AG340SN100MQTT-Q1

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	1.7mΩ@10V	340A

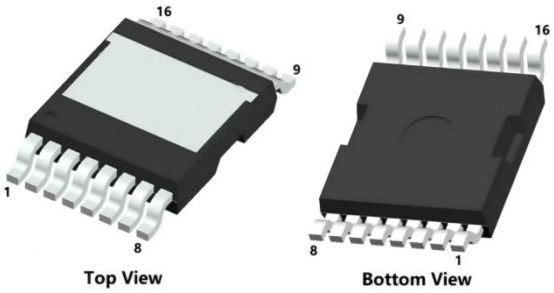
Feature

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

Application

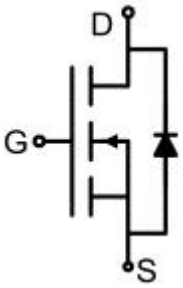
- High power inverter system
- BMS appliances

Package

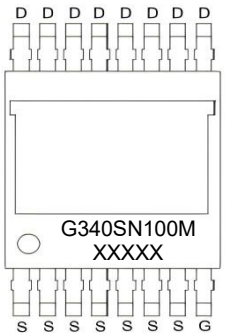


TOLT

Circuit diagram



Marking



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	340	A
Continuous Drain Current[1,3] (V_{GS} =10V, T_C =100℃)	I_D (100℃)	240	A
Pulsed Drain Current (t_p ≤10μs)	I_{DM}	1360	A
Single Pulse Avalanche Energy[2]	E_{AS}	2722.5	mJ
Power Dissipation[1,3]	P_D	416	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	0.36	℃/W
Operating Junction Temperature	T_J	-55 ~ +175	℃
Storage Temperature Range	T_{STG}	-55 ~ +175	℃

Electrical characteristics (T_J=25 °C, 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 =1mA	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	2	2.6	4	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		1.2	1.7	mΩ
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS} =50V, V_{GS} =0V, f =1MHz		10700		pF
Output Capacitance	C_{oss}			2010		
Reverse Transfer Capacitance	C_{rss}			35		
Total Gate Charge	Q_g	V_{DS} =50V, V_{GS} =10V, I_D =30A		166		nC
Gate-Source Charge	Q_{gs}			34		
Gate-Drain Charge	Q_{gd}			49		
Turn-on delay time	$t_{d(on)}$	V_{DS} =50V, V_{GS}=10V, I_D =30A R_G =4.5Ω		30		nS
Turn-on rise time	t_r			65		
Turn-off delay time	$t_{d(off)}$			121		
Turn-off fall time	t_f			107		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				340	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =20A			1.2	V
Reverse Recovery Time	T_{rr}	V_{GS} =0V, V_R =50V, I_F =30A di/dt =-100A/μs		92		nS
Reverse Recovery Charge	Q_{rr}			167		nC

Notes:

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

2) T_J =25℃, V_G =10V, R_G =25Ω, L =5mH, I_{AS} =33A.

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

4) Guaranteed by design,not subject to production.

Typical Characteristics

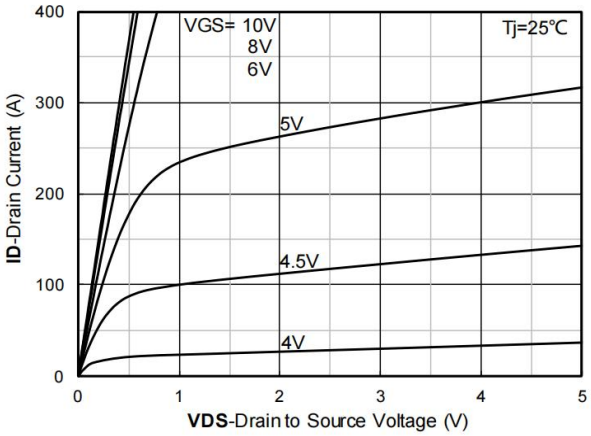


Figure 1. Output Characteristics

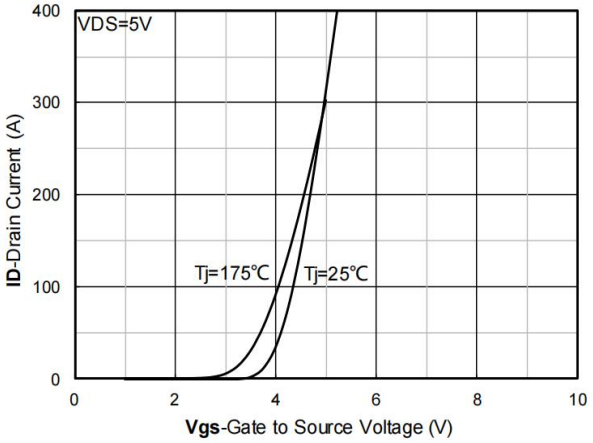


Figure 2. Transfer Characteristics

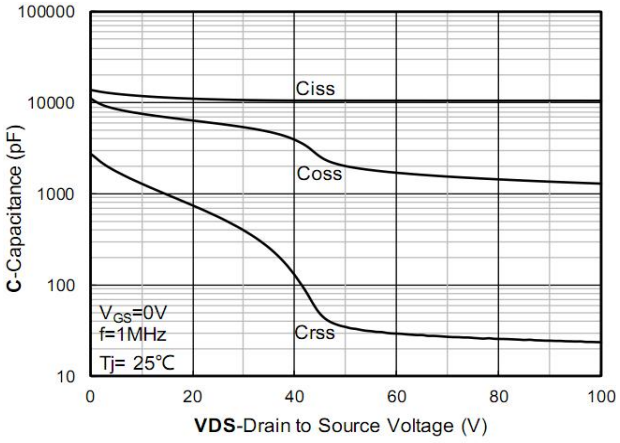


Figure 3. Capacitance Characteristics

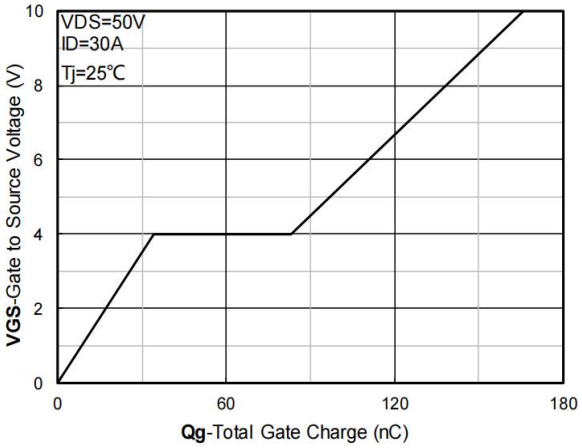


Figure 4. Gate Charge

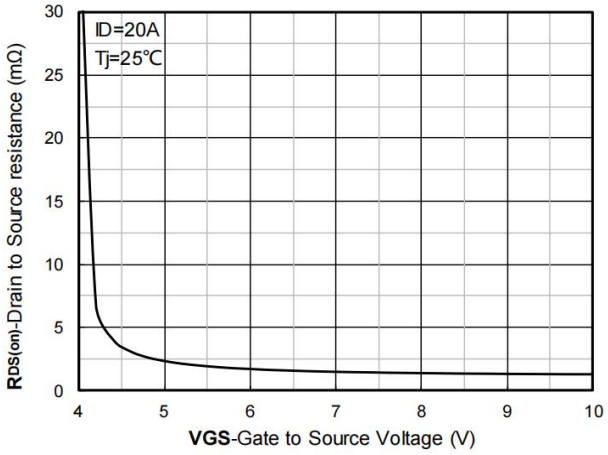


Figure 5. On-Resistance vs Gate to Source Voltage

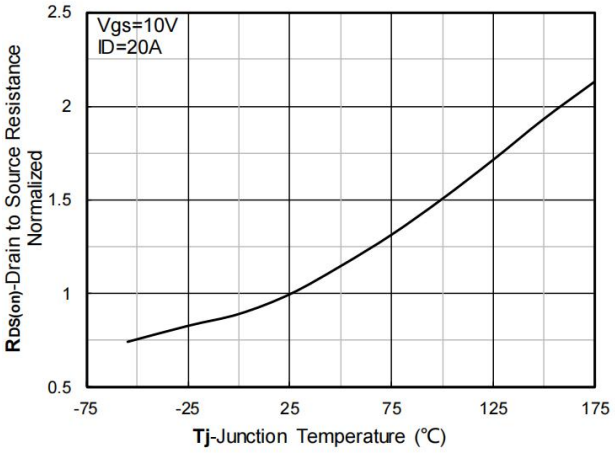


Figure 6. Normalized On-Resistance

Typical Characteristics

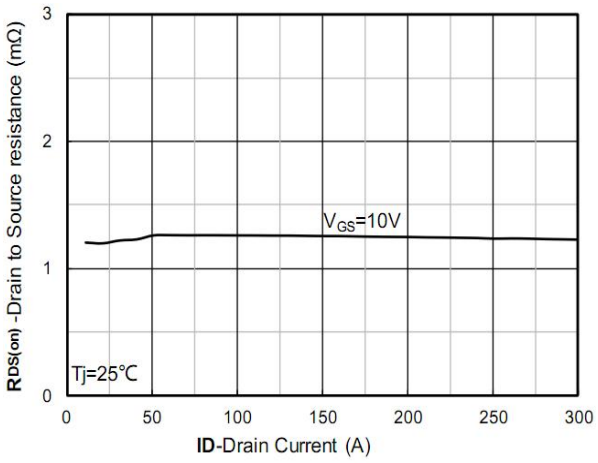


Figure 7. $R_{DS(on)}$ vs. Drain Current

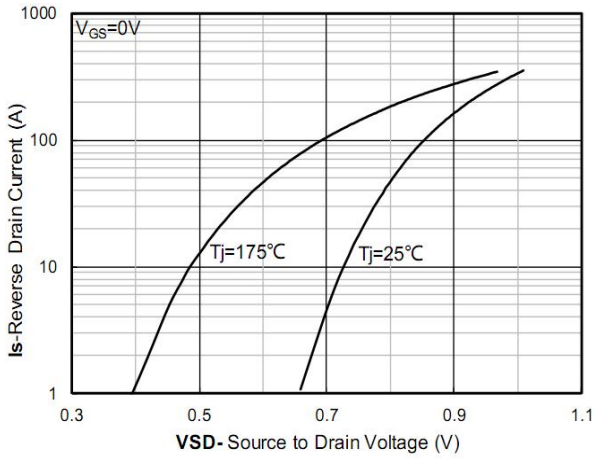


Figure 8. Forward characteristics of reverse diode

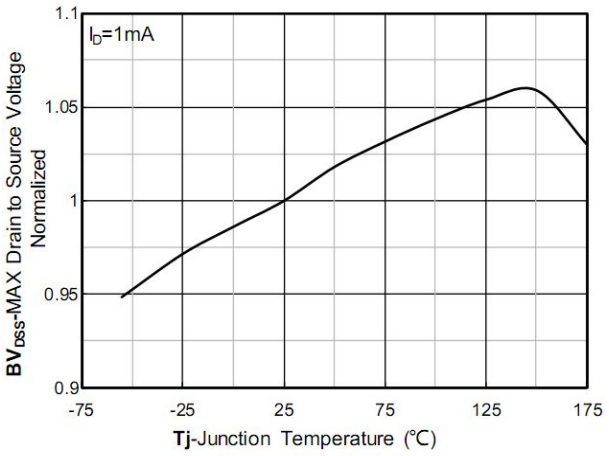


Figure 9. Normalized breakdown voltage

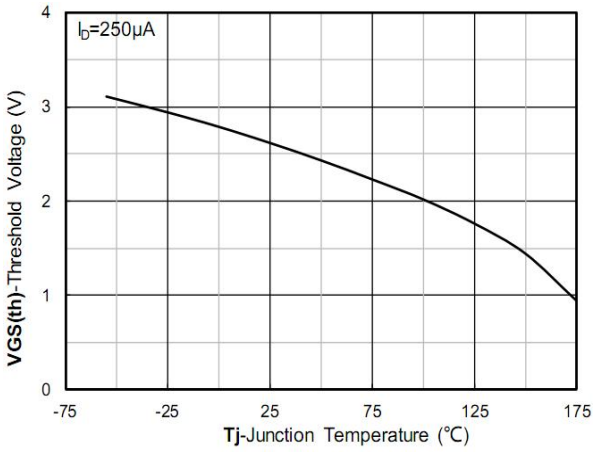


Figure 10. Gate Threshold voltage; typical values

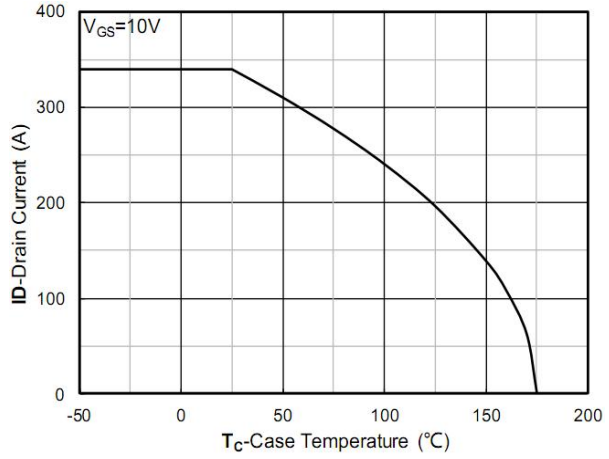


Figure 11. Current dissipation

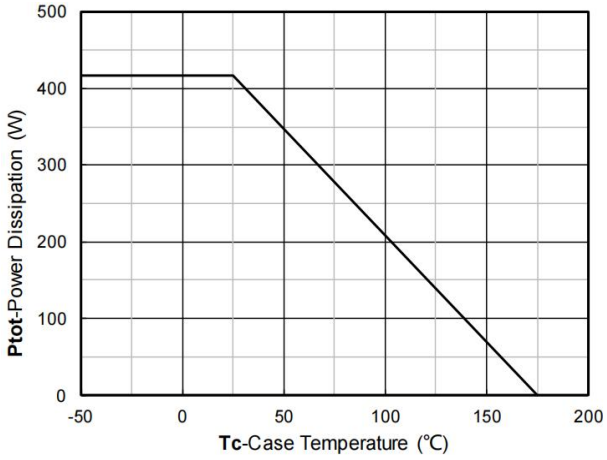


Figure 12. Power dissipation

Typical Characteristics

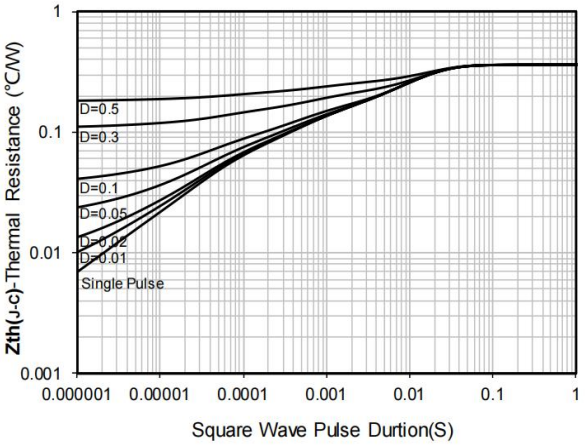


Figure 13. Maximum Transient Thermal Impedance

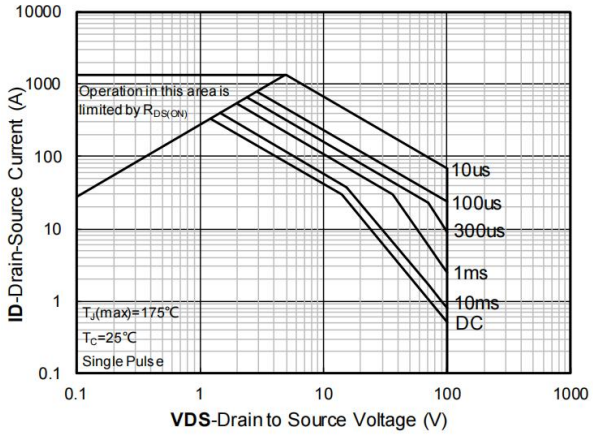
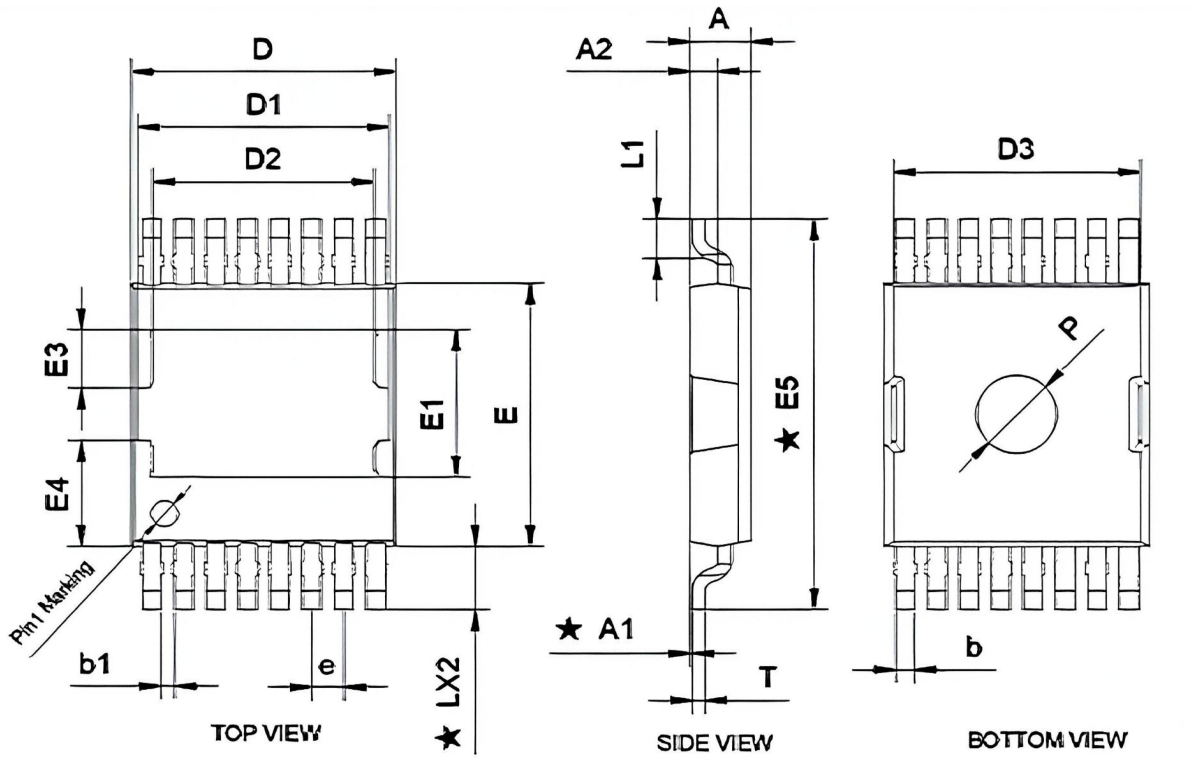


Figure 14. Safe Operation Area

TOLT Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.250	2.350	0.089	0.093
A1	0.010	0.160	0.000	0.006
A2	0.990	1.090	0.039	0.043
b	0.600	0.800	0.024	0.031
b1	0.400	0.600	0.016	0.024
D	9.700	10.100	0.382	0.398
D1	9.360	9.560	0.369	0.376
D2	8.200	8.400	0.323	0.331
D3	9.170	9.370	0.361	0.369
e	1.200 BSC.		0.047 BSC.	
E	10.000	10.300	0.394	0.406
E1	5.470	5.870	0.215	0.231
E2	1.900	2.100	0.075	0.083
E3	2.050	2.450	0.081	0.096
E4	3.900	4.200	0.154	0.165
E5	14.800	15.200	0.583	0.598
L	2.200	2.700	0.087	0.106
L1	1.510 REF.		0.059 REF.	
T	0.458	0.558	0.018	0.022
P	2.800	3.200	0.110	0.126