AG9P1SN100MNH

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	34mΩ@10V	9.1A
	47mΩ@4.5V	

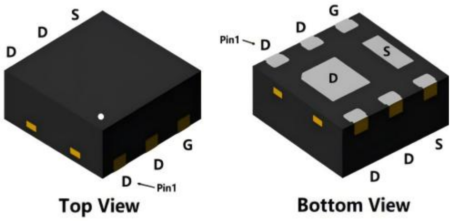
Feature

- Excellent $R_{DS(ON)}$
- Low gate charge

Application

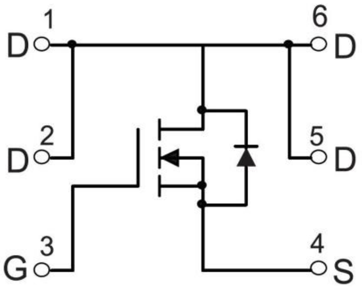
- Load switch
- PWM application
- Power management

Package

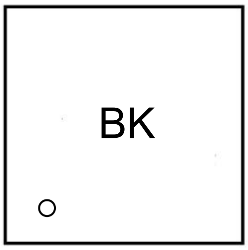


DFN2*2-6L

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	I_D	9.1	A
Continuous Drain Current (T_C =100℃)	I_D (100℃)	5.8	A
Single pulse avalanche energy[1)]	E_{AS}	36	mJ
Power Dissipation	P_D	5.2	W
Thermal Resistance Junction to case	$R_{\theta JC}$	24	℃/W
Operating Junction Temperature	T_J	-55 ~ +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	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	1.2	1.7	2.2	V
Drain-source on-resistance[2)]	$R_{DS(on)}$	V_{GS} =10V, I_D =4.5A		26	34	mΩ
		V_{GS} =4.5V, I_D =4A		36	47	
Dynamic characteristics[3)]						
Input Capacitance	C_{iss}	V_{DS} =50V, V_{GS} =0V, f =1MHz		513		pF
Output Capacitance	C_{oss}			182		
Reverse Transfer Capacitance	C_{rss}			12		
Total Gate Charge	Q_g	V_{DS} =50V, V_{GS} =10V, I_D =4.5A		10		nC
Gate-Source Charge	Q_{gs}			2.1		
Gate-Drain Charge	Q_{gd}			2.3		
Turn-on delay time	$t_{d(on)}$	V_{DS} =50V, V_{GS} =10V, I_D =4.5A R_G =3Ω		5.3		nS
Turn-on rise time	t_r			12		
Turn-off delay time	$t_{d(off)}$			13		
Turn-off fall time	t_f			3.1		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				9.1	A
Diode forward voltage	V_{SD}	V_{GS} =0V, I_S =4.5A			1.2	V
Reverse Recovery Time	T_{rr}	I_F =4.5A, di/dt =-100A/μs		27		nS
Reverse Recovery Charge	Q_{rr}			20		nC

Notes:

1) E_{AS} condition: Starting T_J=25C, V_{DD}=50V, V_{GS}=10V, R_G=25Ω, L=3mH, I_{AS}=4.9A, V_{DD}=0V during time in avalanche.

2) Pulse Test: Pulse Width ≤300μs, Duty Cycle ≤0.5%.

3) Guaranteed by design, not subject to production.

Typical Characteristics

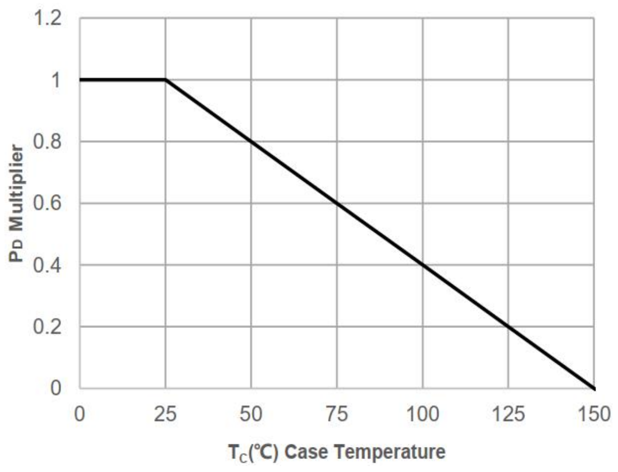


Figure 1: Power De-rating

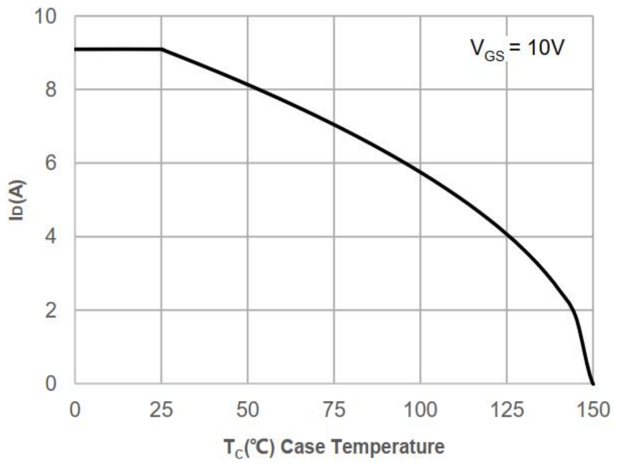


Figure 2: Current De-rating

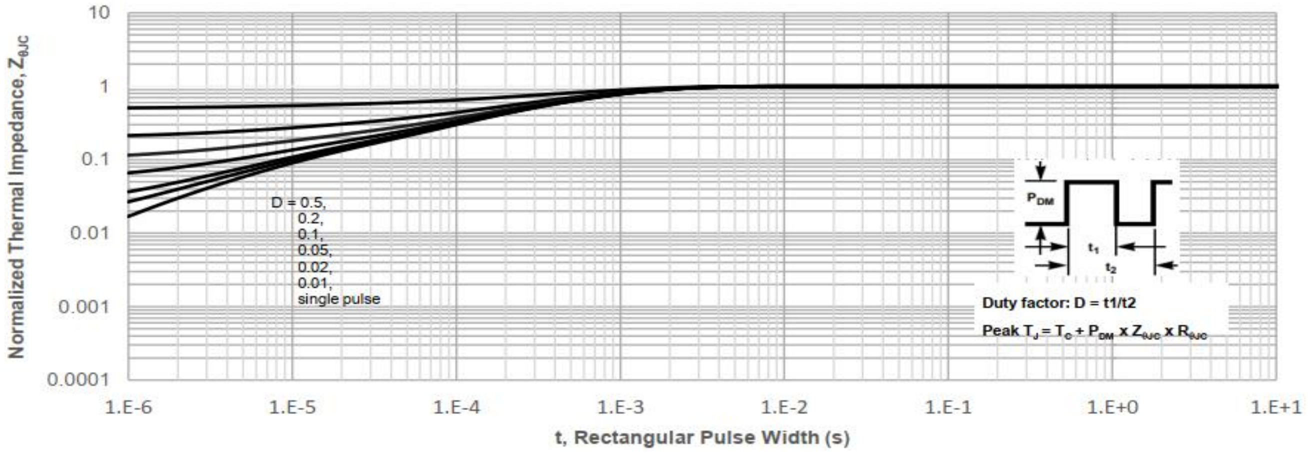


Figure 3: Normalized Maximum Transient Thermal Impedance

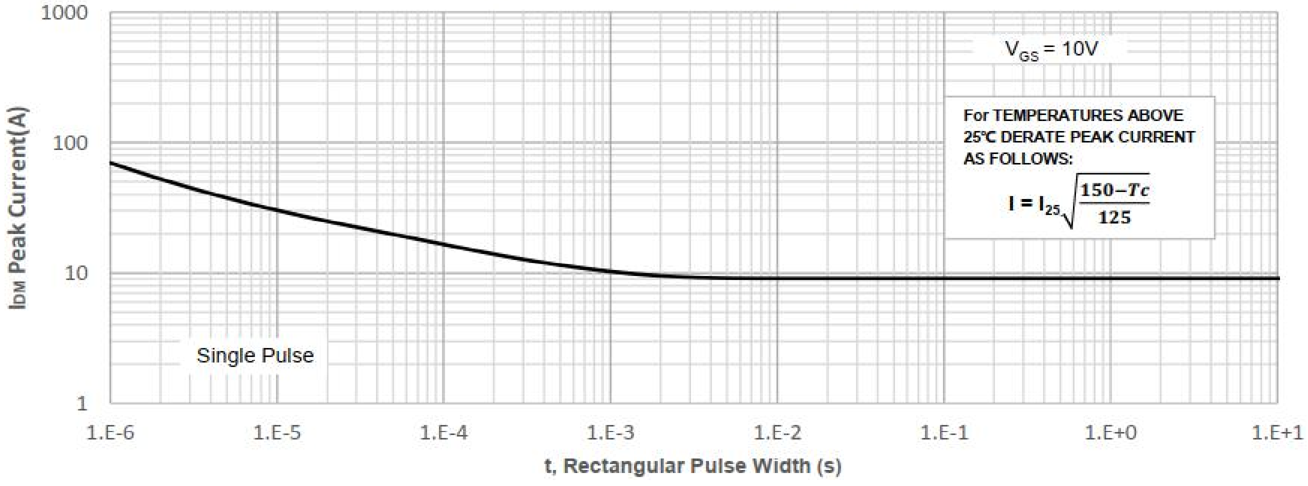


Figure 4: Peak Current Capacity

Typical Characteristics

Figure 5: Output Characteristics

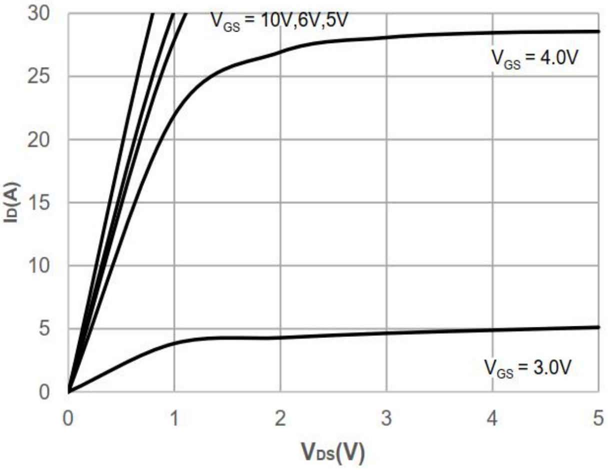


Figure 6: Typical Transfer Characteristics

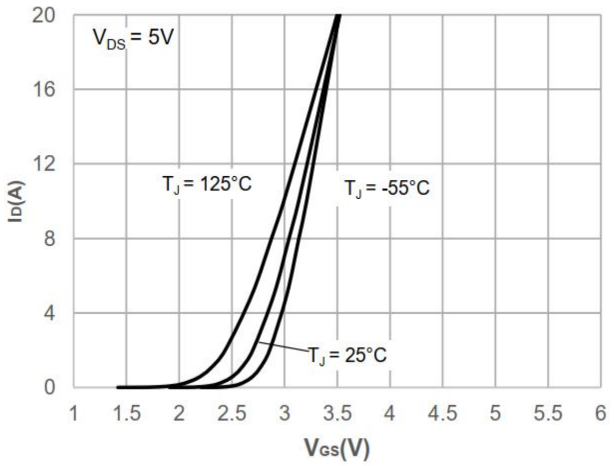


Figure 7: On-resistance vs. Drain Current

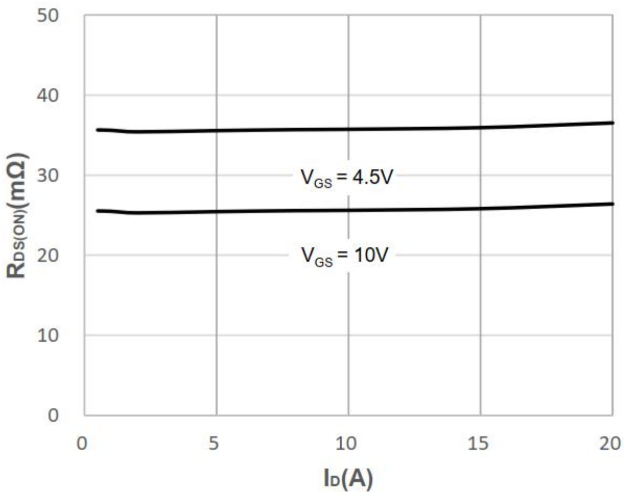


Figure 8: Body Diode Characteristics

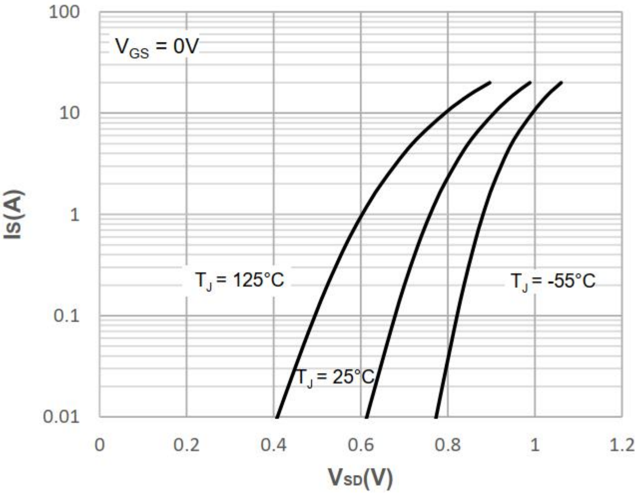


Figure 9: Gate Charge Characteristics

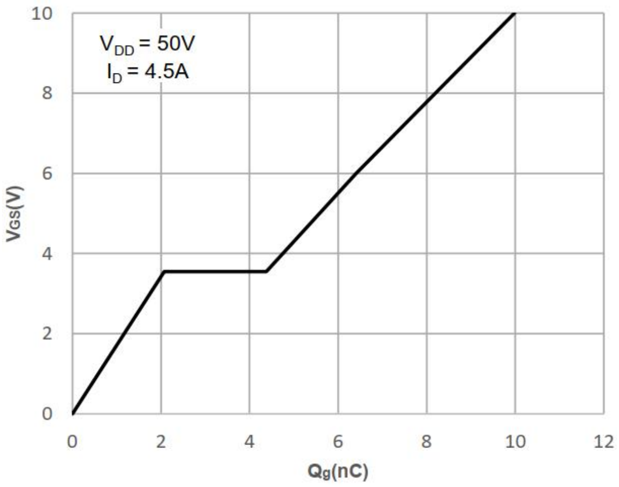
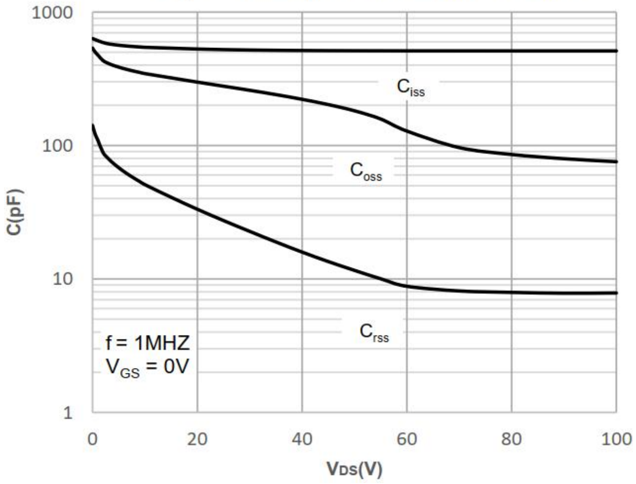


Figure 10: Capacitance Characteristics



Typical Characteristics

Figure 11: Normalized Breakdown voltage vs. Junction Temperature

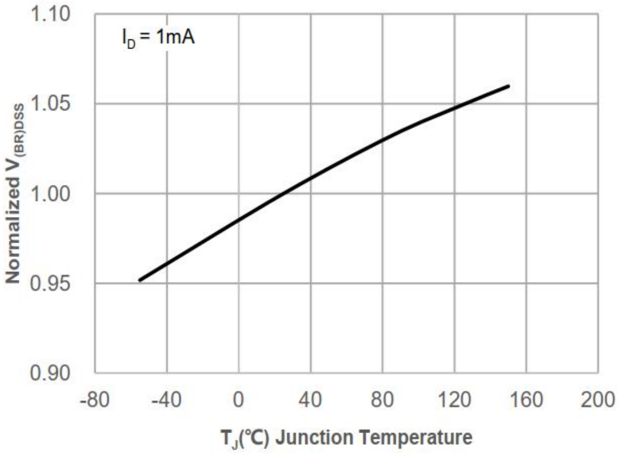


Figure 12: Normalized on Resistance vs. Junction Temperature

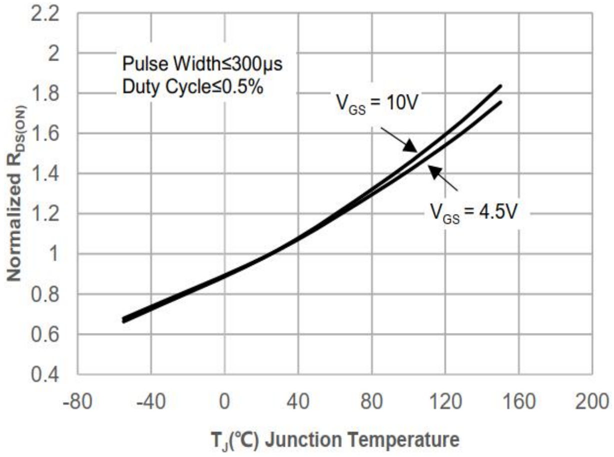


Figure 13: Normalized Threshold Voltage vs. Junction Temperature

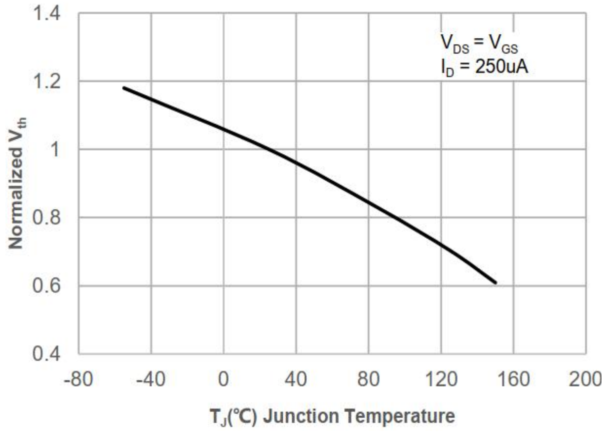


Figure 14: $R_{DS(ON)}$ vs. V_{GS}

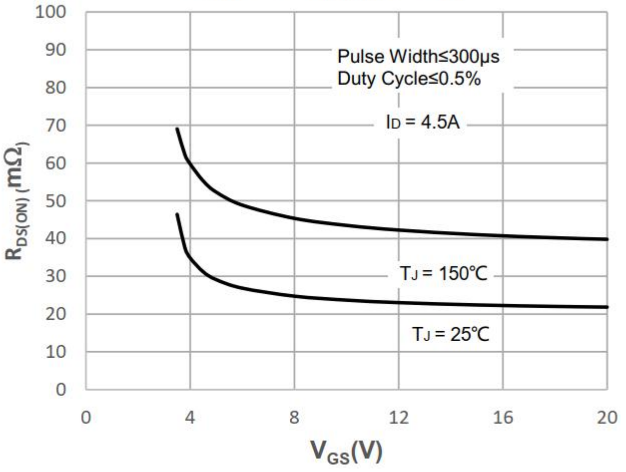
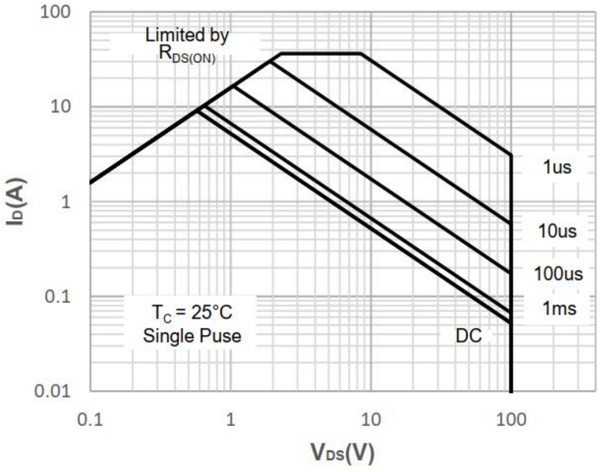
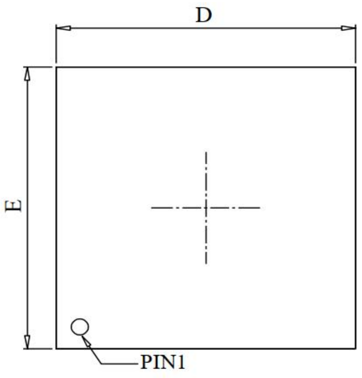


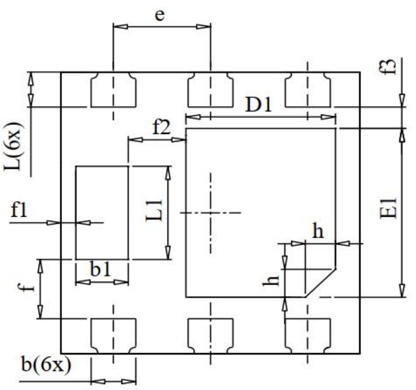
Figure 15: Maximum Safe Operating Area



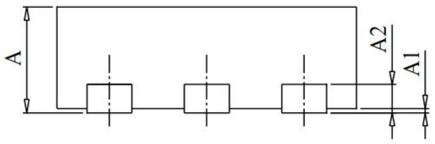
DFN2*2-6L Package Information



Top View



Bottom View



Front View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.005	0.000	0.000
A2	0.203 TYP.		0.008 TYP.	
D	1.900	2.100	0.075	0.083
E	1.900	2.100	0.075	0.083
D1	0.900	1.100	0.035	0.043
E1	1.100	1.300	0.043	0.051
b	0.250	0.350	0.010	0.014
b1	0.300	0.400	0.012	0.016
L	0.200	0.300	0.008	0.012
L1	0.560	0.760	0.022	0.030
e	0.650 BSC.		0.026 BSC.	
f	0.420 REF.		0.017 REF.	
f1	0.100 REF.		0.004 REF.	
f2	0.385 REF.		0.015 REF.	
f3	0.150 REF.		0.006 REF.	
h	0.150 REF.		0.006 REF.	