

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

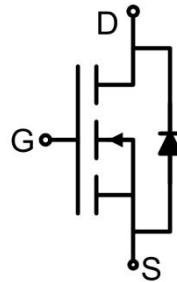
- Consumer electronic power supply
- Isolated DC-DC converters
- Motor control
- Invertors

Package

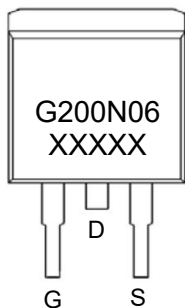


TO-263AB

Circuit diagram



Marking



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	60	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	200	A
Continuous Drain Current (100°C)	I _D (100°C)	125	A
Pulsed Drain Current	I _{DM}	600	A
Power Dissipation	P _D	260	W
Thermal Resistance from Junction to Ambient	R _{θJA}	28	°C/W
Thermal Resistance from Junction to Case	R _{θJC}	0.48	°C/W
Single pulse avalanche energy	E _{AS}	500	mJ
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

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 characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} = 25V, V _{GS} = 0V, f = 1MHz		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 _{DD} = 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 _{DS}	V _{GS} = 0V, I _S = 20A			1.2	V
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F = 25A		58		nS
Reverse Recovery Charge	Q _{rr}	di/dt = 100A/μs ¹⁾		63		nC

Notes:

- 1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.
- 2) Guaranteed by design, not subject to production testing.

Typical Characteristics

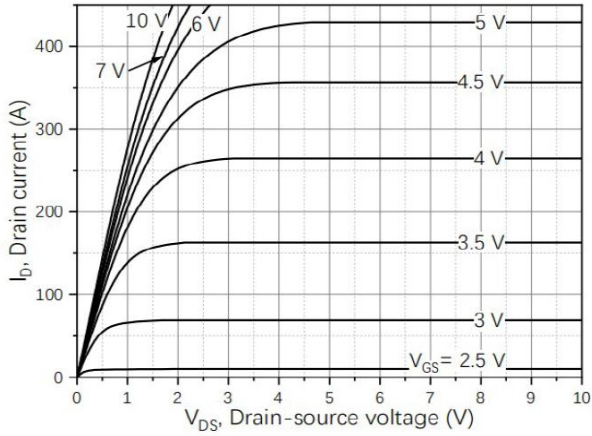


Figure1. Output Characteristics

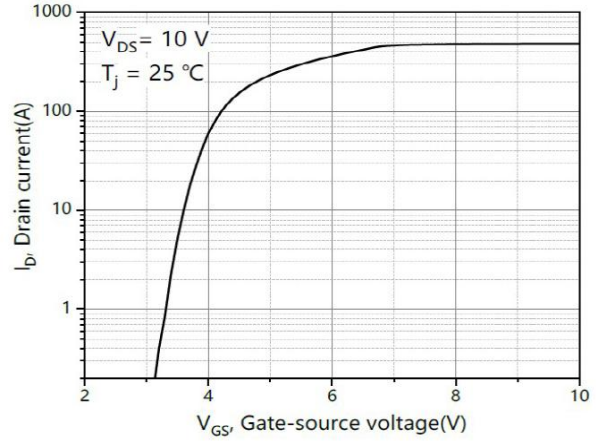


Figure2. Transfer Characteristics

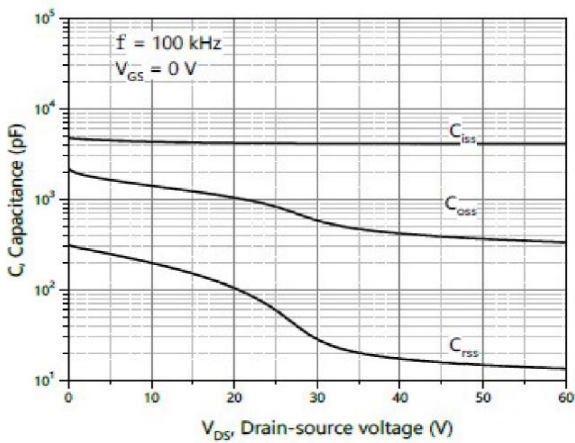


Figure3. Capacitance Characteristics

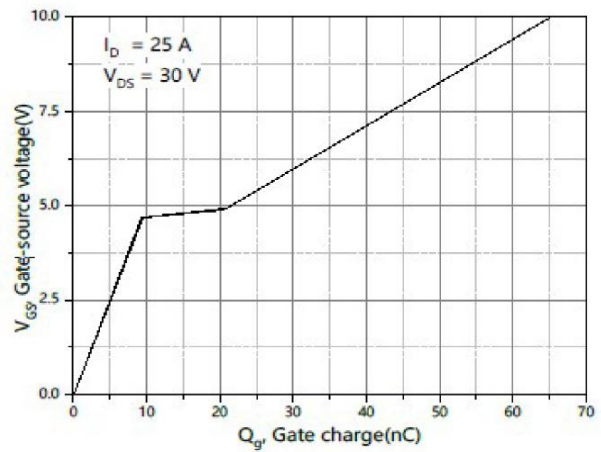


Figure4. Gate Charge

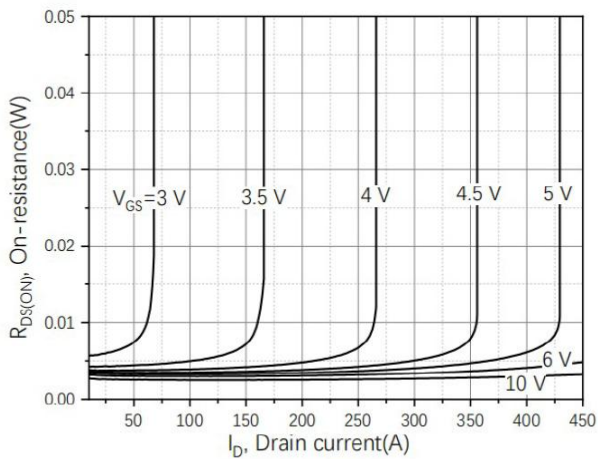


Figure5. Drain-Source on Resistance

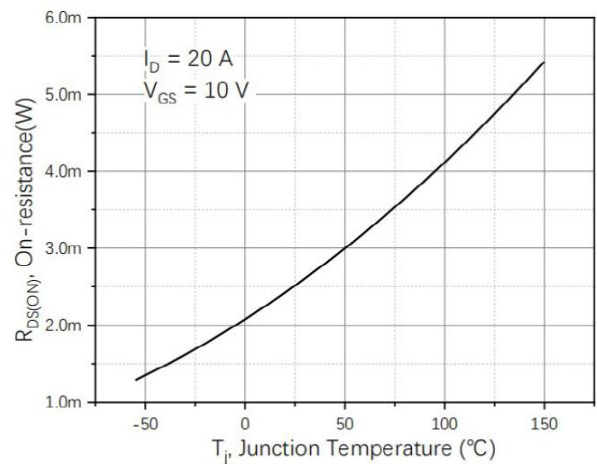


Figure6. Drain-Source on Resistance

Typical Characteristics

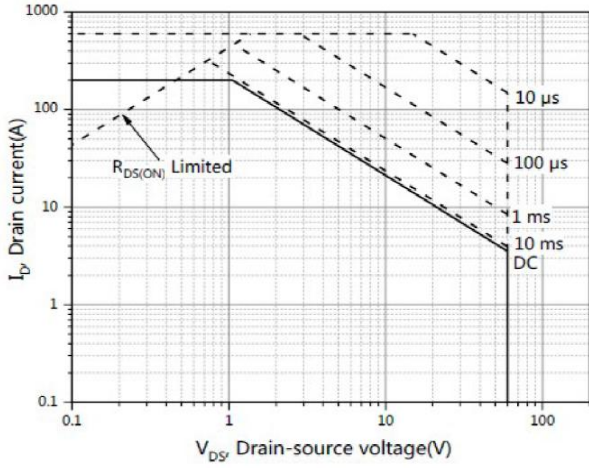


Figure7. Safe Operation Area

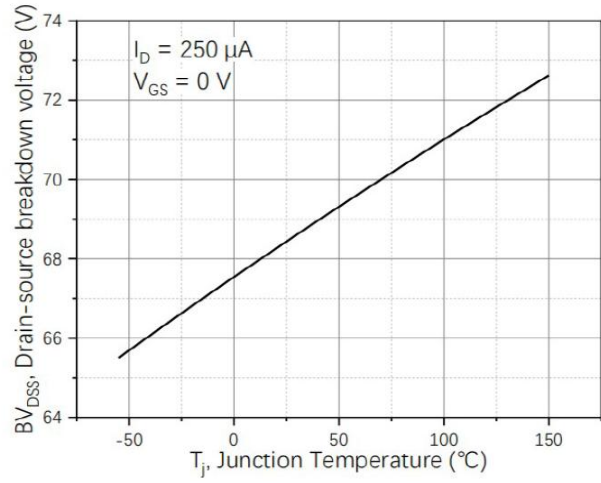
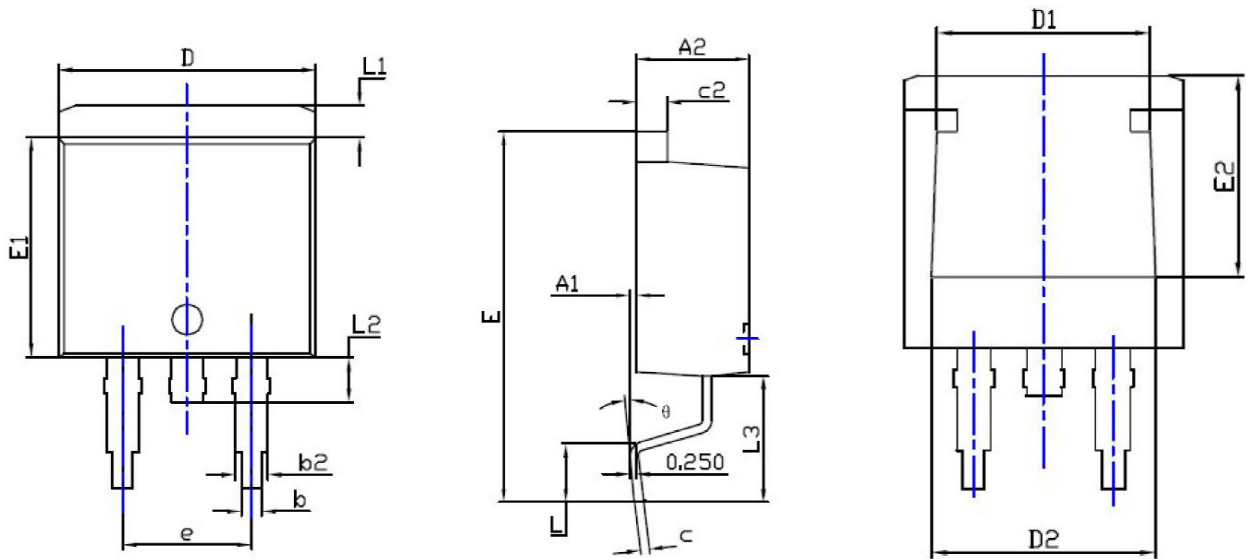


Figure8. Drain-source breakdown voltage

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°