AG210SN100MTD

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	2.5mΩ@10V	210A

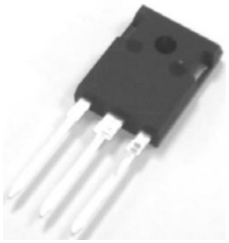
Feature

- Fast switching
- Low gate charge and $R_{DS(ON)}$
- Advanced Split Gate Trench technology

Application

- Power switching application
- DC-DC Converter
- Power management

Package



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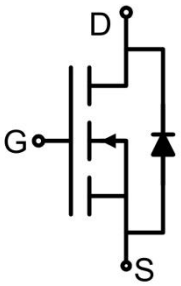
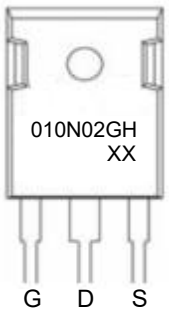
Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_C =25℃)	I_D	210	A
Continuous Drain Current (T_C =100℃)	I_D(100℃)	140	A
Pulsed Drain Current	I_{DM}	840	A
Single Pulse Avalanche Energy[1)]	E_{AS}	1650	mJ
Power Dissipation (T_C =25℃)	P_D	255	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	0.49	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_A=25℃ unless otherwise noted)

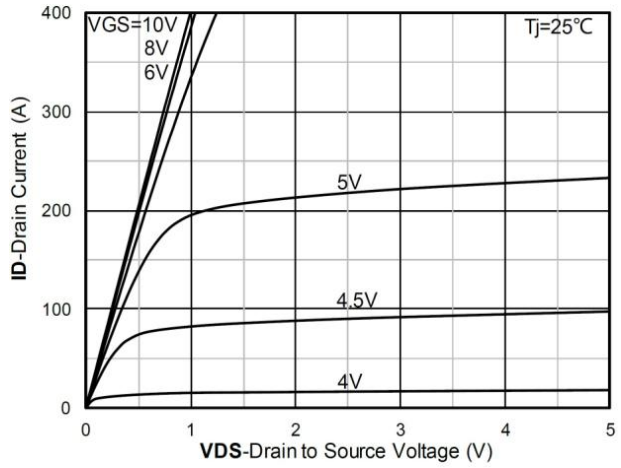
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} =0V, I_D =250μA	100			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =80V, V_{GS} =0V, T_J =25℃			1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2	3	4	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		2	2.5	mΩ
Dynamic characteristics[2)]						
Input Capacitance	C_{iss}	V_{DS} =50V, V_{GS} =0V, f =1MHz		7100		pF
Output Capacitance	C_{oss}			2673		
Reverse Transfer Capacitance	C_{rss}			65		
Total Gate Charge	Q_g	V_{DS} =50V, V_{GS} =10V, I_D =20A		100		nC
Gate-Source Charge	Q_{gs}			36		
Gate-Drain Charge	Q_{gd}			15		
Turn-on delay time	$t_{d(on)}$	V_{DS} =50V, V_{GS} =10V, I_D =20A R_G =3Ω		28		nS
Turn-on rise time	t_r			28		
Turn-off delay time	$t_{d(off)}$			52		
Turn-off fall time	t_f			20		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				210	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =1A			1.2	V
Reverse Recovery Time	T_{rr}	I_F =20A, di/dt =-100A/μs T_J =25℃		88		nS
Reverse Recovery Charge	Q_{rr}			208		nC

Notes:

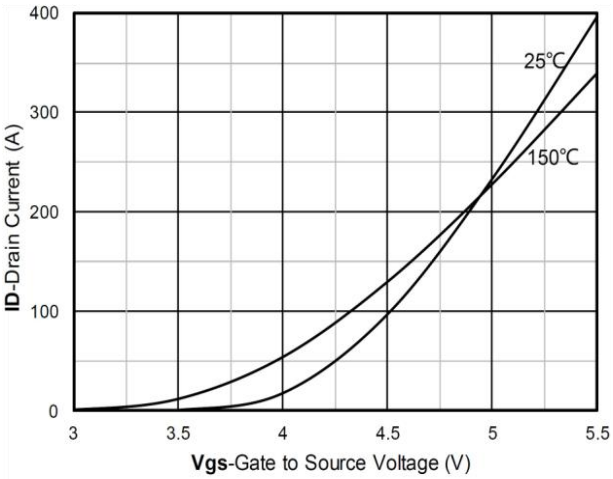
1) The test condition is V_{DD} =50V, V_{GS} =10V, L =0.5mH, R_G =25Ω.

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

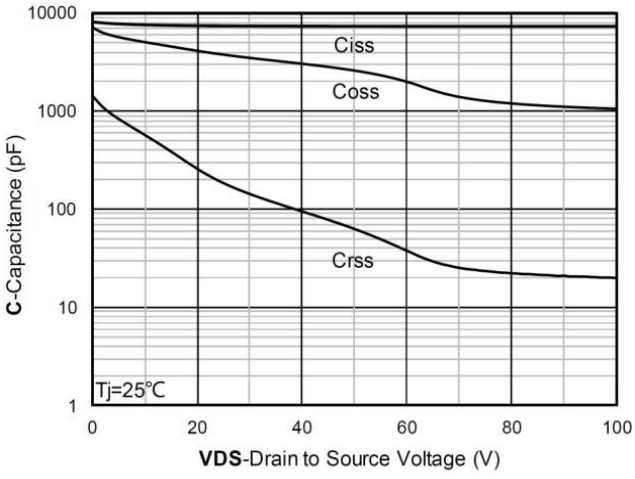
Typical Characteristics



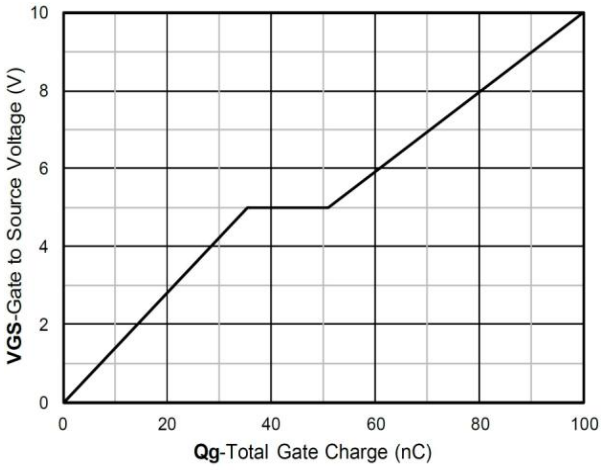
Output Characteristics



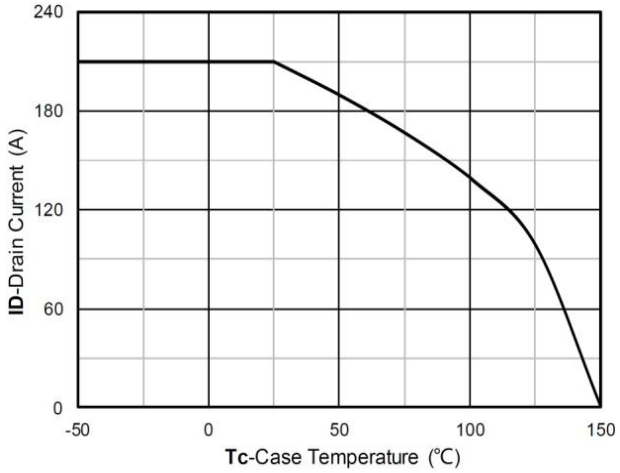
Transfer Characteristics



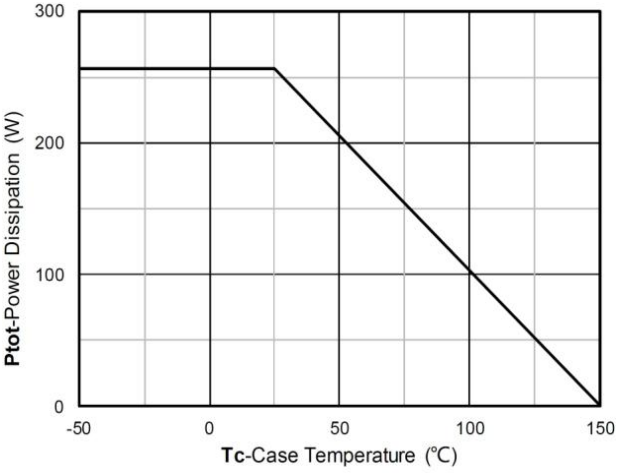
Capacitance Characteristics



Gate Charge

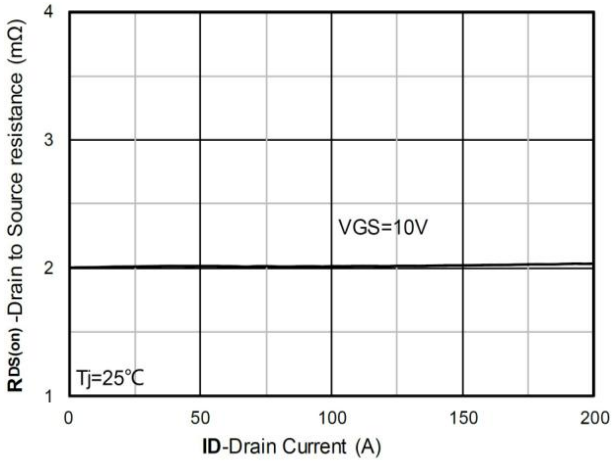


Current dissipation

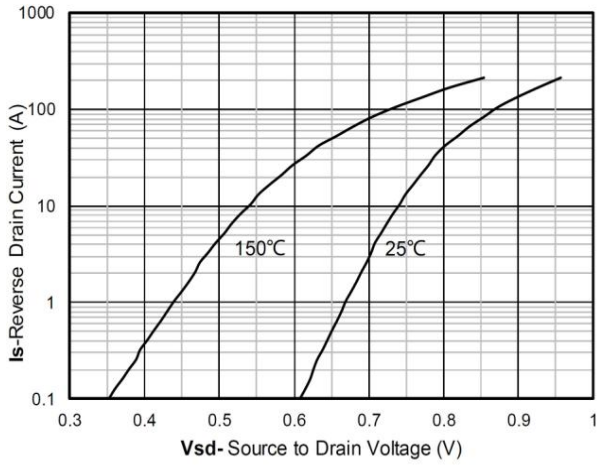


Power dissipation

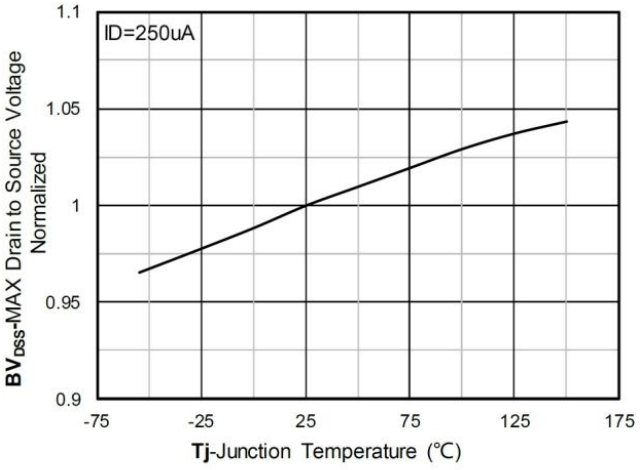
Typical Characteristics



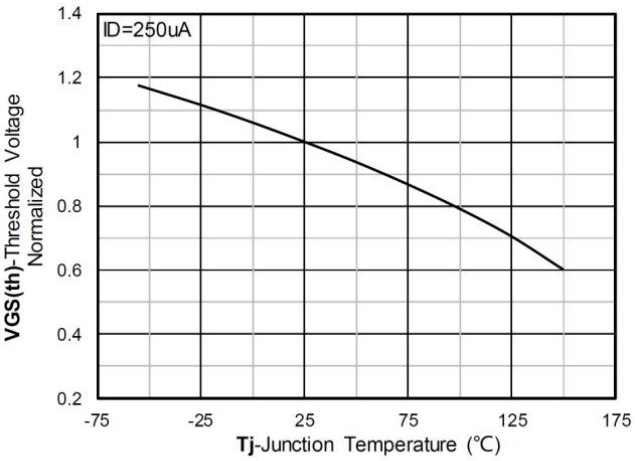
RDS(on) VS Drain Current



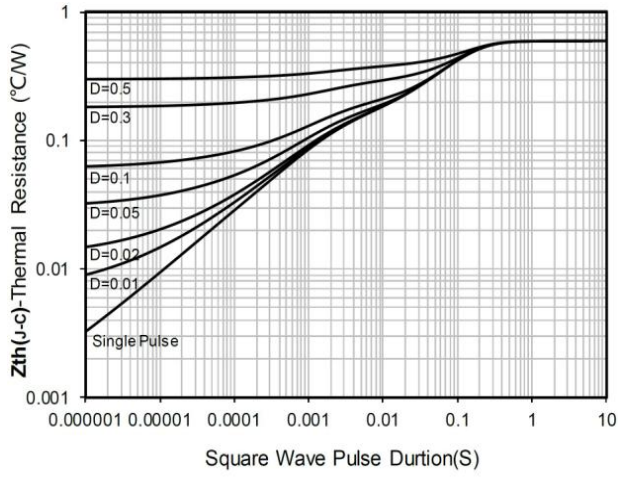
Forward characteristics of reverse diode



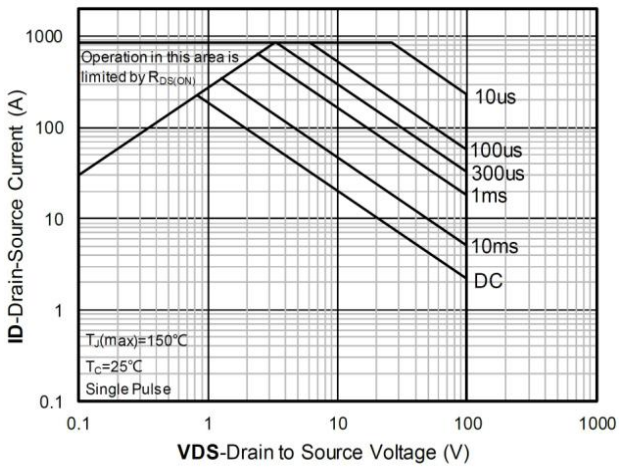
Normalized breakdown voltage



Normalized Threshold voltage

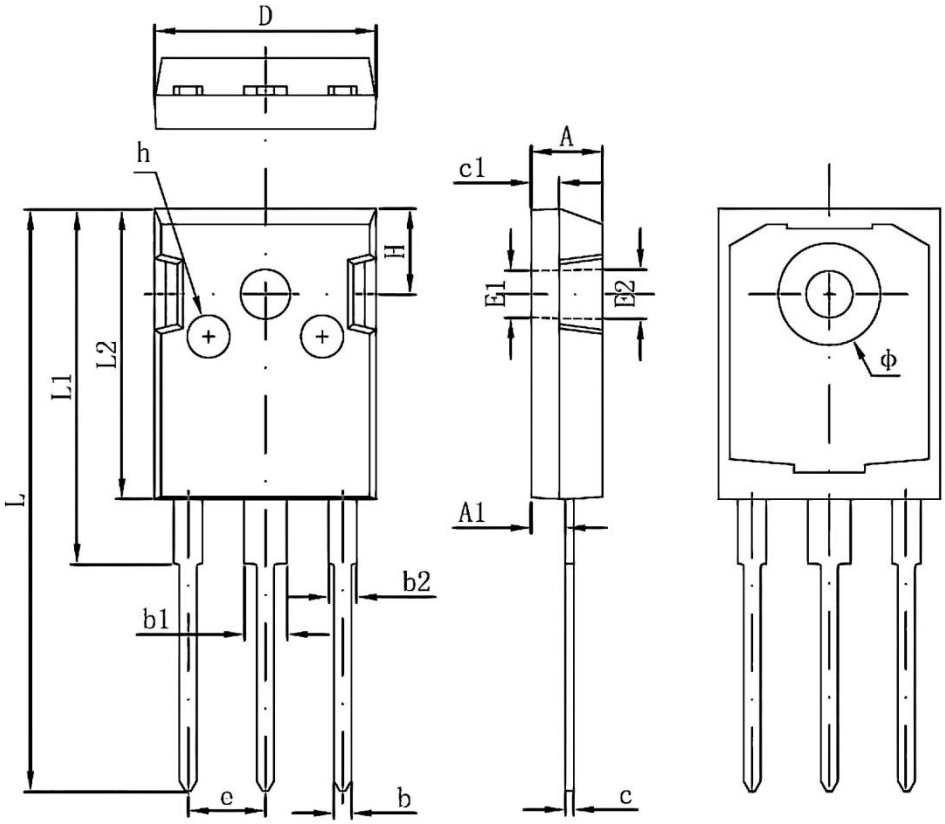


Maximum Transient Thermal Impedance



Safe Operation Area

TO-247AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.850	5.150	0.191	0.200
A1	2.200	2.600	0.087	0.102
b	1.000	1.400	0.039	0.055
b1	2.800	3.200	0.110	0.126
b2	1.800	2.200	0.071	0.087
c	0.500	0.700	0.020	0.028
c1	1.900	2.100	0.075	0.083
D	15.450	15.750	0.608	0.620
E1	3.500 REF.		0.138 REF.	
E2	3.600 REF.		0.142 REF.	
L	40.900	41.300	1.610	1.626
L1	24.800	25.100	0.976	0.988
L2	20.300	20.600	0.799	0.811
ϕ	7.100	7.300	0.280	0.287
e	5.450 TYP.		0.215 TYP.	
H	5.980 REF.		0.235 REF.	
h	0.000	0.300	0.000	0.012