Product Summary

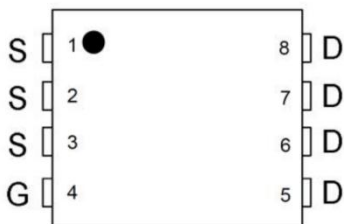| $V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	6.5mΩ@10V	55A
	12mΩ@4.5V	

Feature

- Trench Power LV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
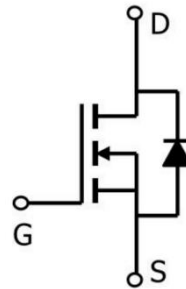- Suffix "-Q1" for AEC-Q101

Application

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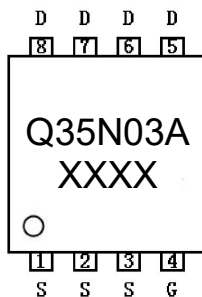- Uninterruptible power supply

Package

PDFN3.3*3.3-8L

Circuit diagram

Marking

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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	A
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.

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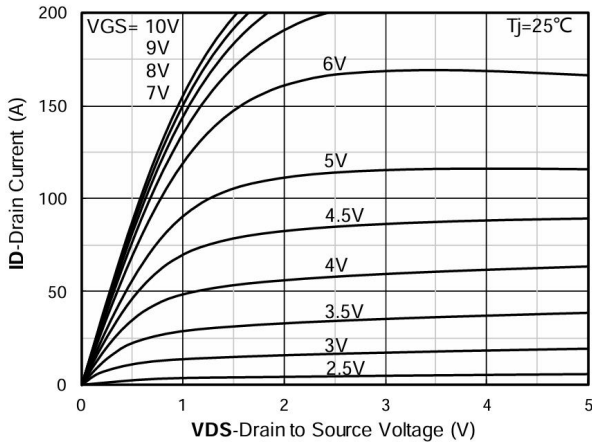| Document ID	Issued Date	Revised Date	Revision	Page.
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Typical Characteristics
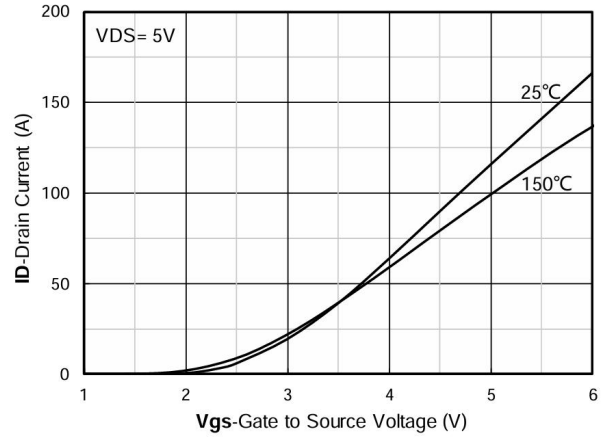
Figure 1. Output Characteristics
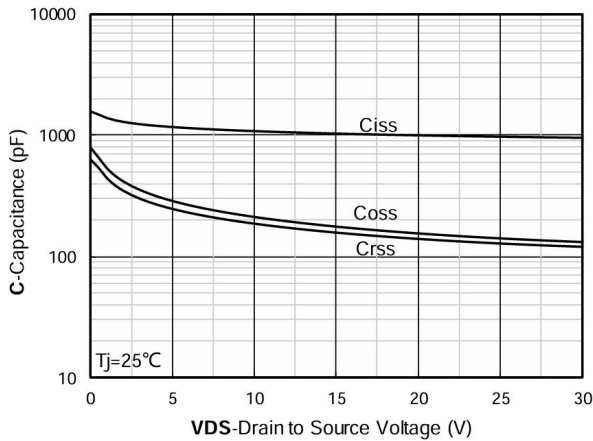
Figure 2. Transfer Characteristics

Figure 3. Capacitance Characteristics
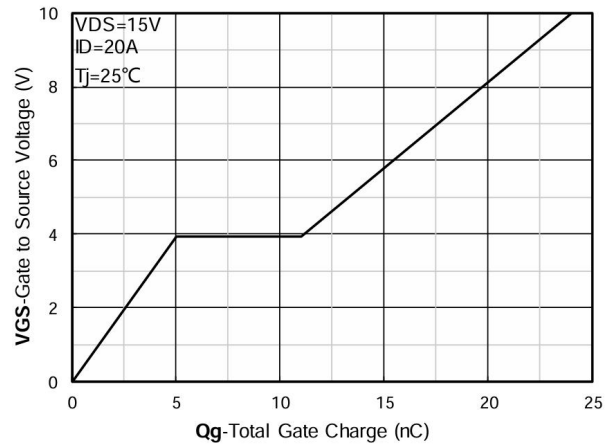
Figure 4. Gate Charge

Figure 5. On-Resistance vs Gate to Source Voltage

Figure 6. Normalized On-Resistance

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Typical Characteristics

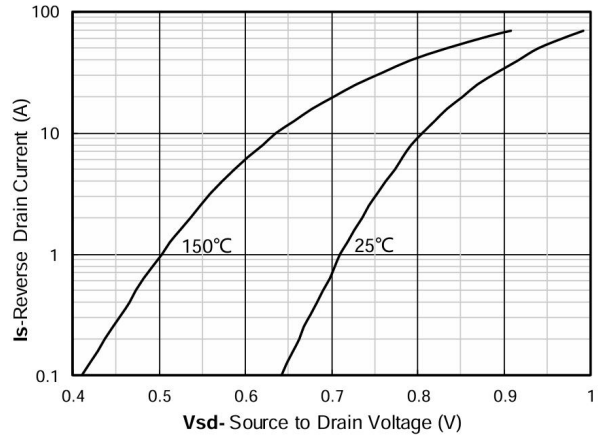

Figure 7. $R_{DS(on)}$ VS Drain Current

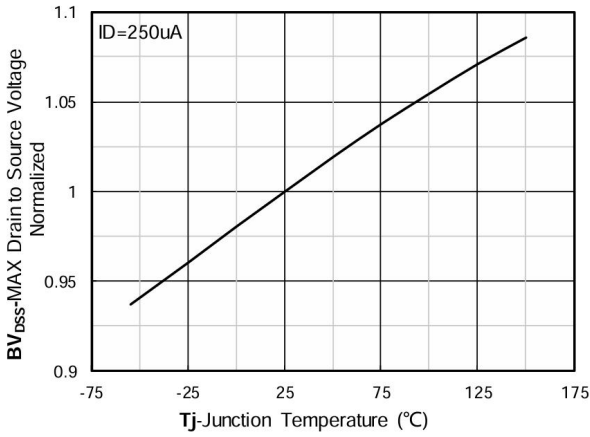Figure 8. Forward characteristics of reverse diode
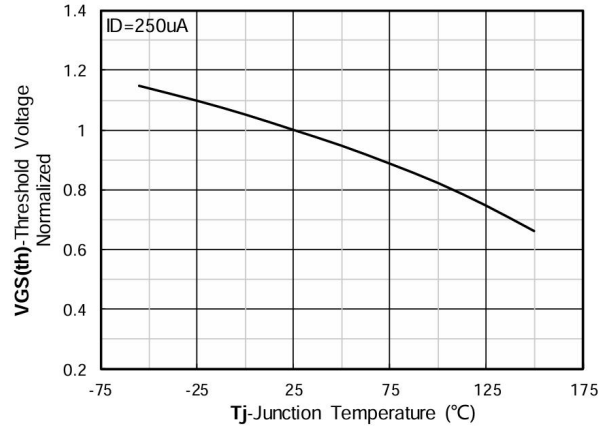

Figure 9. Normalized breakdown voltage
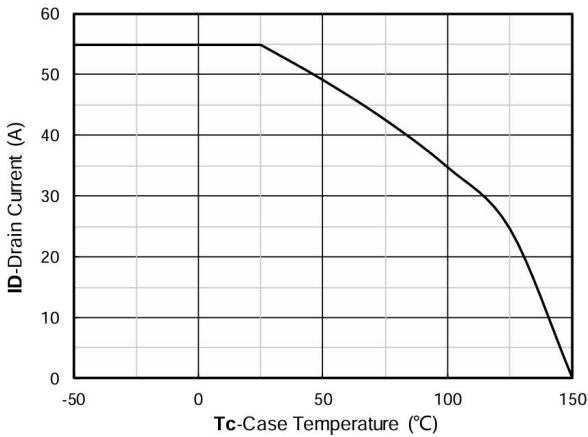

Figure 10. Normalized Threshold voltage

Figure 11. Current dissipation

Figure 12. Power dissipation
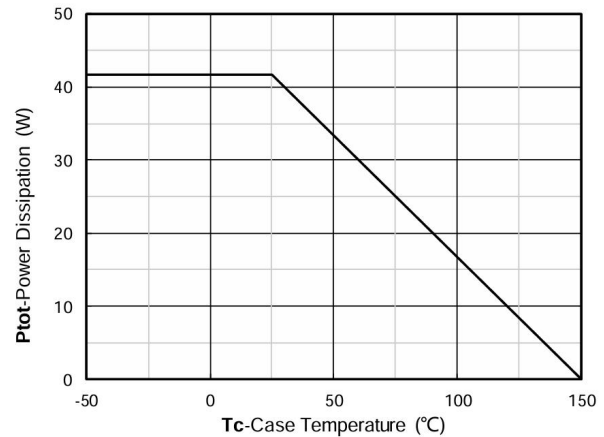
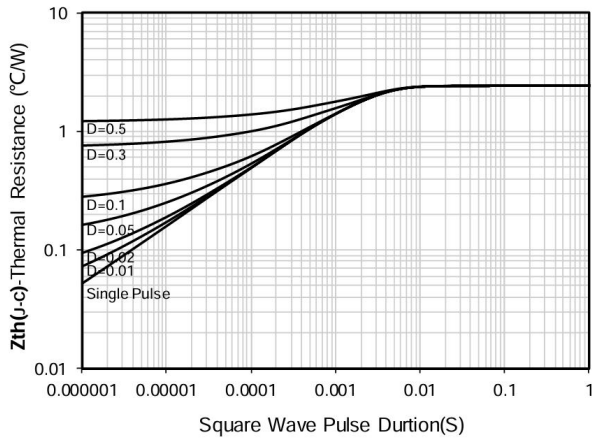| Document ID	Issued Date	Revised Date	Revision	Page.
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Typical Characteristics

Figure 13. Maximum Transient Thermal Impedance

Figure 14. Safe Operation Area

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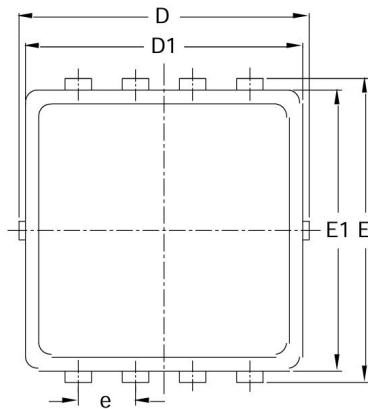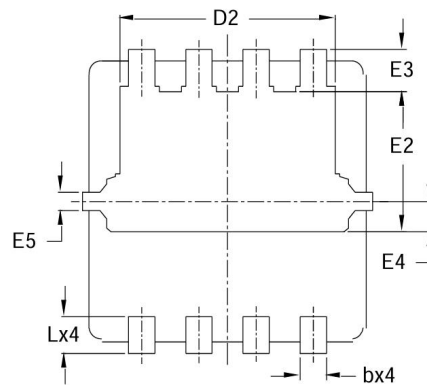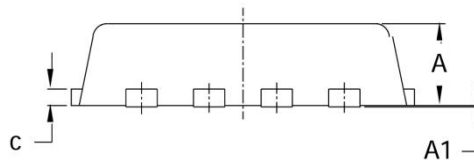**PDFN3.3*3.3-8L Package Information**

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

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