AG024SN100MQPT-Q1

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	33mΩ@10V	24A
	41mΩ@4.5V	

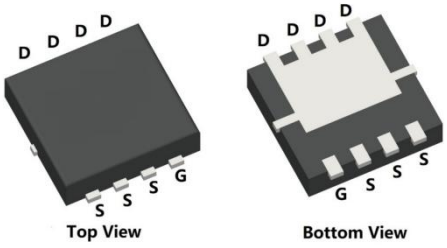
Feature

- Split Gate Trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
- Suffix “-Q1” for AEC-Q101

Application

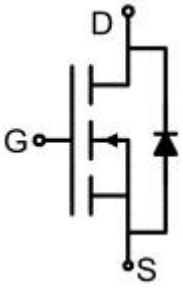
- Power switching application
- Uninterruptible power supply
- DC-DC convertor

Package

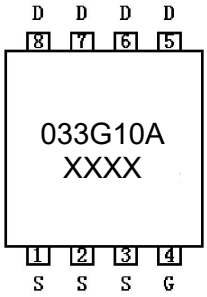


PDFN3.3*3.3-8L

Circuit diagram



Marking



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AS-1151369	2023/12/20	2026/04/01	B	6

Absolute maximum ratings (T_C=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[1,3] (V_{GS} =10V, Chip limitation)	I_D	24	A
Continuous Drain Current[1,3] (V_{GS} =10V, T_C=100℃)	I_D (100℃)	17	A
Pulsed Drain Current (t_p ≤10μs)	I_{DM}	80	A
Single Pulse Avalanche Energy[2]	E_{AS}	27	mJ
Power Dissipation[1,3]	P_D	45	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	3.3	℃/W
Operating Junction Temperature	T_J	-55 ~ +175	℃
Storage Temperature Range	T_{STG}	-55 ~ +175	℃

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	100			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =80V, V_{GS} =0V			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	1	1.7	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		22	33	mΩ
		V_{GS} =4.5V, I_D =10A		30	41	
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS} =50V, V_{GS} =0V, f =1MHz		500		pF
Output Capacitance	C_{oss}			110		
Reverse Transfer Capacitance	C_{rss}			4		
Total Gate Charge	Q_g	V_{DS} =50V, V_{GS} =10V, I_D =20A		11.5		nC
Gate-Source Charge	Q_{gs}			2.8		
Gate-Drain Charge	Q_{gd}			3.1		
Turn-on delay time	$t_{d(on)}$	V_{DS} =50V, V_{GS} =10V, I_D =20A R_G =3Ω		6		nS
Turn-on rise time	t_r			11.3		
Turn-off delay time	$t_{d(off)}$			15		
Turn-off fall time	t_f			4.5		
Source-Drain Diode characteristics						
Diode Forward Current	I_S	T_C =25℃			24	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =20A			1.3	V
Reverse Recovery Time	T_{rr}	V_{GS} =0V, V_R =50V, I_F =20A di/dt =-100A/μs		30		nS
Reverse Recovery Charge	Q_{rr}			25		nC

Notes:

1) The entire application environment impacts the thermal resistance values shown, they are not constants and are only valid for the particular conditions noted.

2) EAS condition :T_J=25℃, V_G =10V, L=0.5mH, R_G=25Ω, I_{AS}=10.4A.

3) Thermal resistance from junction to soldering point (on the exposed drain pad).

4) Guaranteed by design, not subject to production.

Typical Characteristics

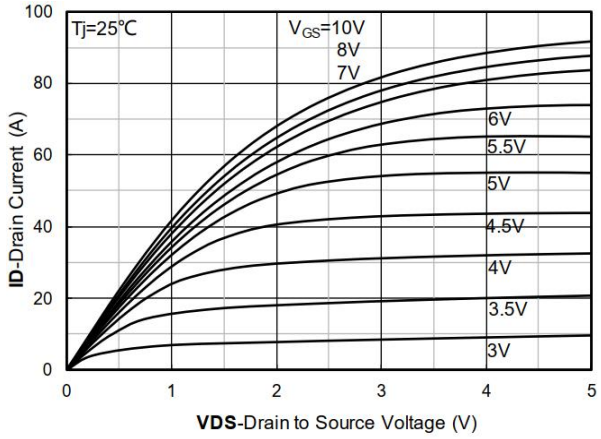


Figure 1. Output Characteristics; typical values

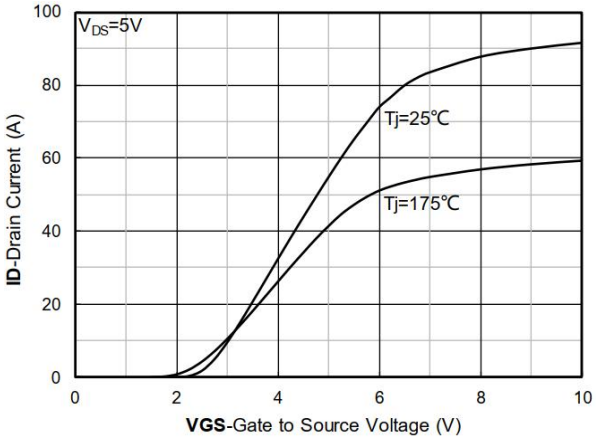


Figure 2. Transfer Characteristics; typical values

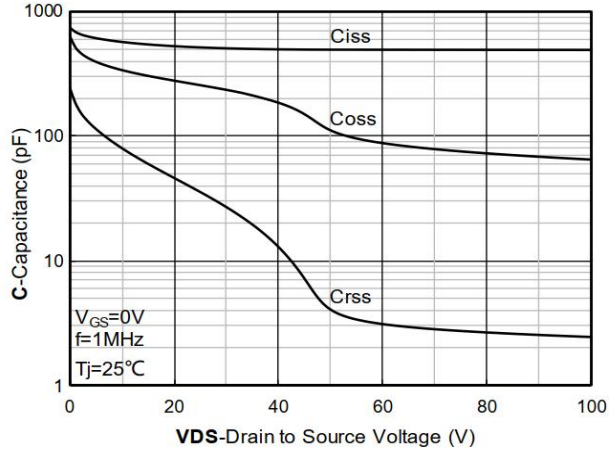


Figure 3. Capacitance Characteristics; typical values

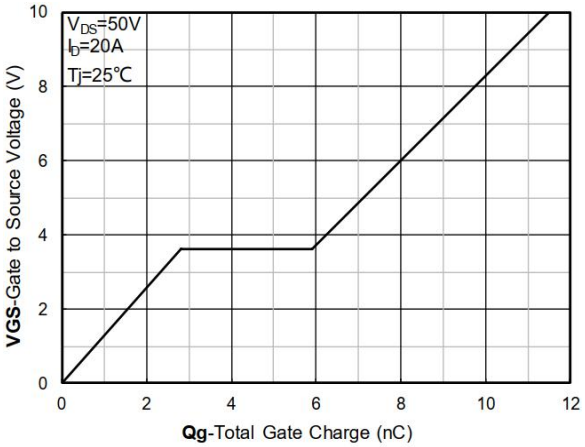


Figure 4. Gate Charge; typical values

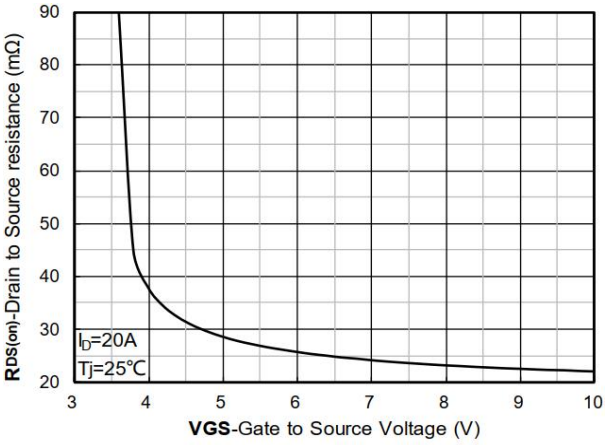


Figure 5. On-Resistance vs. Gate to Source Voltage; typical values

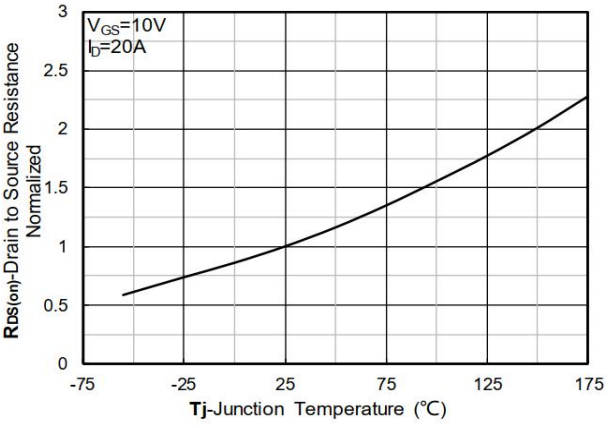


Figure 6. Normalized On-Resistance

Typical Characteristics

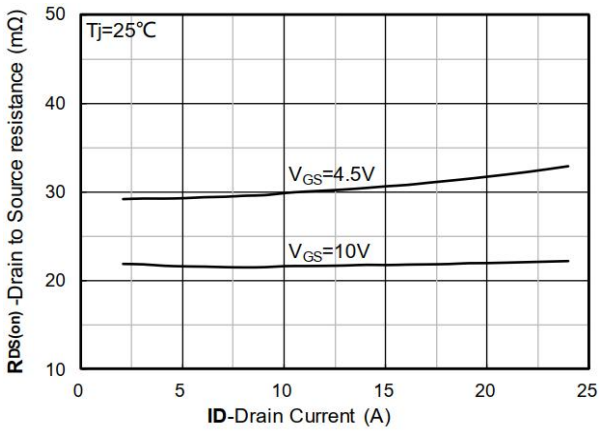


Figure 7. $R_{DS(on)}$ vs. Drain Current; typical values

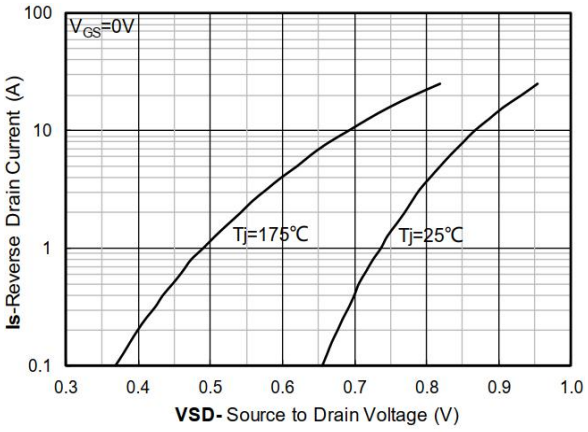


Figure 8. Forward characteristics of reverse diode; typical values

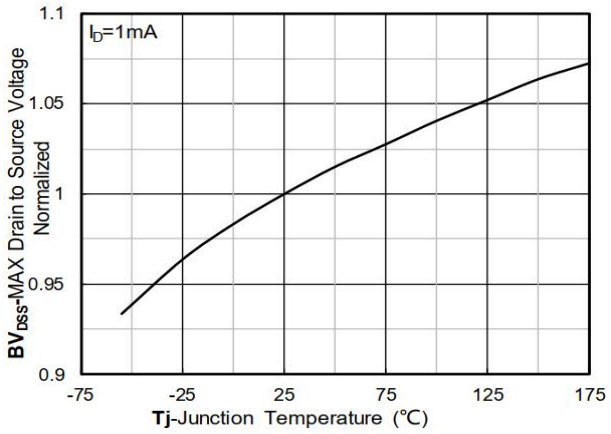


Figure 9. Normalized breakdown voltage

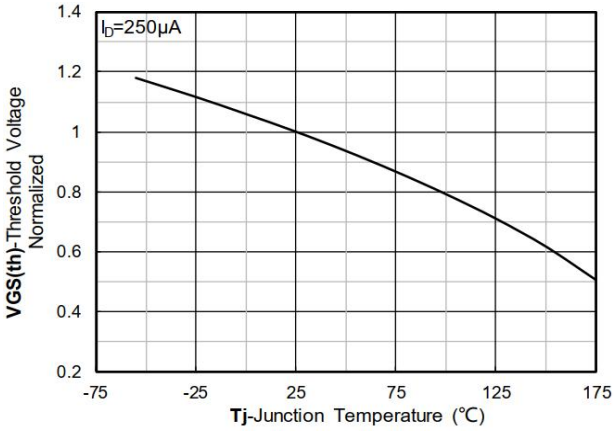


Figure 10. Normalized Threshold voltage

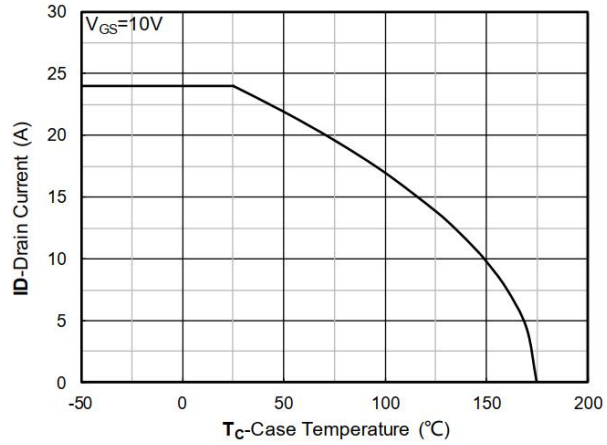


Figure 11. Current dissipation

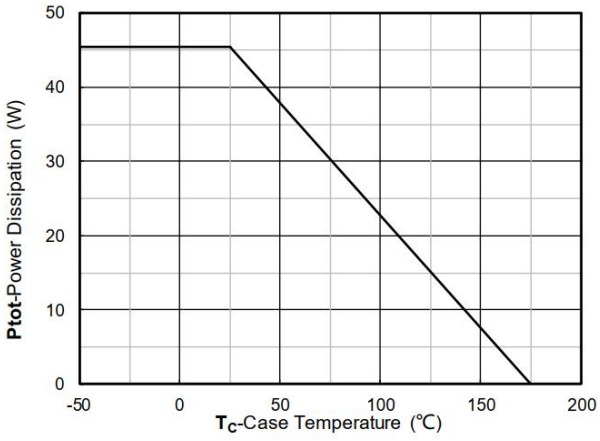


Figure 12. Power dissipation

Typical Characteristics

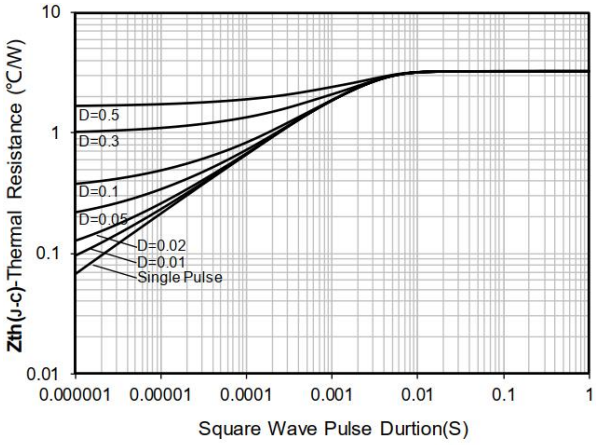


Figure 13. Maximum Transient Thermal Impedance

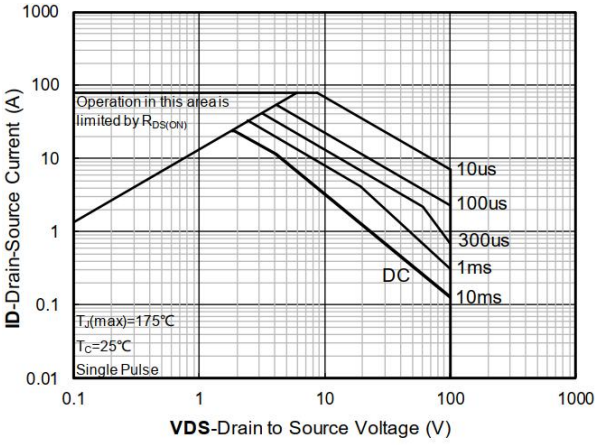
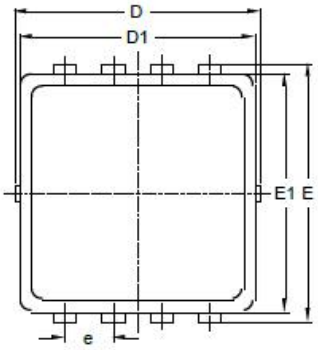
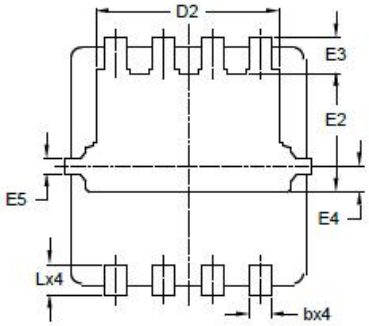


Figure 14. Safe Operation Area

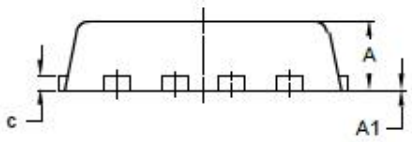
PDFN3.3*3.3-8L Package Information



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