AGR026N08S-Q1

N-Channel Super Trench Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
85V	2.6mΩ@10V	250A

Feature

- Excellent gate charge x $R_{DS(on)}$ product
- Very low on-resistance $R_{DS(on)}$
- Suffix "-Q1" for AEC-Q101

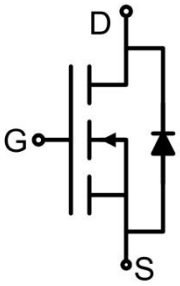
Application

- DC/DC Converter
- Ideal for high-frequency switching and synchronous rectification

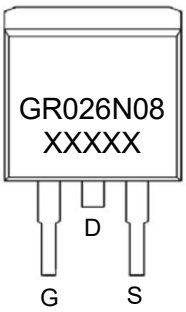
Package

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_{DS}	85	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	250	A
Continuous Drain Current(T_C =100℃)	I_D(100℃)	180	A
Pulsed Drain Current	I_{DM}	1000	A
Power Dissipation	P_D	300	W
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	0.5	℃/W
Single pulse avalanche energy[1)]	E_{AS}	2000	mJ
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

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	85			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =85V,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	2.5	3.5	4.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =100A		2.2	2.6	mΩ
Dynamic characteristics[2)]						
Input Capacitance	C_{iss}	V_{DS} =40V,V_{GS} =0V,f =1MHz		10700		pF
Output Capacitance	C_{oss}			1700		
Reverse Transfer Capacitance	C_{rss}			76		
Total Gate Charge	Q_g	V_{DS} =40V,V_{GS} =10V,I_D =100A		142		nC
Gate-Source Charge	Q_{gs}			56		
Gate-Drain Charge	Q_{gd}			24		
Turn-on delay time	$t_{d(on)}$	V_{DD}=40V,V_{GS}=10V, I_D =100A,R_G=1.6Ω		28		nS
Turn-on rise time	t_r			73		
Turn-off delay time	$t_{d(off)}$			86		
Turn-off fall time	t_f			33		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				250	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_F =I_S			1.2	V
Reverse Recovery Time	t_{rr}	T_J = 25°C, I_F =I_S di/dt = 100A/μs		115		nS
Reverse Recovery Charge	Q_{rr}			320		nC

Notes:

1) EAS condition : Tj=25℃,V_{DD}=40V,V_G=10V,L=0.5mH,Rg=25Ω.

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

3) These curves are based on the junction-to-case thermal impedance which is measured with the device mounted to a large heatsink, assuming a maximum junction temperature of TJ(MAX)=175°C. The SOA curve provides a single pulse rating.

Typical Characteristics

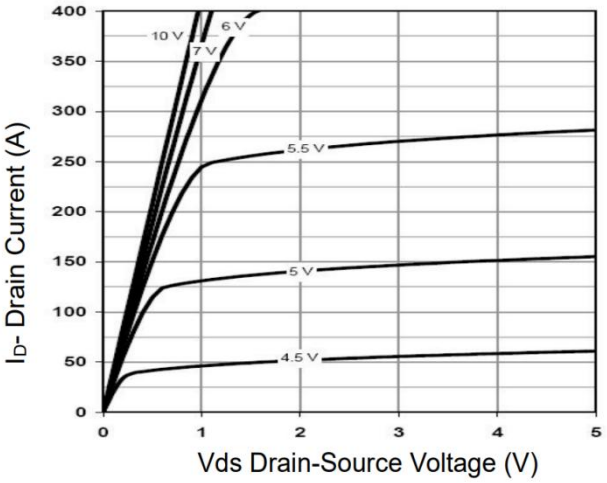


Figure 1 Output Characteristics

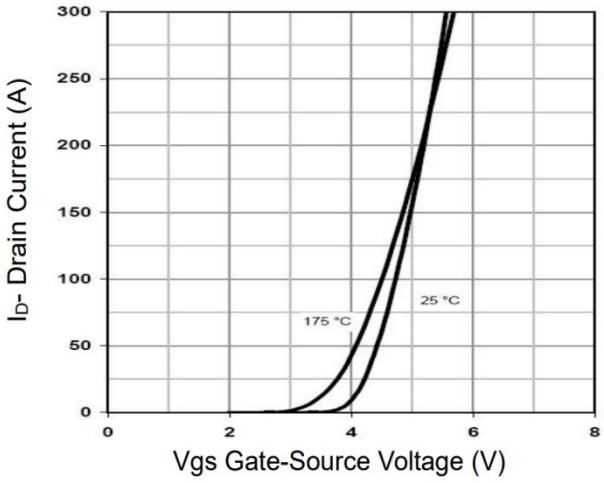


Figure 2 Transfer Characteristics

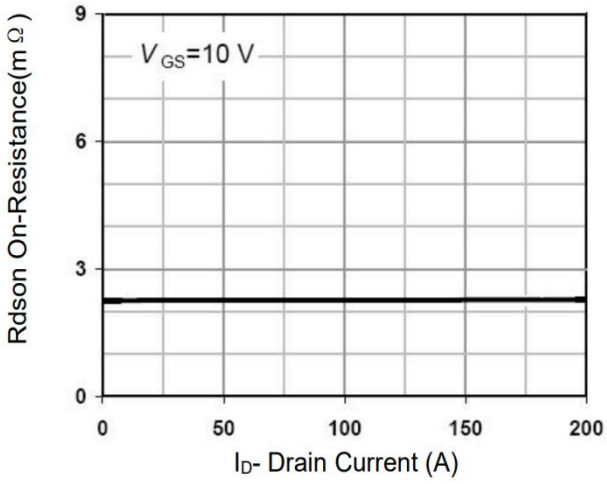


Figure 3 Rdson- Drain Current

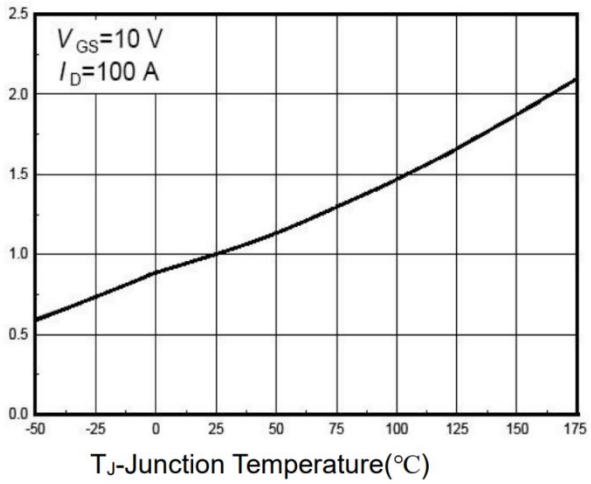


Figure 4 Rdson-JunctionTemperature

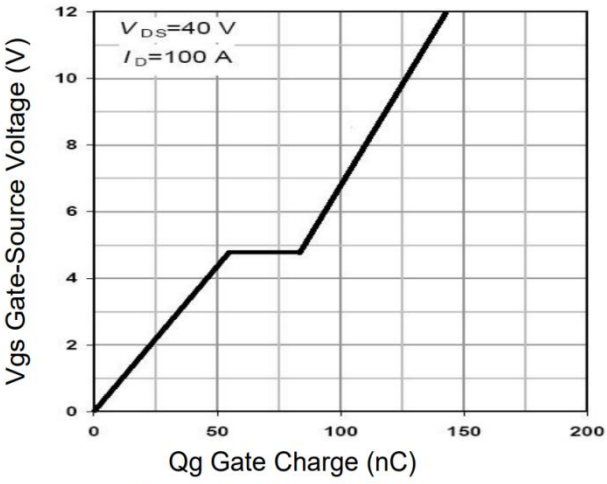


Figure 5 Gate Charge

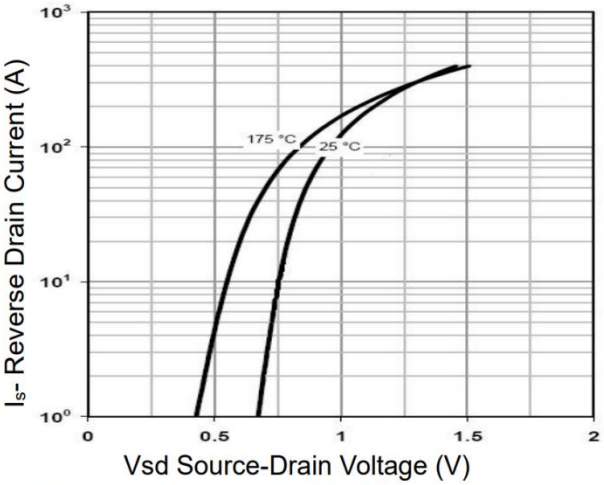


Figure 6 Source- Drain Diode Forward

Typical Characteristics

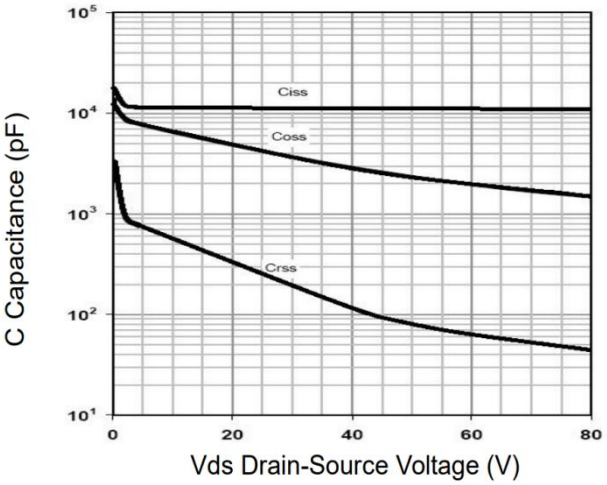


Figure 7 Capacitance vs Vds

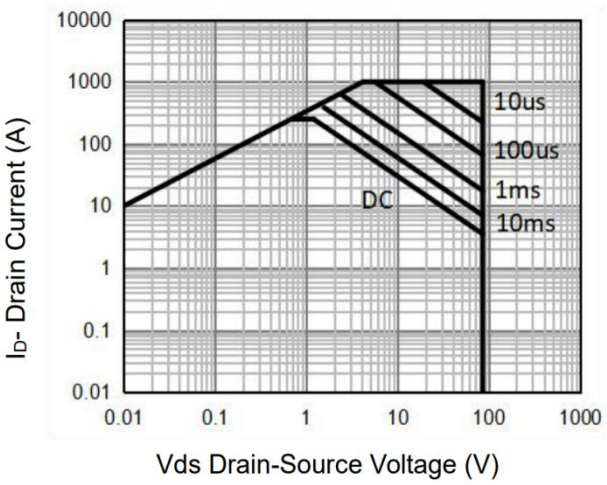


Figure 8 Safe Operation Area(Note 3)

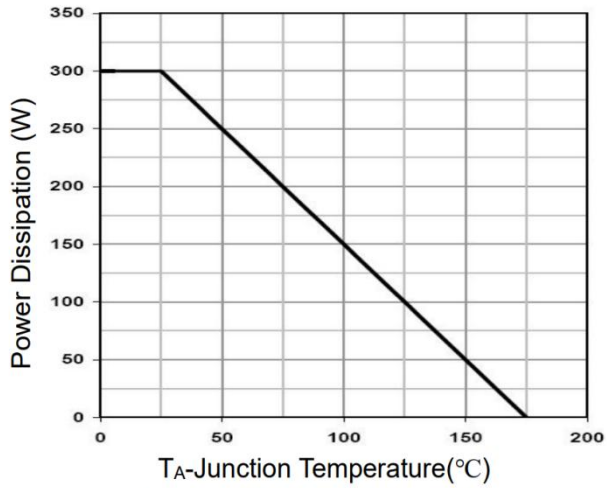


Figure 9 Power De-rating

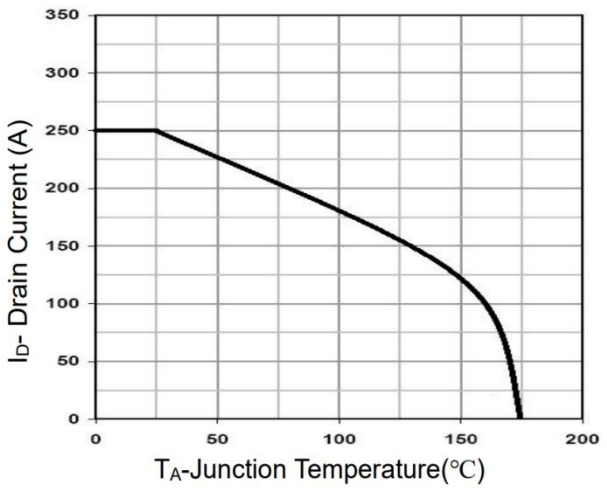


Figure 10 Current De-rating

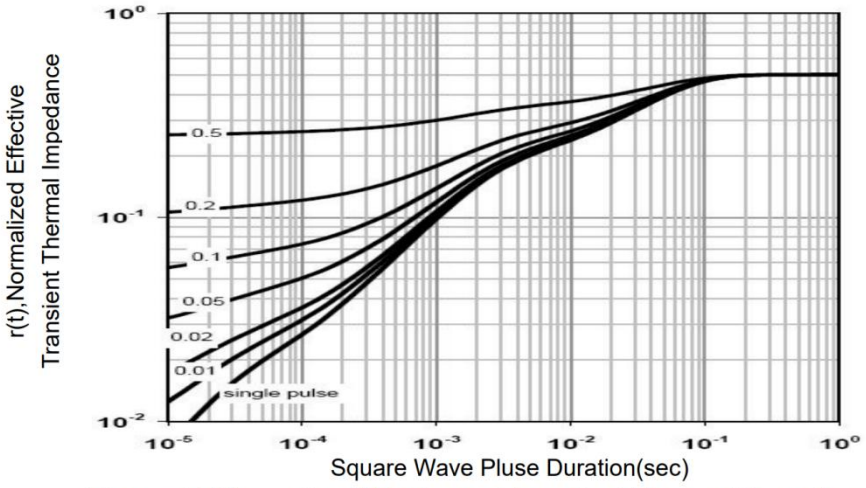
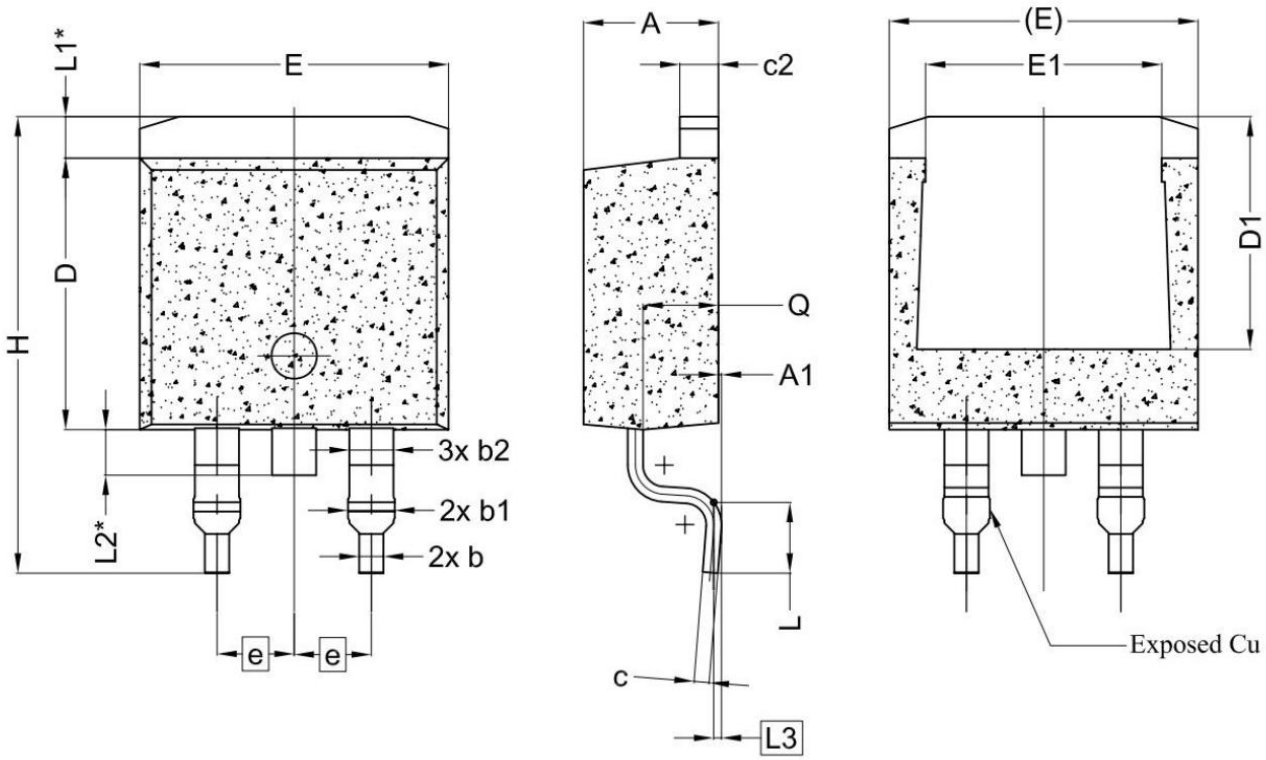


Figure 11 Normalized Maximum Transient Thermal Impedance

TO-263AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.240	4.640	0.167	0.183
A1	0.000	0.250	0.000	0.010
b	0.700	0.900	0.028	0.035
b1	1.200	1.750	0.047	0.069
b2	1.200	1.700	0.047	0.067
c	0.400	0.600	0.016	0.024
c2	1.150	1.400	0.045	0.055
D	8.820	9.020	0.347	0.355
D1	6.860	-	0.270	-
E	9.960	10.360	0.392	0.408
E1	6.890	7.890	0.271	0.311
e	2.540 BSC		0.100 BSC	
H	14.610	15.880	0.575	0.625
L	1.780	2.790	0.070	0.110
L1	1.360 REF		0.054 REF	
L2	1.500 REF		0.059 REF	
L3	0.250 BSC		0.010 BSC	
Q	2.300	2.700	0.091	0.106