

**DESCRIPTION**

The AM085NS06LPJ is available in PDFN8(5x6) Package.

BVDSS	RDS(ON)	ID
60V	8.6mΩ@10V	55A
	10mΩ@4.5V	

APPLICATION

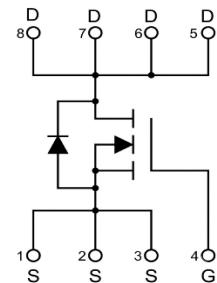
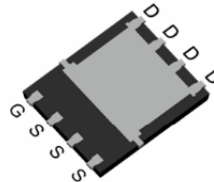
- Power Switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

ORDERING INFORMATION

Package Type	Part Number	
PDFN8(5x6)	PJ	AM085NS06LPJ
Note	SPQ:5,000pcs/Reel	
AiT provides all RoHS products		

FEATURE

- Fast Switching
- Advanced Split Gate Trench Technology
- Low Gate Charge and RDS(ON)
- 100%Single Pulse avalanche energy Test

PIN DESCRIPTION

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

ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless otherwise specified.

Parameter		Symbol	Value	Unit
Drain-to-Source Voltage		V _{DSS}	60	V
Gate-to-Source Voltage		V _{GSS}	±20	V
Continuous Drain Current	T _C = 25 °C	I _D	55	A
Continuous Drain Current	T _C = 100 °C		35	A
Pulsed Drain Current ⁽¹⁾		I _{DM}	220	A
Single Pulse Avalanche Energy ⁽²⁾		E _{AS}	121	mJ
Power Dissipation	T _C = 25 °C	P _D	60	W
Power Dissipation	T _C = 100 °C		24	
Storage Temperature Range		T _{STG}	-55 to 150	°C
Maximum Junction Temperature		T _J	-55 to 150	°C
Thermal Resistance Junction to Case		R _{θJC}	2.08	°C/W

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise specified.

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =48V, V _{GS} =0V	-	-	1	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V	-	-	±100	nA
Drain-Source On-stateResistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A	-	8.5	11.5	mΩ
		V _{GS} =4.5V, I _D =10A	-	10.0	14.5	
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} = V _{GS} , I _D = 250μA	1.3	1.7	2.3	V
Gate Resistance	R _G	V _{DS} = 30V, V _{GS} = 0V,F=1MHz	-	2.1	-	Ω
Dynamic Characteristics						
Input Capacitance	C _{iSS}	V _{GS} = 0V, V _{DS} = 30V f = 1.0MHz	-	998	-	pF
Output Capacitance	C _{oSS}		-	242	-	
Reverse Transfer Capacitance	C _{rSS}		-	11	-	
Total Gate Charge	Q _g	I _D =20A, V _{DS} =30V V _{GS} = 10V	-	14	-	nC
Gate to Source Charge	Q _{gs}		-	3	-	
Gate to Drain Charge	Q _{gd}		-	3.5	-	
Gate Plateau Voltage	V _{plateau}		-	3.7	-	
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{GS} =10V, V _{DD} =30V, I _D =20A, R _G =3Ω	-	7	-	nS
Rise Time	t _r		-	4	-	
Turn-Off Delay Time	t _{d(off)}		-	23	-	
Fall Time	t _f		-	4	-	
Drain-Source Body Diode Characteristics						
Maximum Body-Diode Continous Current	I _S		-	-	55	A
Source-Drain Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V, T _J = 25 °C	-	-	1.2	V
Reverse Recovery Time	T _{rr}	I _S =20A, T _J = 25°C,	-	20	-	nS
Reverse Recovery Charge	Q _{rr}	di/dt=100A/us	-	64	-	nC

Note:

1. The test condition is V_{DD}=30V, V_{GS}=10V, L=0.5mH, R_G=25Ω



TYPICAL CHARACTERISTICS

Fig1. Output Characteristics

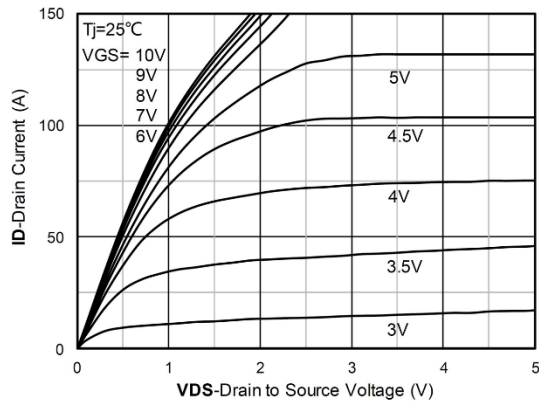


Fig 2. Transfer Characteristics

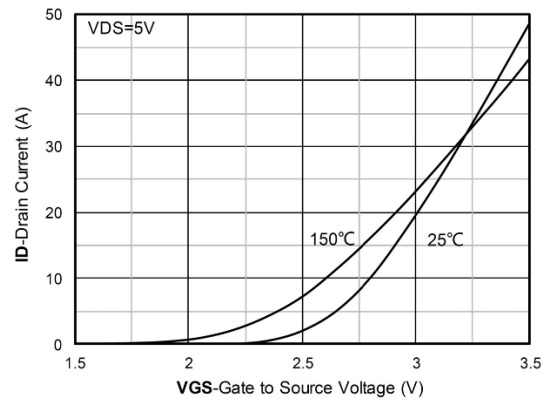


Fig 3. Capacitance Characteristics

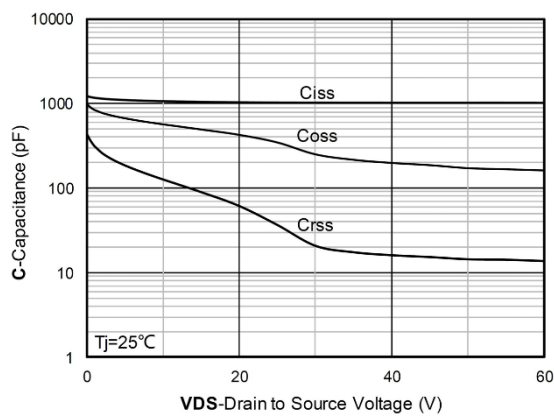


Fig 4. Gate Charge

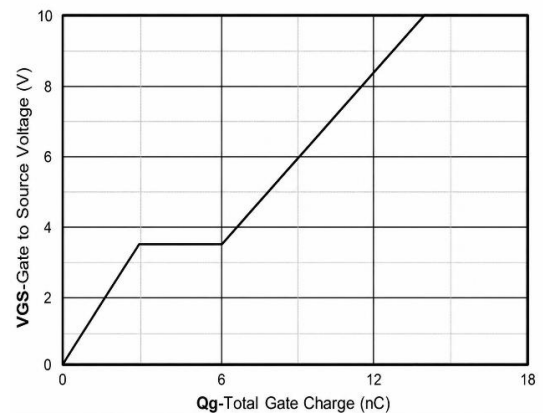


Fig 5. On-Resistance vs Gate to Source Voltage

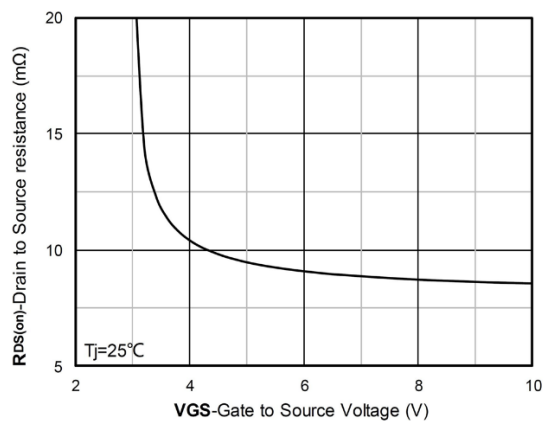


Fig 6. Normalized On-Resistance

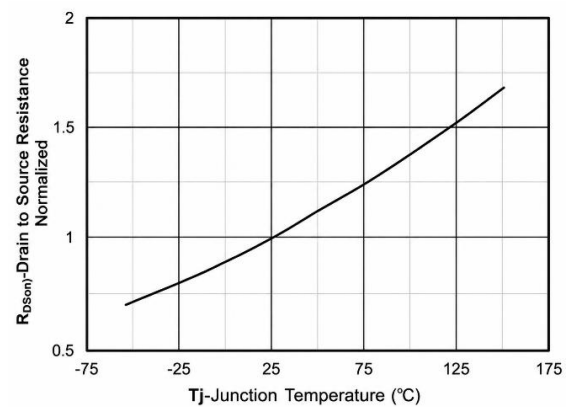




Fig 7. $R_{DS(ON)}$ VS Drain Current

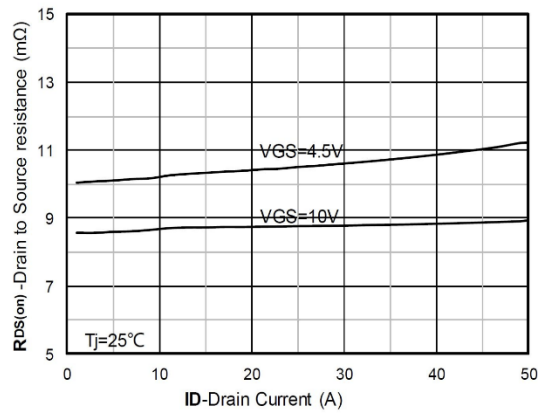


Fig 8. Forward Characteristics of reverse diode

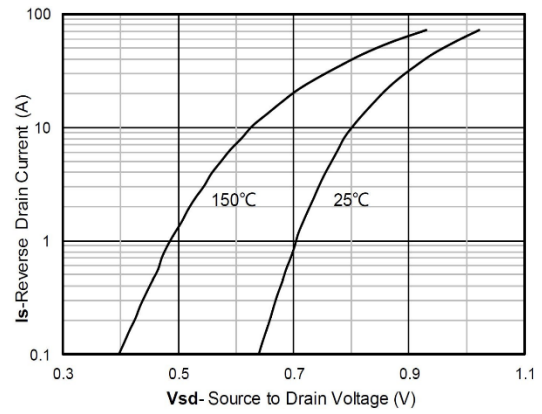


Fig 9. Normalized Breakdown voltage

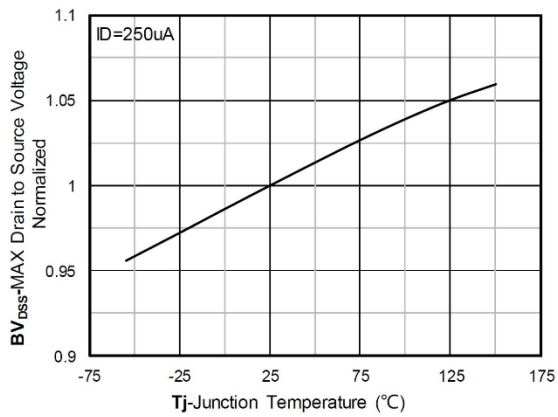


Fig 10. Normalized Threshold voltage

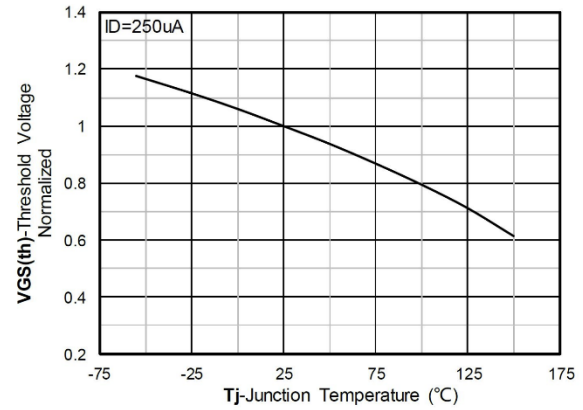


Fig 11. Current dissipation

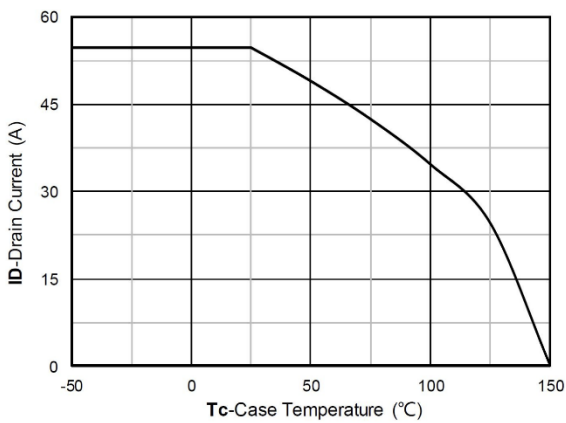


Fig 12. Power dissipation

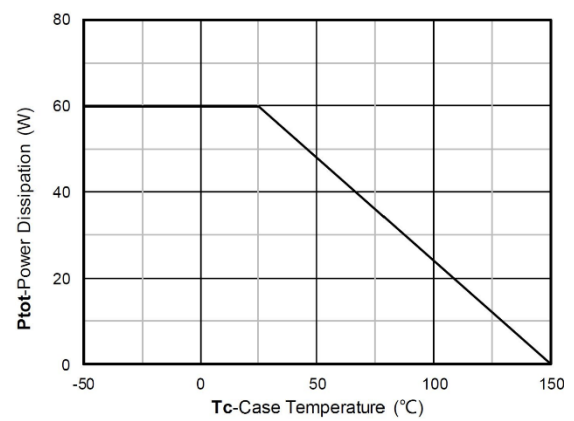




Fig 13. Normalized Maximum Transient
Thermal Impedance

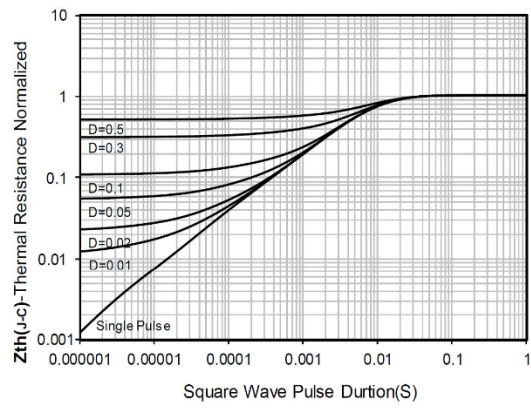
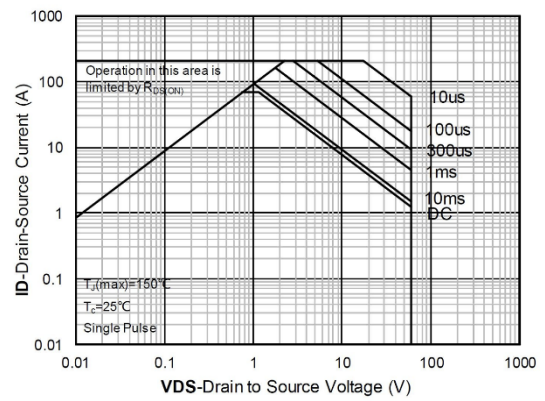


Fig 14. Safe Operation Area





TEST CIRCUIT AND WAVEFORM

Fig 15. Gate Charge Test Circuit & Waveform

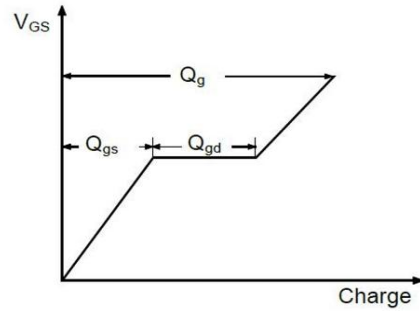
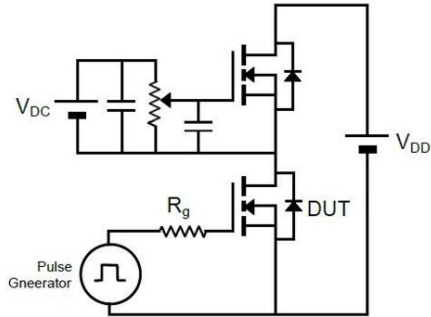


Fig 16. Resistive Switching Test Circuit & Waveform

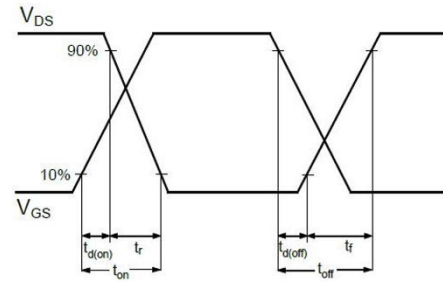
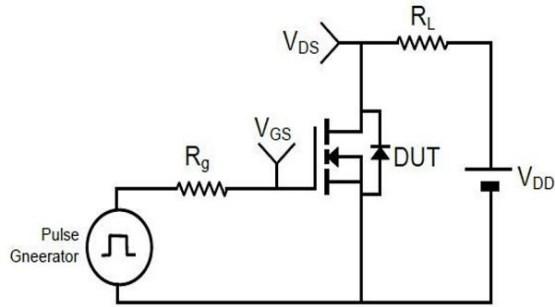


Fig 17. Un-clamped Inductive Load Switching Test Circuit & Waveform

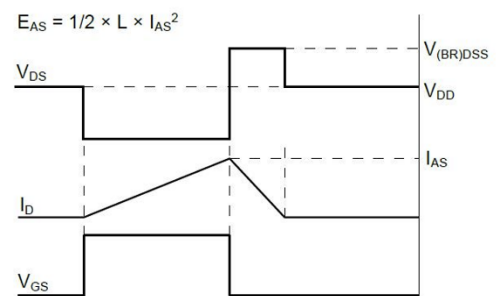
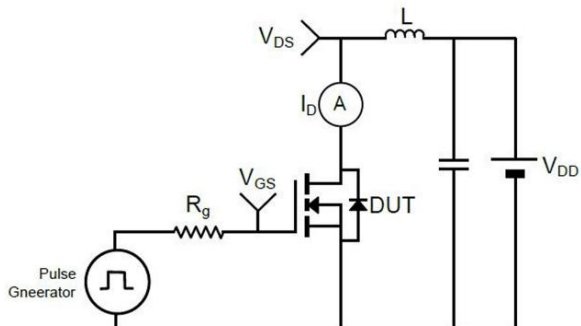
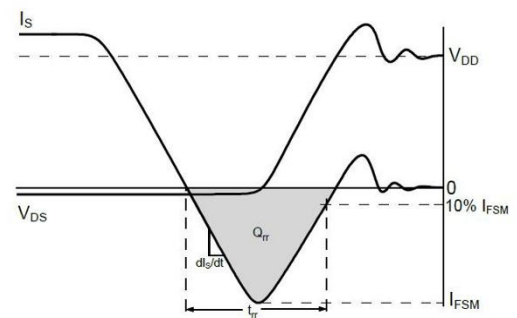
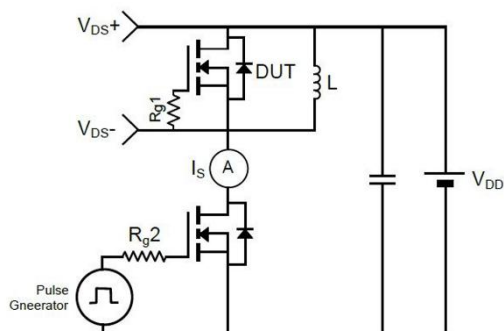


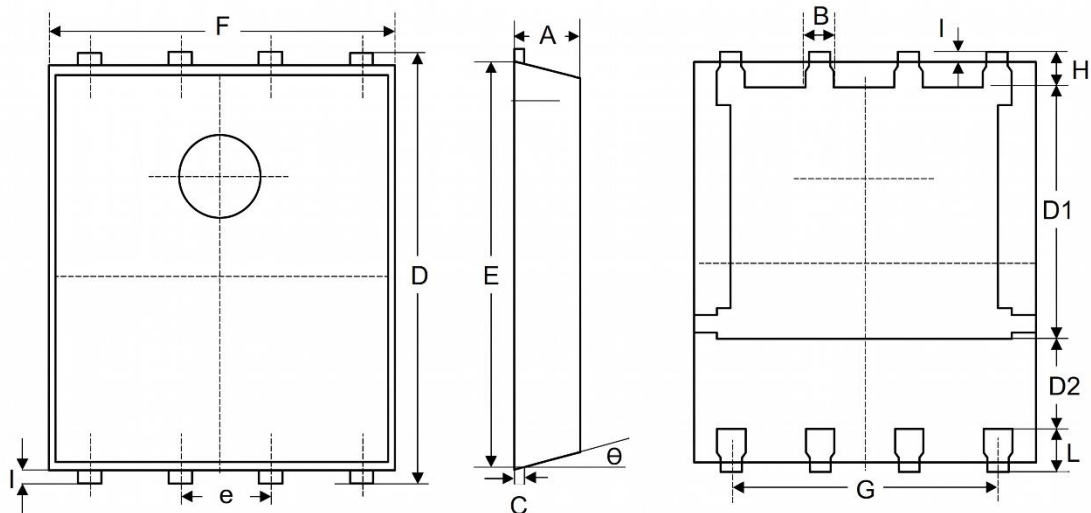
Fig 18. Diode Reverse Recovery Test Circuit & Waveforms





PACKAGE INFORMATION

Dimension in PDFN8(5x6) (Unit: mm):



Symbol	Millimeters	
	Min	Max
A	0.900	1.100
B	0.330	0.510
C	0.200	0.300
D	5.900	6.100
D1	3.380	3.780
D2	1.100	-
E	5.700	5.800
e	1.270 BSC	
F	4.800	5.000
G	0.361	0.396
H	0.410	0.610
I	0.060	0.200
L	0.510	0.710
θ	0°	12°

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