AGR064N15S

N-Channel Super Trench Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
150V	6.4mΩ@10V	140A

Feature

- Excellent gate charge x $R_{DS(on)}$ product
- Very low on-resistance $R_{DS(on)}$

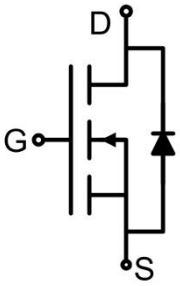
Application

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

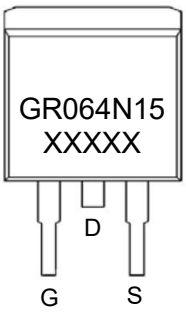
Package

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}	150	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	140	A
Continuous Drain Current(T_C =100℃)	I_D(100℃)	100	A
Pulsed Drain Current	I_{DM}	560	A
Power Dissipation	P_D	320	W
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	0.47	℃/W
Single pulse avalanche energy[1)]	E_{AS}	1296	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	150			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =150V,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	3	4	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =70A		5.6	6.4	mΩ
Dynamic characteristics[2)]						
Input Capacitance	C_{iss}	V_{DS} =75V,V_{GS} =0V,f =1MHz		6000		pF
Output Capacitance	C_{oss}			690		
Reverse Transfer Capacitance	C_{rss}			24		
Total Gate Charge	Q_g	V_{DS} =75V,V_{GS} =10V,I_D =70A		80		nC
Gate-Source Charge	Q_{gs}			32		
Gate-Drain Charge	Q_{gd}			22		
Turn-on delay time	$t_{d(on)}$	V_{DD}=75V,V_{GS}=10V, I_D =70A,R_G=4.7Ω		26		nS
Turn-on rise time	t_r			36		
Turn-off delay time	$t_{d(off)}$			47		
Turn-off fall time	t_f			15		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				140	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		146		nS
Reverse Recovery Charge	Q_{rr}			485		nC

Notes:

1) EAS condition : T_j=25℃,V_{DD}=50V,V_G=10V,L=0.5mH,R_g=25Ω.

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

Typical Characteristics

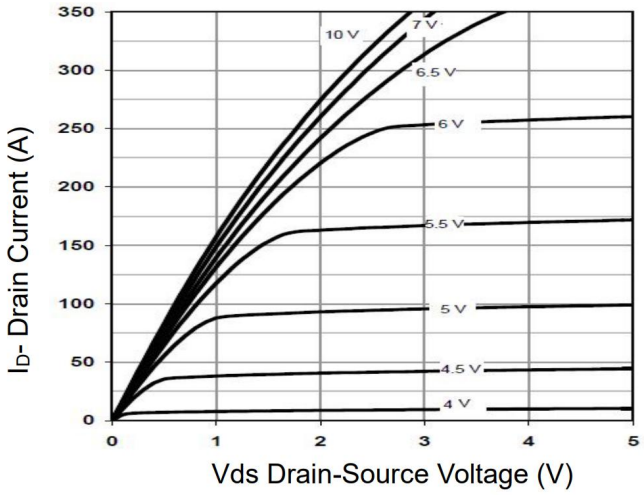


Figure 1 Output Characteristics

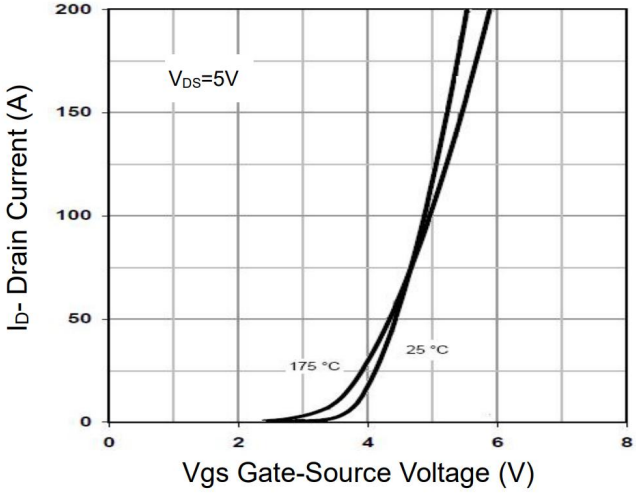


Figure 2 Transfer Characteristics

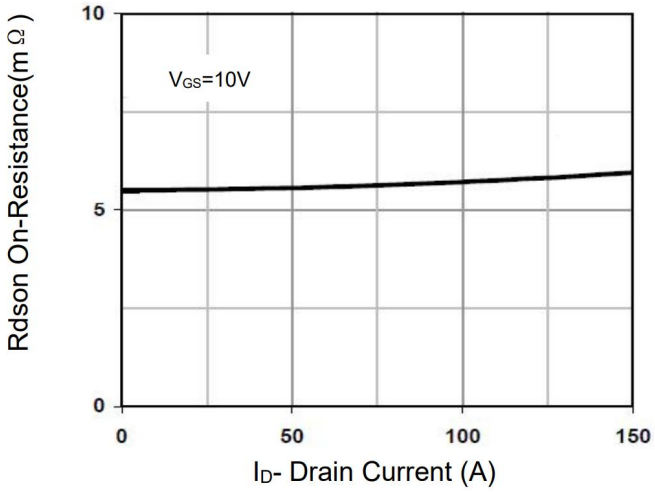


Figure 3 Rdson- Drain Current

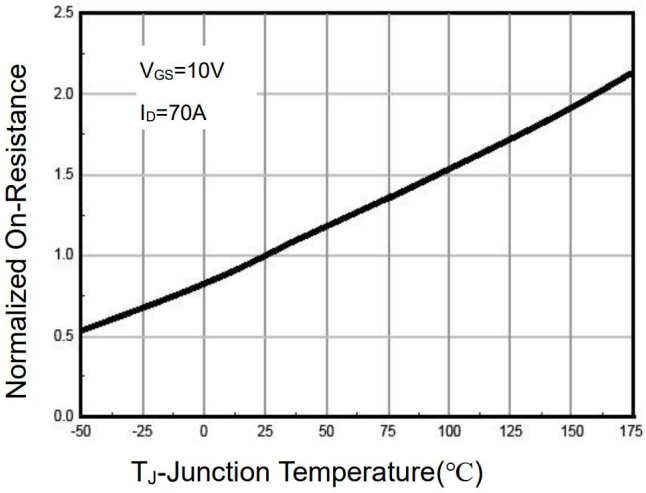


Figure 4 Rdson-JunctionTemperature

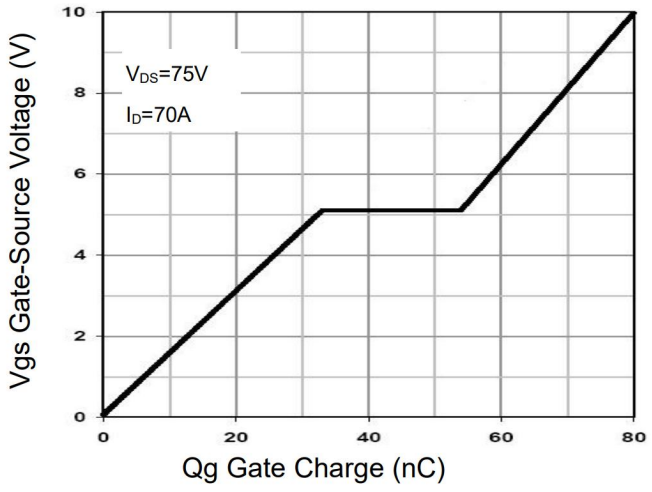


Figure 5 Gate Charge

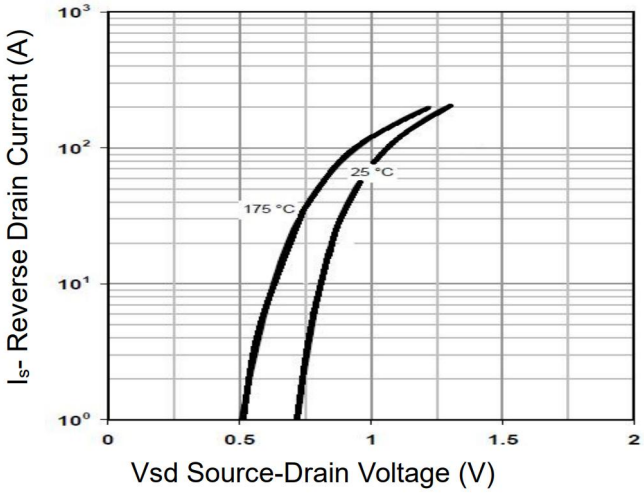


Figure 6 Source- Drain Diode Forward

Typical Characteristics

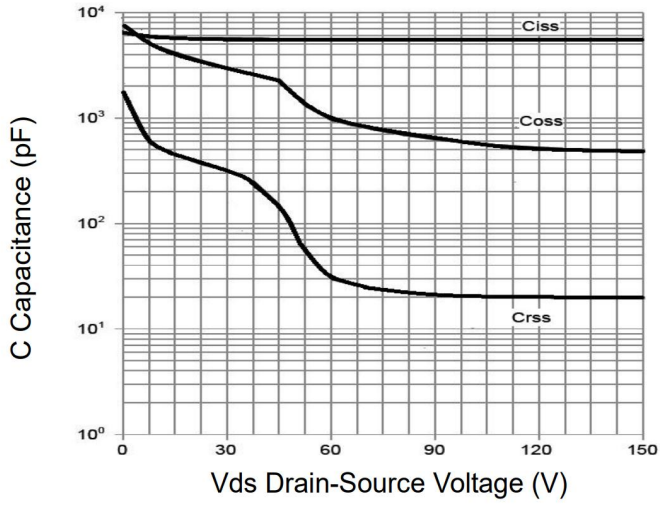


Figure 7 Capacitance vs Vds

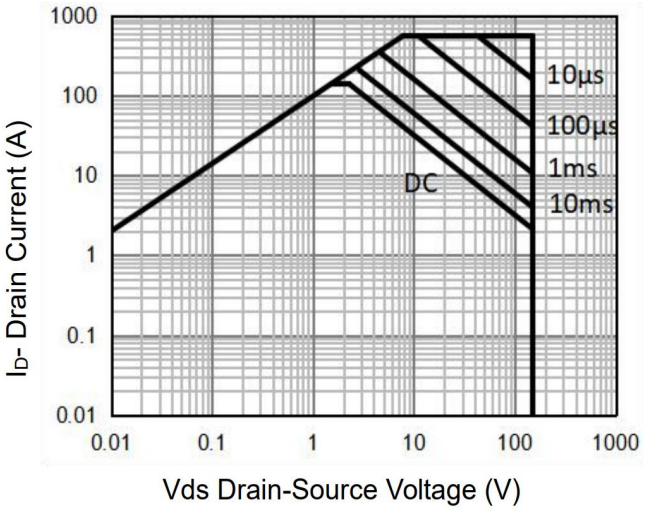


Figure 8 Safe Operation Area

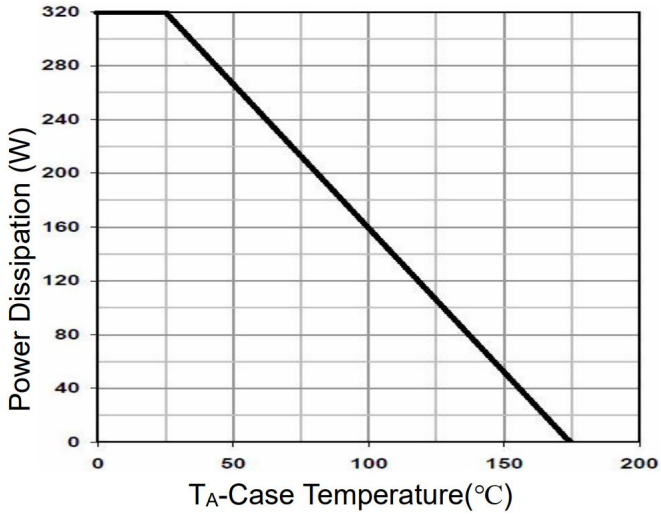


Figure 9 Power De-rating

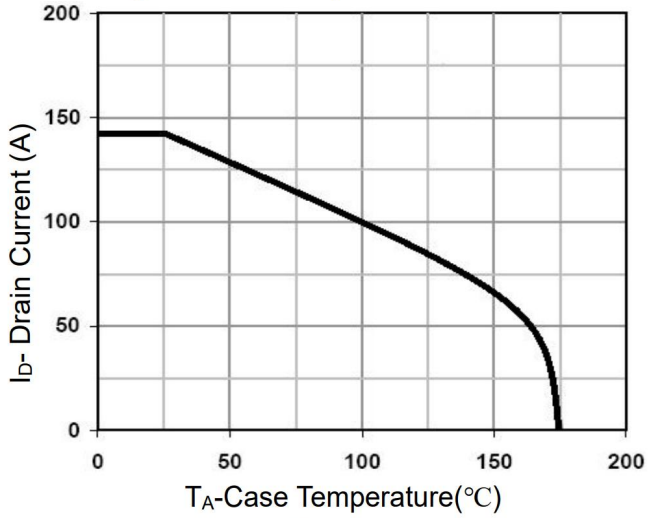


Figure 10 Current De-rating

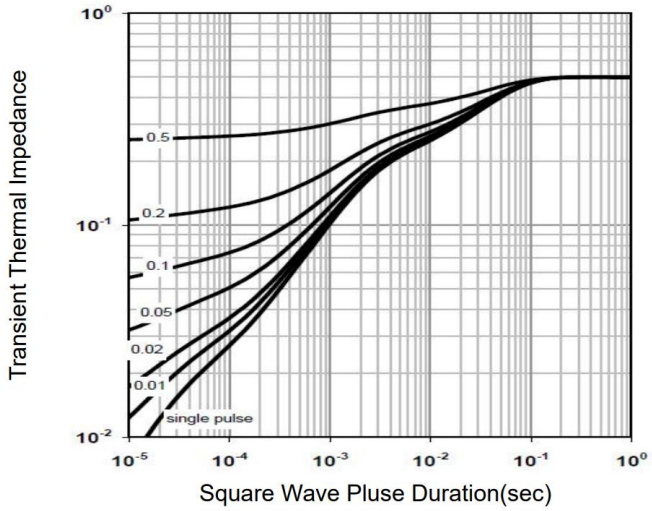
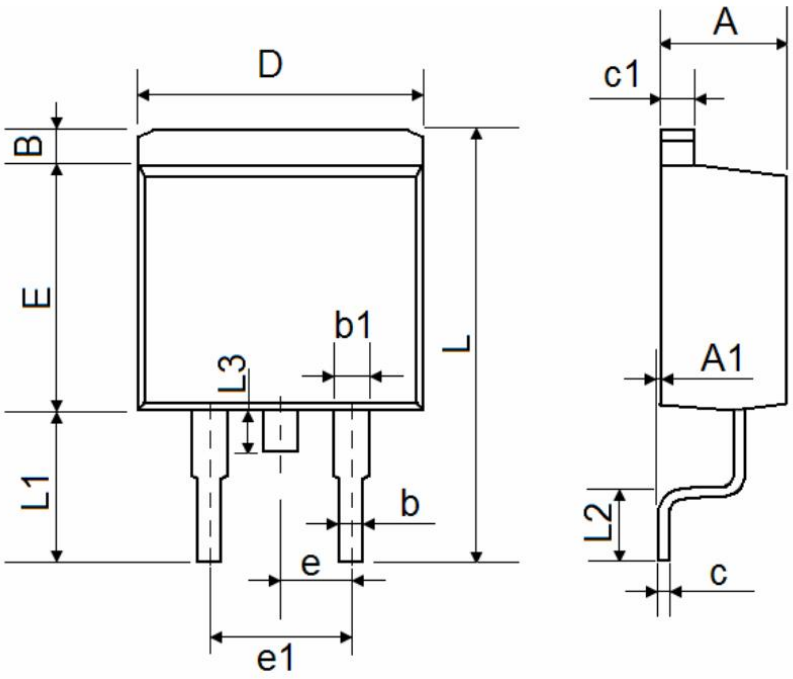


Figure 11 Normalized Maximum Transient Thermal Impedance

TO-263AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.200	4.670	0.165	0.184
A1	0.000	0.250	0.000	0.010
B	1.360 REF.		0.054 REF.	
b	0.700	0.910	0.028	0.036
b1	1.170	1.750	0.046	0.069
c	0.310	0.600	0.012	0.024
c1	1.150	1.400	0.045	0.055
D	9.800	10.360	0.386	0.408
E	8.500	9.300	0.335	0.366
e	2.540 BSC.		0.100 BSC.	
e1	5.080 BSC.		0.200 BSC.	
L	14.610	15.880	0.575	0.625
L1	4.400	6.000	0.173	0.236
L2	1.780	2.790	0.070	0.110
L3	1.500 REF.		0.059 REF.	