AH35N03S

N-Channel Enhancement Mode Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	6.5mΩ@10V	55A
	12mΩ@4.5V	

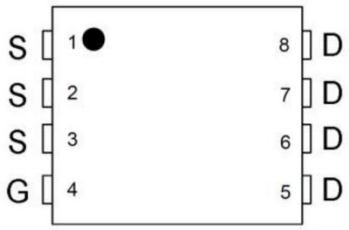
Feature

- Trench Power LV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

Application

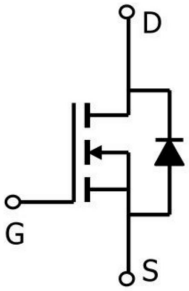
- High current load applications
- Load switching
- Hard switched and high frequency circuits
- Uninterruptible power supply

Package

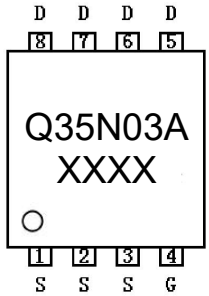


PDFN3.3*3.3-8L

Circuit diagram



Marking



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N-Channel Enhancement Mode Power MOSFET

Absolute maximum ratings (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_C =25℃)	I_D	55	A
Continuous Drain Current (T_C =100℃)	I_D(100℃)	34	
Pulsed Drain Current[1]	I_{DM}	200	A
Power Dissipation[3] (T_C =25℃)	P_D	41	W
Single pulse avalanche energy[2]	E_{AS}	72	mJ
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	3	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_J=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	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =30V,V_{GS} = 0V			1	μA
		V_{DS} =30V,V_{GS} = 0V,T_J =150℃			100	
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	1.0	1.5	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		4.9	6.5	mΩ
		V_{GS} =4.5V, I_D =15A		8.7	12	
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS} =15V,V_{GS} =0V,f =1MHz		1045		pF
Output Capacitance	C_{oss}			180		
Reverse Transfer Capacitance	C_{rss}			155		
Gate resistance	R_G	f =1MHz		2.5		Ω
Total Gate Charge	Q_g	V_{DS} =15V,V_{GS} =10V, I_D =20A		24		nC
Gate-Source Charge	Q_{gs}			5		
Gate-Drain Charge	Q_{gd}			6		
Turn-on delay time	$t_{d(on)}$	V_{DD}=15V,V_{GS}=10V, I_D=20A,R_{GEN}=3Ω		11		nS
Turn-on rise time	t_r			55		
Turn-off delay time	$t_{d(off)}$			27		
Turn-off fall time	t_f			66		
Source-Drain Diode characteristics						
Diode Forward current	I_S				55	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S=20A			1.2	V
Reverse recovery time	t_{rr}	I_F=20A, di/dt=100A/μs		10		nS
Reverse recovery charge	Q_{rr}			0.66		nC

Notes:

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

2) T_J=25℃, V_{DD}=25V, V_G=10V, R_G=25Ω, L=1mH, IAS=12A.

3) Pd is based on max. junction temperature, using junction-case and junction-ambient thermal resistance.

4) Guaranteed by design, not subject to production.

Typical Characteristics

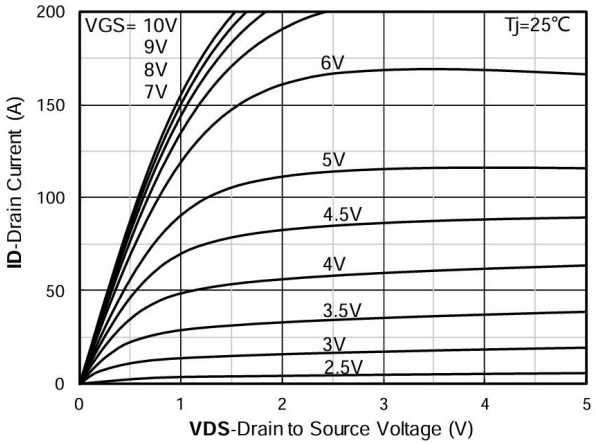


Figure 1. Output Characteristics

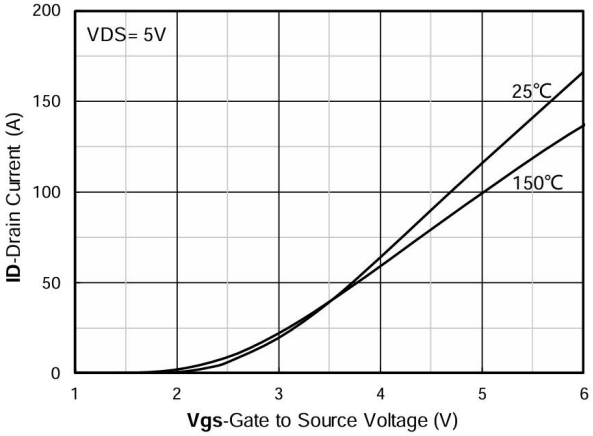


Figure 2. Transfer Characteristics

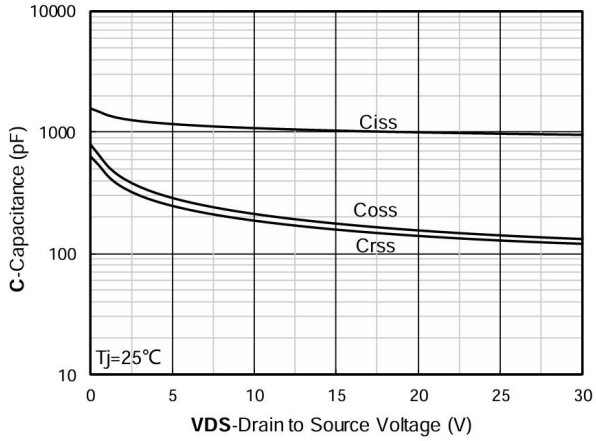


Figure 3. Capacitance Characteristics

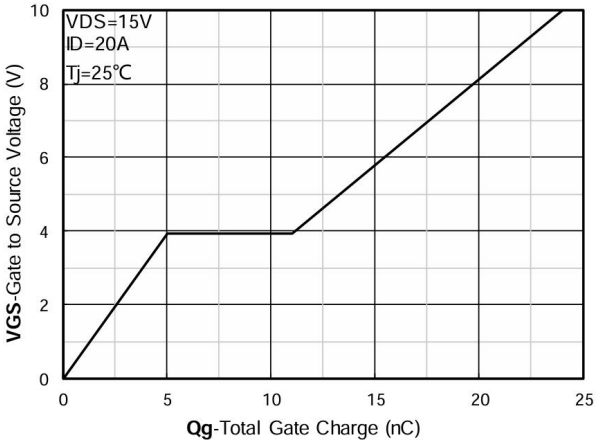


Figure 4. Gate Charge

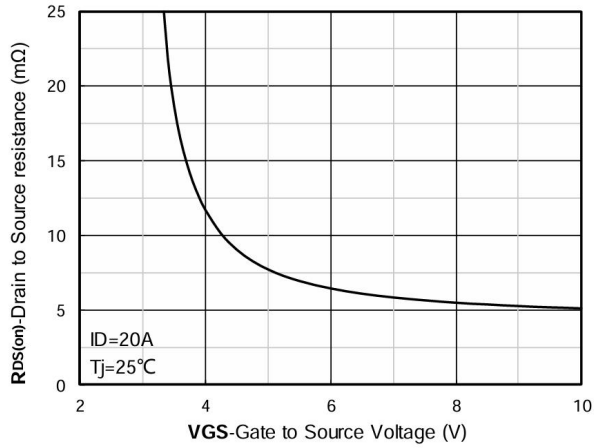


Figure 5. On-Resistance vs Gate to Source Voltage

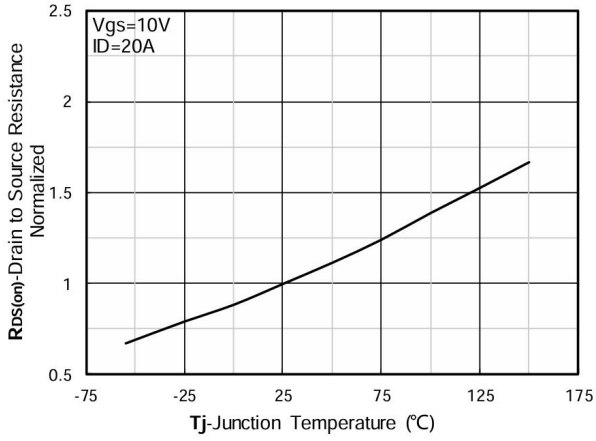


Figure 6. Normalized On-Resistance

Typical Characteristics

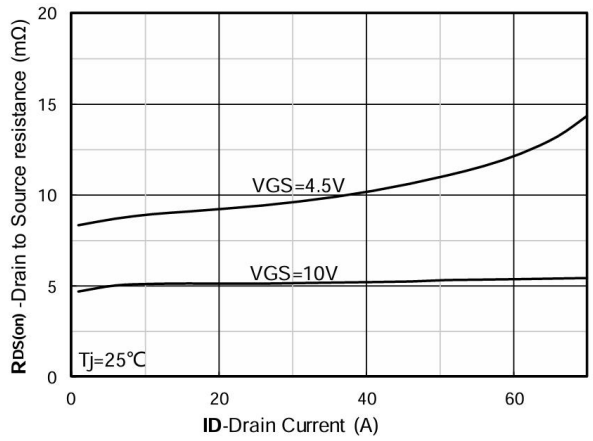


Figure 7. $R_{DS(on)}$ VS Drain Current

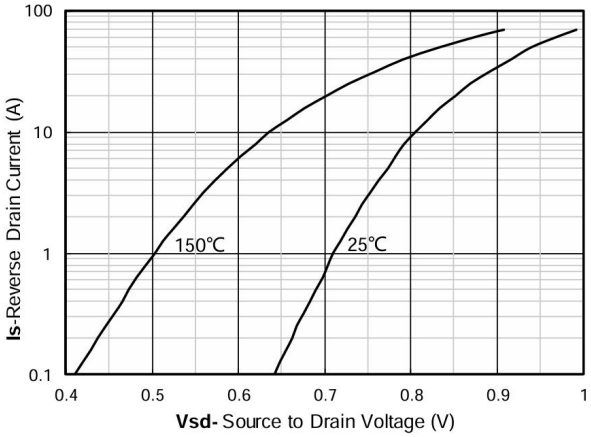


Figure 8. Forward characteristics of reverse diode

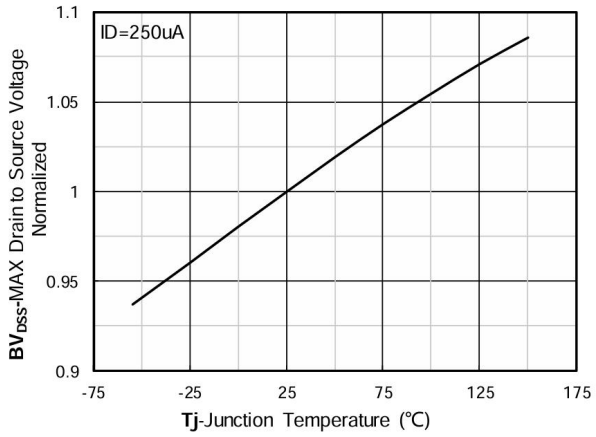


Figure 9. Normalized breakdown voltage

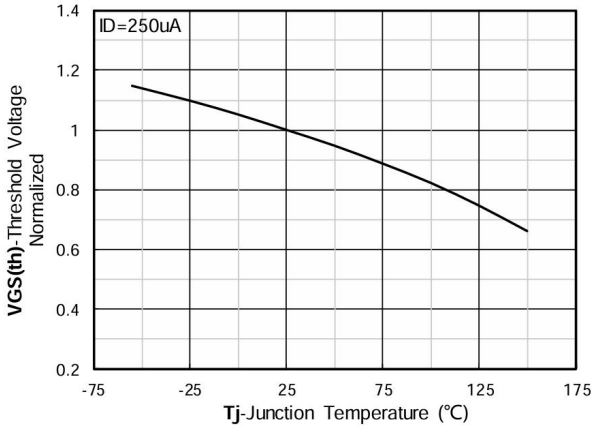


Figure 10. Normalized Threshold voltage

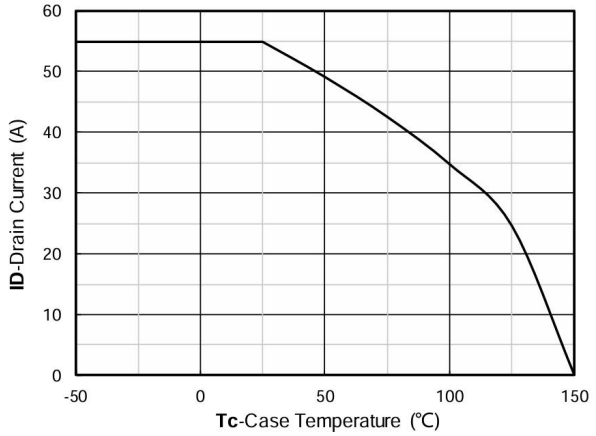


Figure 11. Current dissipation

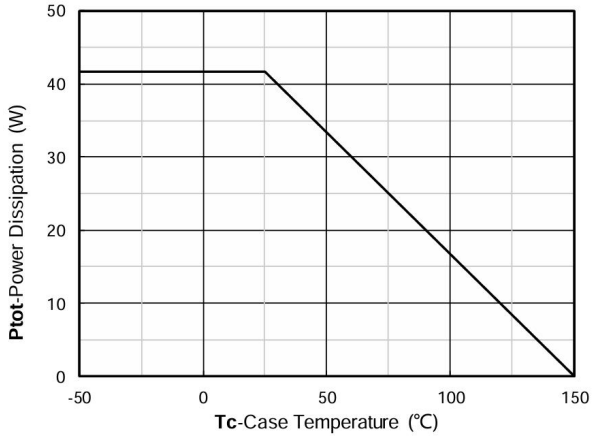


Figure 12. Power dissipation

Typical Characteristics

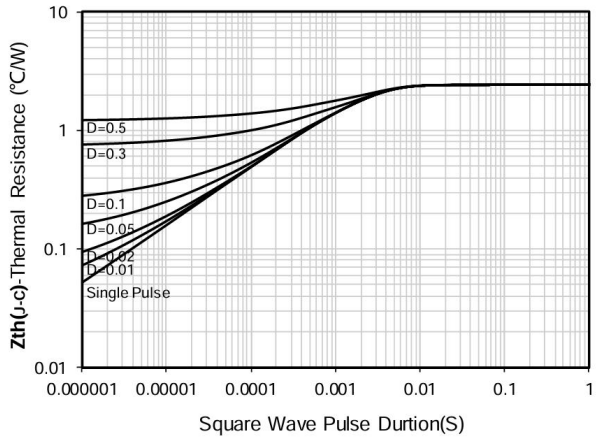


Figure 13. Maximum Transient Thermal Impedance

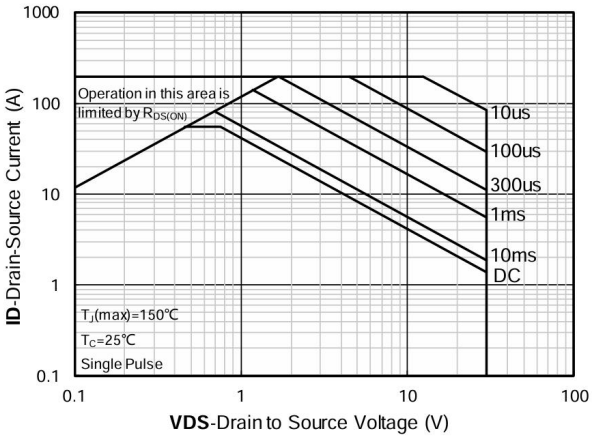
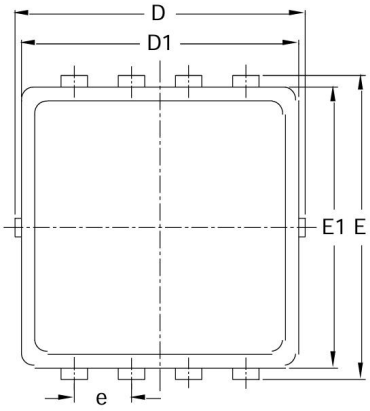
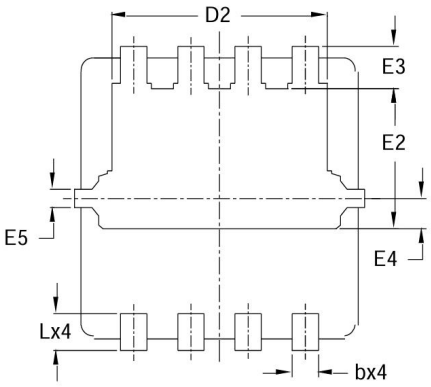


Figure 14. Safe Operation Area

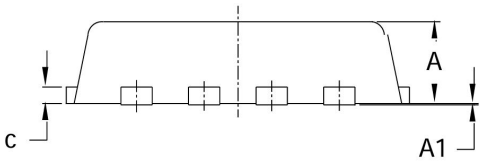
PDFN3.3*3.3-8L Package Information



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.850	0.028	0.033
A1	0.000	0.050	0.000	0.002
b	0.200	0.400	0.008	0.016
c	0.100	0.250	0.004	0.010
D	3.150	3.450	0.124	0.136
D1	3.000	3.300	0.118	0.130
D2	2.250	2.650	0.089	0.104
E	3.150	3.450	0.124	0.136
E1	2.900	3.200	0.114	0.126
E2	1.320	1.720	0.052	0.068
E3	0.280	0.650	0.011	0.026
E4	0.330 REF.		0.013 REF.	
E5	0.200 REF.		0.008 REF.	
e	0.650 BSC.		0.026 BSC.	
L	0.300	0.500	0.012	0.020