ANBONSEMI
INNOVATOR IN SEMICONDUCTOR

AT4P8DN100MQSP-Q1

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	85mΩ@10V	4.8A
	110mΩ@5V	

Feature

- Ultra low gate charge
- Fast switching capability
- Avalanche energy specified
- Improved dv/dt capability, high ruggedness
- Suffix “-Q1” for AEC-Q101

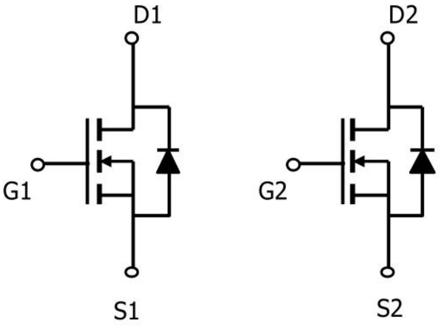
Application

- Load switching

Package

SOP-8

Circuit diagram



Marking

Absolute maximum ratings (T_A=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(T_C =25℃)	I_D	4.8	A
Pulsed Drain Current	I_{DM}	30	A
Single Pulse Avalanche Energy[1]	E_{AS}	25	mJ
Power Dissipation[2]	P_D	2	W
Thermal Resistance Junction to Ambient[2]	$R_{\theta JA}$	62.5	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_A=25 ºC, 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} =100V, 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		3	V
Drain-source on-resistance[3]	$R_{DS(on)}$	V_{GS} =10V, I_D =6A			85	mΩ
		V_{GS} =5V, I_D =5A			110	
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS} =50V, V_{GS} =0V, f =1MHz		853		pF
Output Capacitance	C_{oss}			35		
Reverse Transfer Capacitance	C_{rss}			31		
Total Gate Charge	Q_g	V_{DS} =50V, V_{GS}=10V, I_D =4.5A		24.4		nC
Gtae-Source Charge	Q_{gs}			4.1		
Gtae-Drain Charge	Q_{gd}			6.7		
Turn-on delay time	$t_{d(on)}$	V_{DS} =50V, V_{GS} =10V R_L =8.6Ω, R_G =3Ω		8		nS
Turn-on rise time	t_r			3		
Turn-off delay time	$t_{d(off)}$			17		
Turn-off fall time	t_f			4.5		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				4.8	A
Diode Forward voltage[3]	V_{SD}	V_{GS} =0V, I_S =12A			1.2	V
Reverse recover time	T_{rr}	V_{GS} =0V, I_F =12A di/dt =-100A/us		43		nS
Reverse recovery charge	Q_{rr}			71		nC

Notes:

1) The EAS data shows Max. rating. The test condition is V_{DD} = 50V, V_{GS} = 10V, L = 0.5mH

2) The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.

3) The data tested by pulsed, pulse width ≤00μs, duty cycle ≤2%.

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

Typical Characteristics

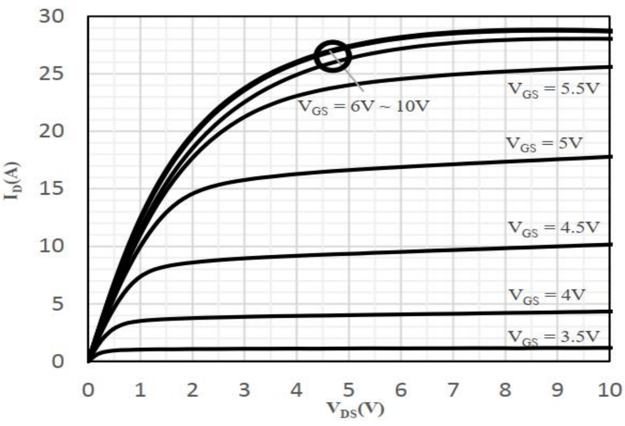


Fig 1 Typical Output Characteristics

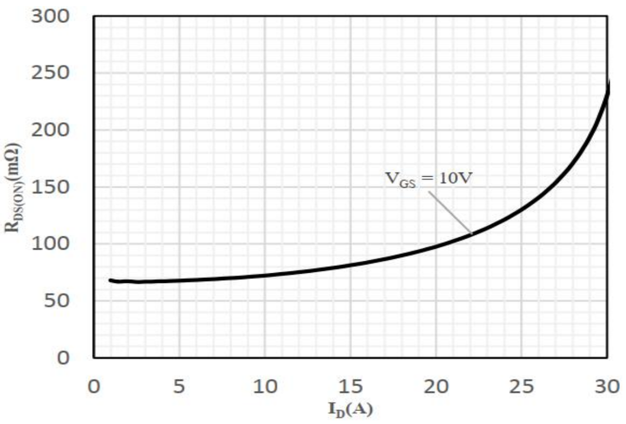


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

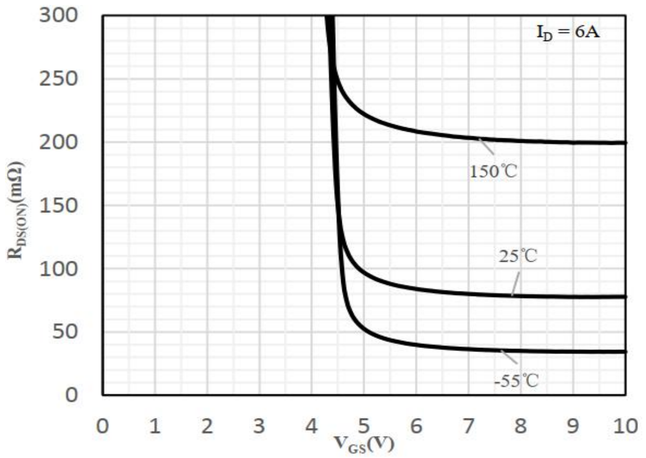


Fig 3 On-Resistance vs. Gate-Source Voltage

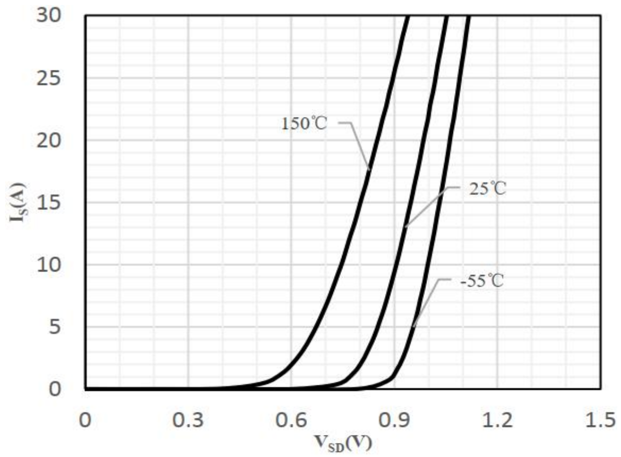


Fig 4 Body-Diode Characteristics

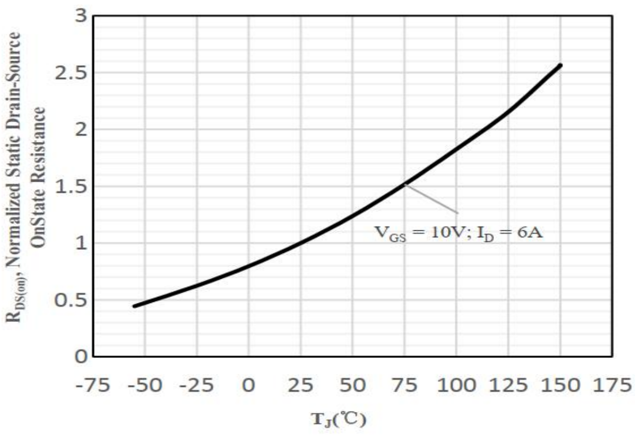


Fig 5 Normalized On-Resistance vs. Junction Temperature

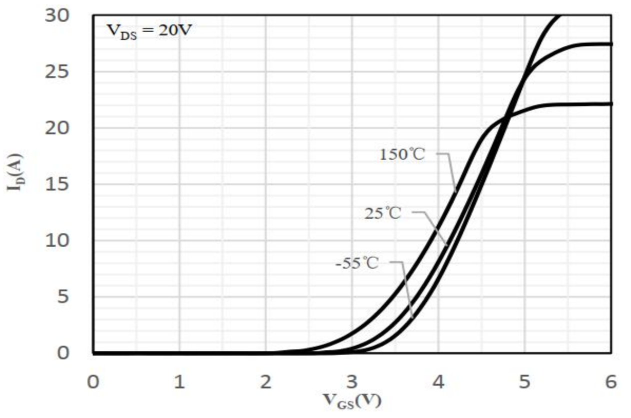


Fig 6 Transfer Characteristics

Typical Characteristics

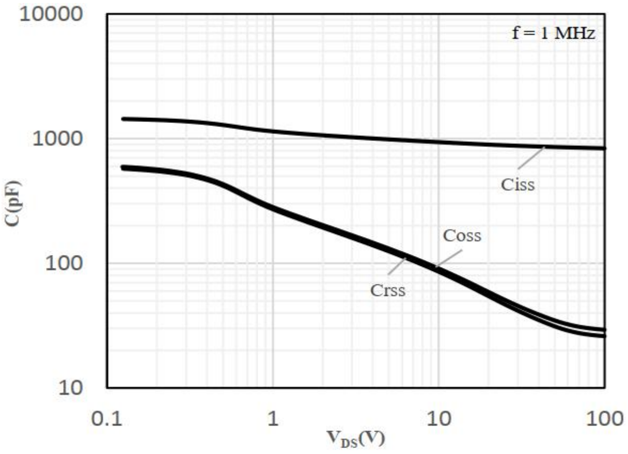


Fig 7 Capacitance Characteristics

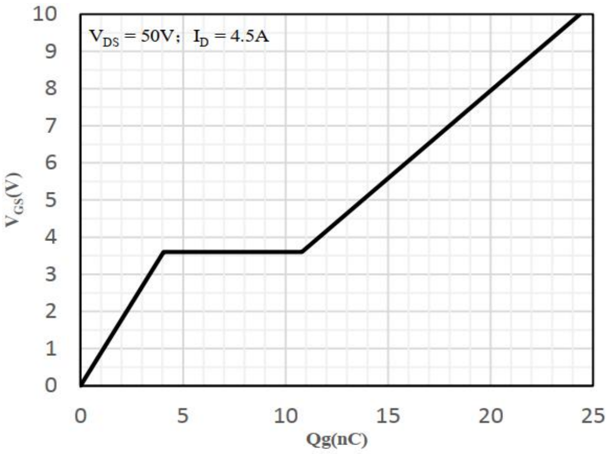


Fig 8 Gate-Charge Characteristics

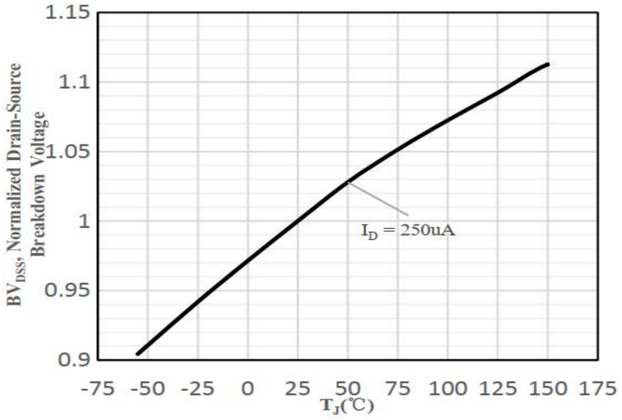


Fig 9 Normalized Breakdown Voltage vs. Junction Temperature

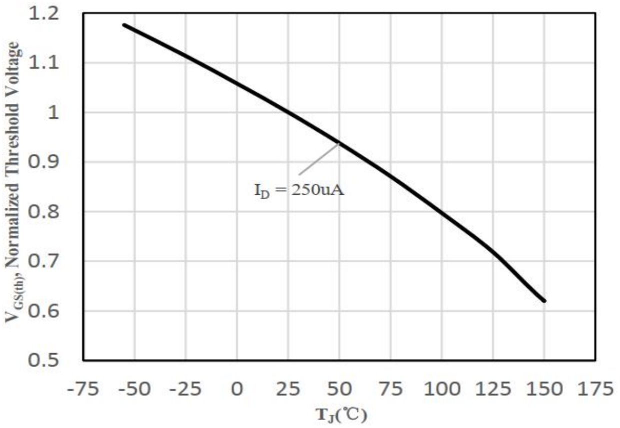
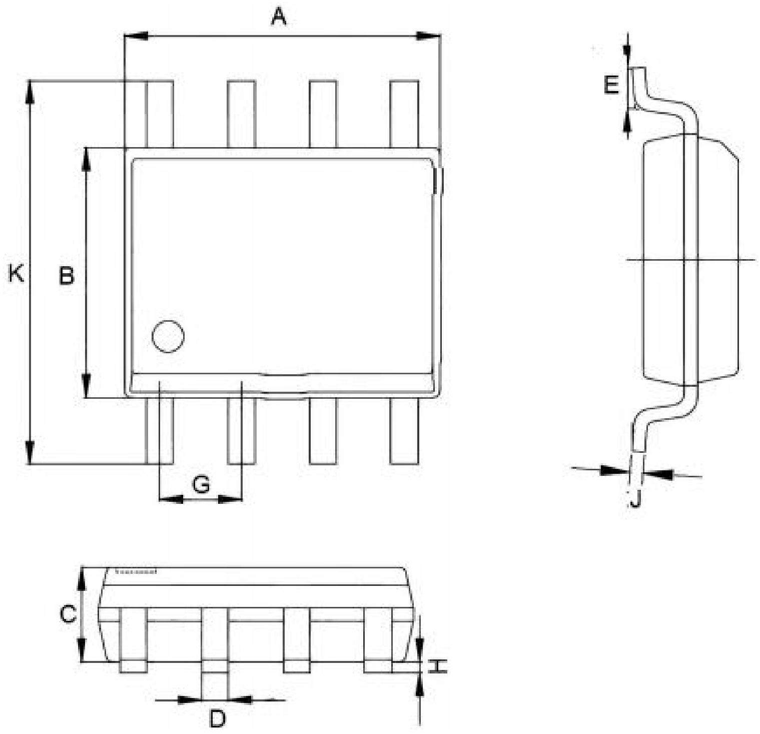


Fig 10 Normalized $V_{GS(th)}$ vs. Junction Temperature

SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.800	5.200	0.189	0.205
B	3.800	4.200	0.150	0.165
C	1.300	1.500	0.051	0.059
D	0.300	0.500	0.012	0.020
E	0.400	1.000	0.016	0.039
G	1.170	1.370	0.046	0.054
H	0.100	0.300	0.004	0.012
J	0.100	0.300	0.004	0.012
K	5.800	6.200	0.228	0.244