

**DESCRIPTION**

The AM039NS06LPJ8S is available in PDFN8(3.3x3.3) Package.

VDSS	RDSON	ID
60V	3.9mΩ	80A

APPLICATIONS

- Load Switch
- PWM Application
- Power Management

ORDERING INFORMATION

Package Type	Part Number	
PDFN8(3.3x3.3) SPQ:5,000pcs/Reel	PJ8S	AM039NS06LPJ8SVR
Note	R: Tape & Reel V: Halogen free Package	
AiT provides all RoHS products		

ABSOLUTE MAXIMUM RATINGS

T_J = 25°C, unless otherwise specified.

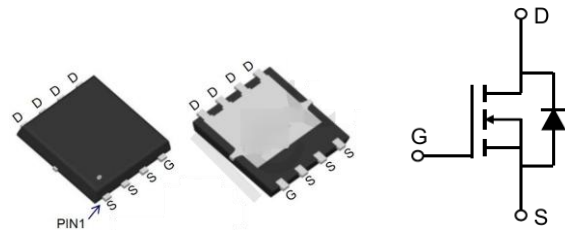
V _{DS} , Drain-to-Source Voltage		60V
V _{GS} , Gate-to-Source Voltage		±20V
I _D , Continuous Drain Current	T _C = 25°C	80A
	T _C = 100°C	48A
I _{DM} , Pulsed Drain Current ⁽¹⁾		320A
E _{AS} , Single Pulse Avalanche Energy ⁽²⁾		100mJ
P _D , Power Dissipation	T _C = 25°C	59.5W
R _{θJC} , Thermal Resistance, Junction-to-Ambient		2.1°C/W
T _{STG} , Storage Temperature Range		-55°C ~ +150°C
T _J , Junction Temperature Range		-55°C ~ +150°C

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

2. EAS condition: Starting T_J=25°C, V_{DD}=30V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=20A

FEATURE

- 60V, 80A
- R_{DS(ON)} Typ.=3.9mΩ @ V_{GS} = 10V
- R_{DS(ON)} Typ.=5mΩ @ V_{GS} = 4.5V
- Advanced Split Gate Trench Technology
- Excellent R_{DS(ON)} and Low Gate Charge
- 100% UIS TESTED!
- 100% ΔV_{ds} TESTED!

PIN DESCRIPTION

Pin #	Symbol	Function
1, 2, 3	S	Source
4	G	Gate
5,6,7,8	D	Drain



ELECTRICAL CHARACTERISTICS

T_J = 25°C, unless otherwise specified.

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} = V _{GS} , I _D = 250μA	1.2	1.6	2.5	V
Static Drain-Source ON-Resistance *	R _{DS(ON)}	V _{GS} = 10V, I _D = 20A	-	3.9	5.1	mΩ
		V _{GS} = 4.5V, I _D = 10A	-	5	6.5	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 30V, V _{GS} =0V, f=1.0MHZ	-	2000	-	pF
Output Capacitance	C _{oss}		-	660	-	
Reverse Transfer Capacitance	C _{rss}		-	28	-	
Total Gate Charge	Q _g	V _{DS} = 30V , I _D =20A V _{GS} =0V ~ 10V	-	35	-	nC
Gate-Source Charge	Q _{gs}		-	10	-	
Gate-Drain Charge	Q _{gd}		-	7	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{DD} =30V, I _D = 20A R _{GEN} =4.5Ω, V _{GS} = 10V	-	12	-	ns
Turn-On Rise Time	t _r		-	34	-	
Turn-Off Delay Time	t _{d(off)}		-	25	-	
Turn-Off Fall Time	t _f		-	30	-	
Drain-Source Diode Characteristics and Max Ratings						
Maximum Continuous Drain to Source Diode Forward Current	I _S	-	-	-	80	A
Maximum Pulsed Drain to Source Diode Forward Current	I _{SM}	-	-	-	320	A
Drain to Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S = 20A	-	-	1.2	V
Body Diode Reverse Recovery Time	trr	I _F = 20A	-	38	-	ns
Body Diode Reverse Recovery Charge	Qrr	di/dt=100A/us	-	23	-	nC

Notes:

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



TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Output Characteristics

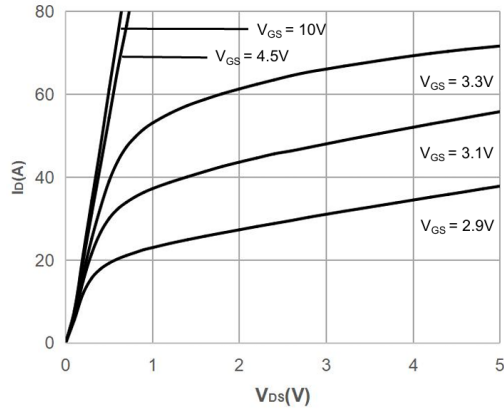


Fig 2. Typical Transfer Characteristics

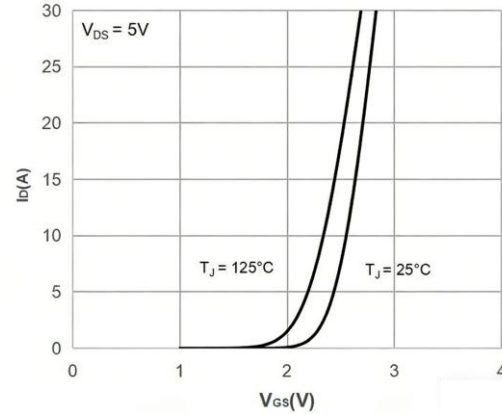


Fig 3. On-Resistance vs. Drain Current

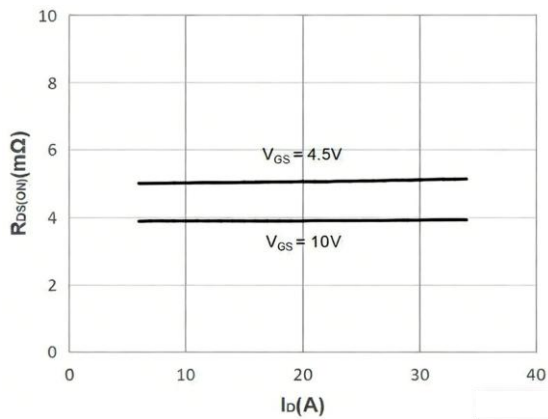


Fig 4. Body Diode Characteristics

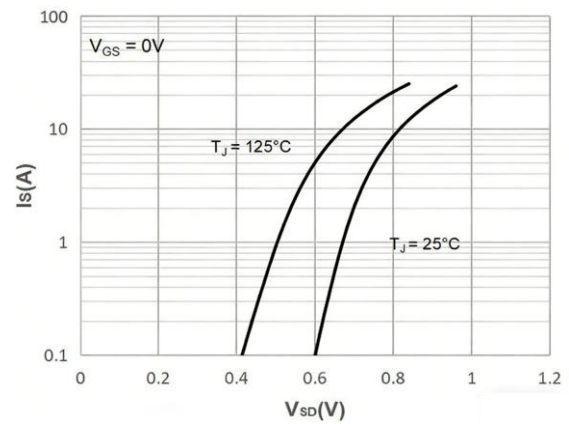


Fig 5. Gate Charge Characteristics

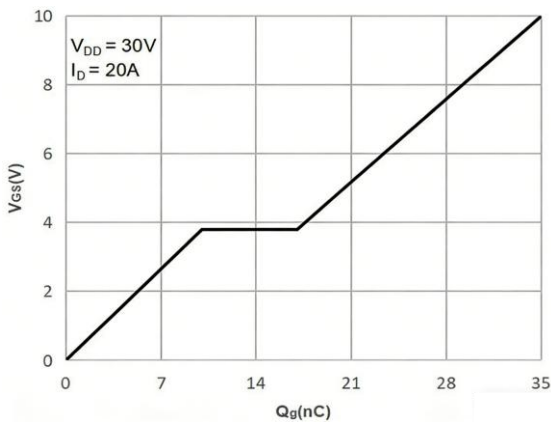


Fig 6. Capacitance Characteristics

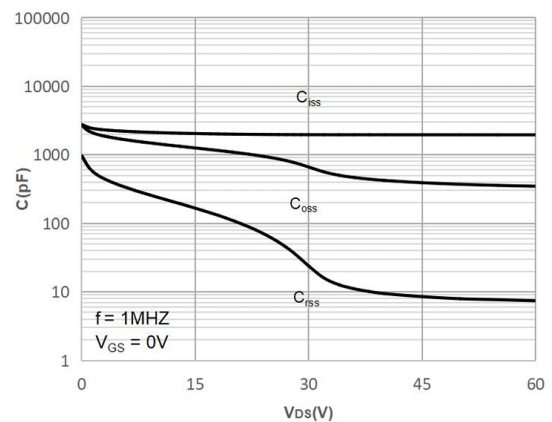




Fig 7. Normalized Breakdown Voltage vs. Junction Temperature

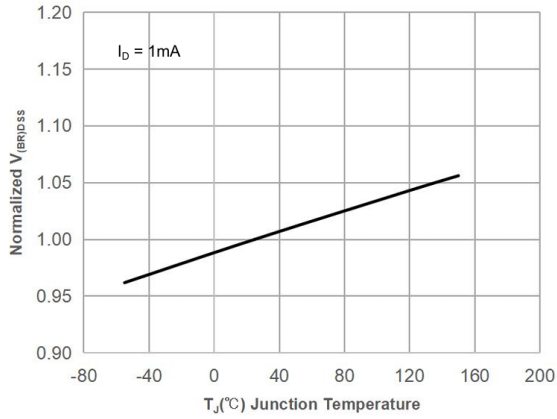


Fig 8. Normalized on Resistance vs. Junction Temperature

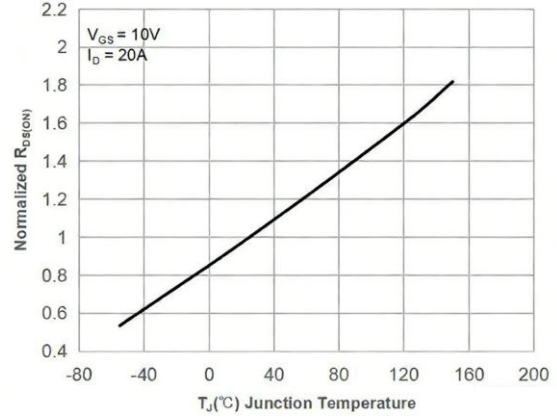


Fig 9. Maximum Safe Operating Area

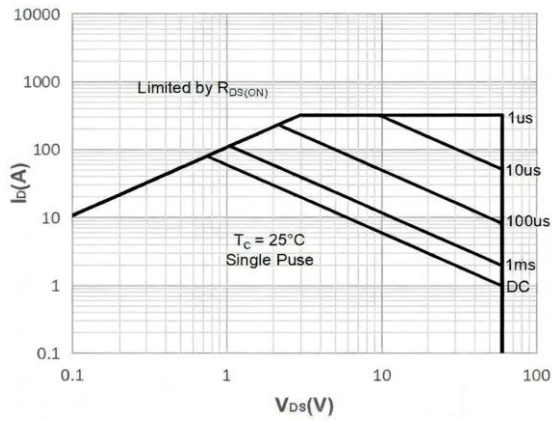


Fig 10. Maximum Continuous Drain Current vs. Case Temperature

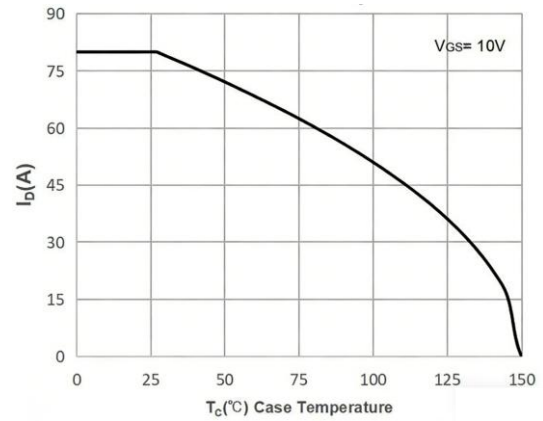


Fig 11. Normalized Maximum Transient Thermal Impedance

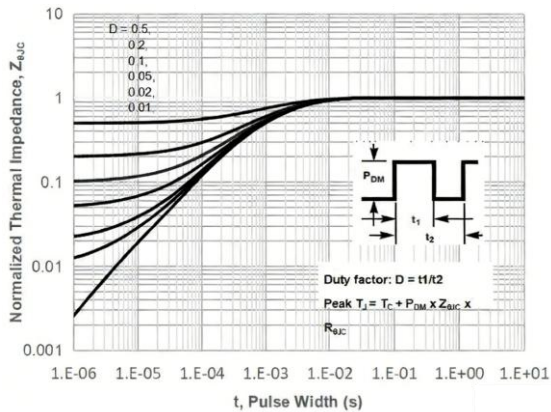


Fig 12. Peak Current Capacity

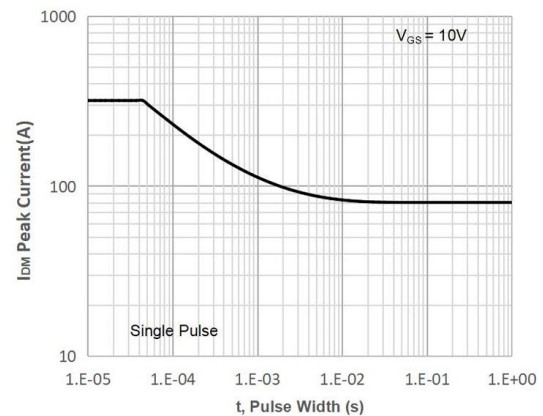




Fig 13. Gate Charge Test Circuit

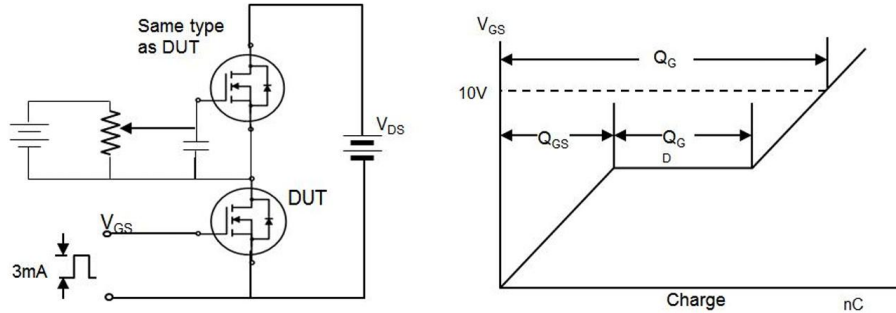


Fig 14. Resistive Switching Test Circuit & Waveform

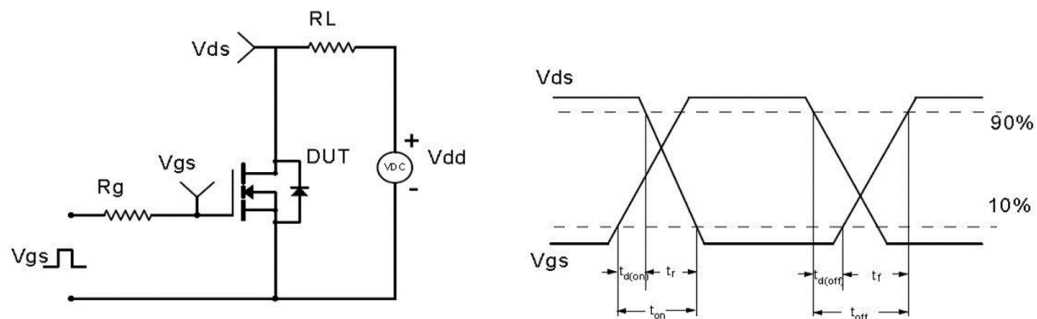


Fig 15. Unclamped Inductive Switching Test Circuit & Waveform

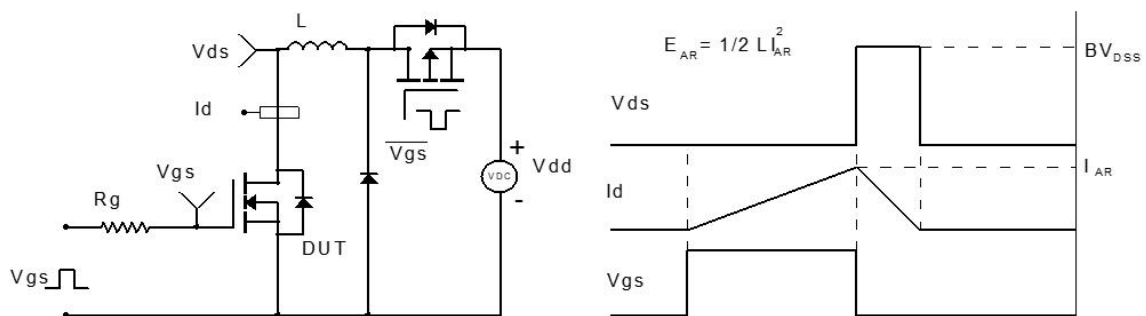
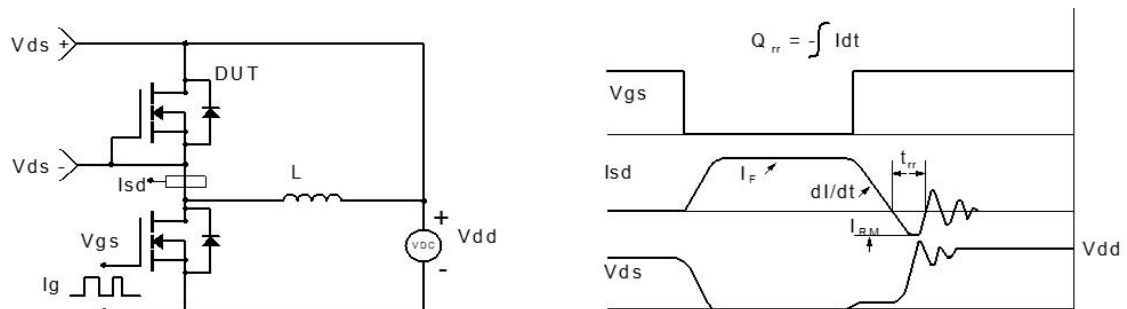


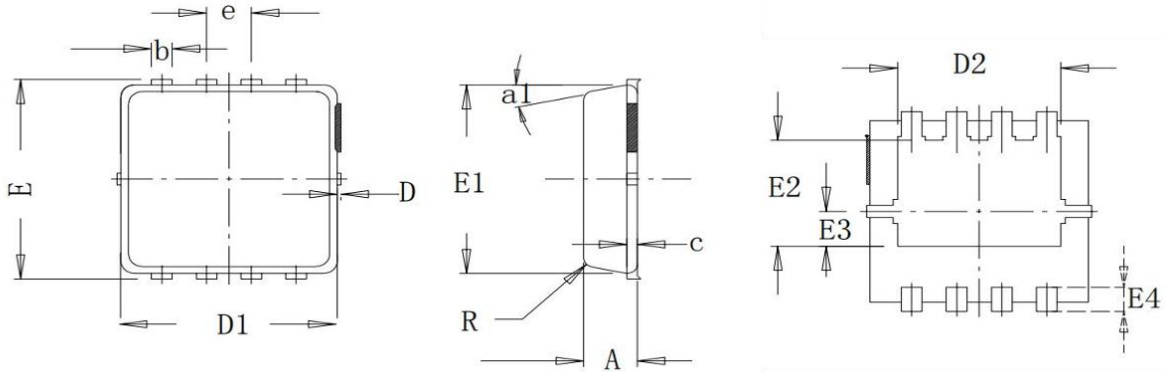
Fig 16. Diode Recovery Test Circuit & Waveform





PACKAGE INFORMATION

Dimension in PDFN8 (3.3x3) (Unit: mm)



Symbol	Millimeters	
	Min.	Max.
A	0.750	0.810
a1°	12°	
b	0.297	0.350
c	0.152	
D	0.000	0.100
D1	3.120	3.180
D2	2.350	
E	3.200	3.400
E1	3.090	3.150
E2	1.750	
E3	0.575	
E4	0.400	
e	0.650 BSC.	
R	0.150	

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