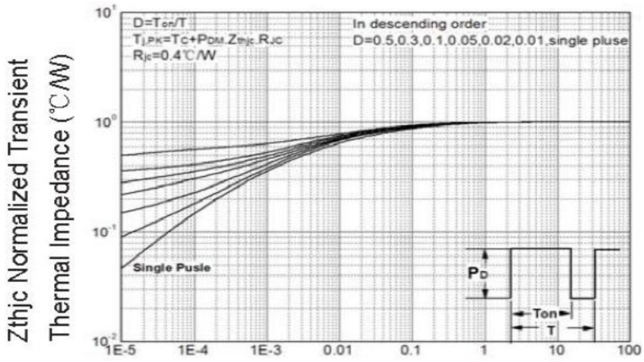


Fig 10 Power Dissipation



Maximum Effective Transient Thermal Impedance, Junction-to-Case

Fig 11 Thermal Transient Impedance

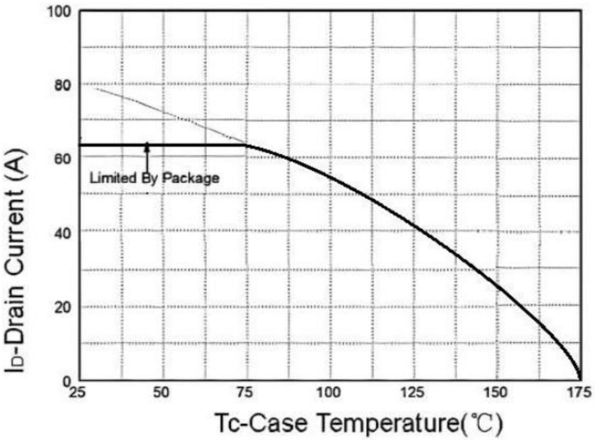
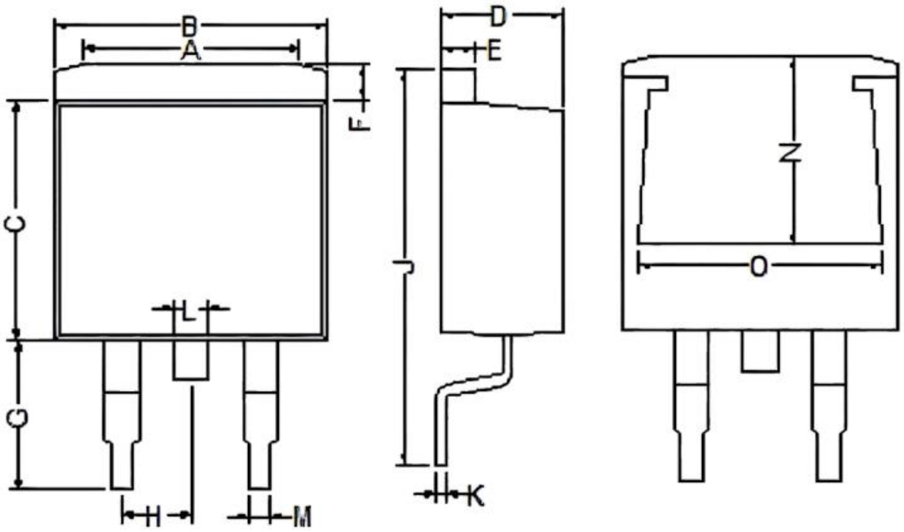


Figure 12 Maximum Continuous Drain Current vs. Case Temperature

TO-263AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	6.000	8.000	0.236	0.315
B	9.900	10.300	0.390	0.406
C	8.500	9.100	0.335	0.358
D	4.370	4.770	0.172	0.188
E	1.070	1.470	0.042	0.058
F	1.070	1.470	0.042	0.058
G	5.050	5.740	0.199	0.226
H	2.440	2.660	0.096	0.105
J	15.150	15.800	0.596	0.622
K	0.280	0.480	0.011	0.019
L	1.170	1.370	0.046	0.054
M	0.710	0.910	0.028	0.036
N	6.550	7.680	0.258	0.302
O	7.700	8.100	0.303	0.319