DESCRIPTION

The AM029NS085HPJ is available in PDFN8(5x6) package.

VDSS	RDSON	ID
85V	2.9mΩ	100A

APPLICATIONS

- Load Switch
- Motor Control and Drive
- Charge/Discharge for Battery Management System
- SMPS, Power Management

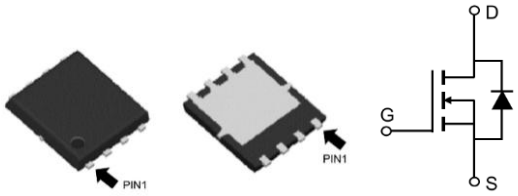
ORDERING INFORMATION

Package Type	Part Number	
PDFN8(5x6) SPQ: 5000pcs/Reels	PJ8	AM029NS085HPJ8VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

FEATURE

- 85V, 100A
- $R_{DS(ON)}$ Typ.= 2.9mΩ @ V_{GS} = 10V
- Advanced Trench Technology
- Excellent RDS(ON) and Low Gate Charge
- 100% Avalanche Screened
- 100% ΔVds Tested!

PIN DESCRIPTION



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

ABSOLUTE MAXIMUM RATINGS

T_J = 25°C, unless otherwise specified.

V_{DS}, Drain-to-Source Voltage			85V
V_{GS}, Gate Source Voltage			±20V
I_D, Continuous Drain Current	T_C = 25°C	Package limit	100A
		Silicon limit	136A
	T_C = 100°C		86A
I_{DM}, Pulsed Drain Current (1)			400A
E_{AS}, Avalanche Energy, Single Pulse (2)			676mJ
P_D, Power Dissipation	T_C = 25°C		114W
$R_{\theta JC}$, Thermal Resistance, Junction-to-Case			1.1°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, L=0.5mH, I_D=36A

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	85	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=80V, V_{GS}=0V	-	-	1.0	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	2.0	3.0	4.0	V
Static Drain-Source ON-Resistance	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 70A	-	2.9	3.4	mΩ
Transconductance	g_{fs}	V_{DS} = 5V, I_D = 50A		144		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}= 40V, V_{GS}=0V, f=1.0MHZ	-	5621	-	pF
Output Capacitance	C_{oss}		-	923	-	
Reverse Transfer Capacitance	C_{rss}		-	10	-	
Total Gate Charge	Q_g	V_{DS} = 40V , I_D =70A V_{GS}=0V to 10V	-	85	-	nC
Gate-Source Charge	Q_{gs}		-	35	-	
Gate Drain("Miller") Charge	Q_{gd}		-	18	-	
Gate Plateau Voltage	$V_{plateau}$			5.1		V
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=40V, I_D = 70A R_{GEN}=3Ω, V_{GS}= 10V	-	26	-	ns
Turn-On Rise Time	t_r		-	67	-	
Turn-Off Delay Time	$t_{d(off)}$		-	63	-	
Turn-Off Fall Time	t_f		-	37	-	
Drain-Source Diode Characteristics and Max Ratings						
Maximum Continuous Drain to Source Diode Forward Current	I_S	-	-	-	100	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}		-	-	400	A
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S= 30A	-	-	1.2	V
Reverse recovery time	t_{rr}	I_F= 70A diF/dt=100A/μs	-	79	-	ns
Reverse recovery charge	Q_{rr}		-	110	-	nC

TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Output Characteristics

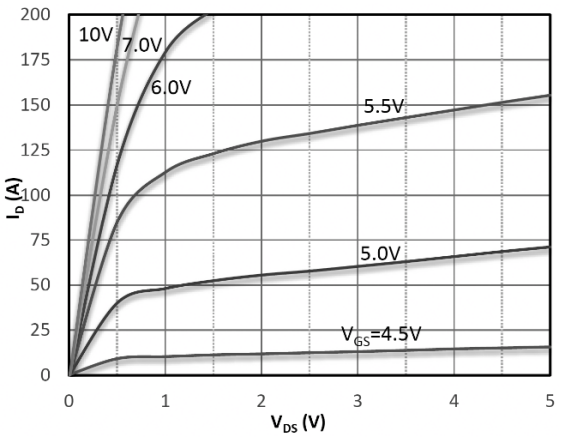


Fig 2. Typical Transfer Characteristics

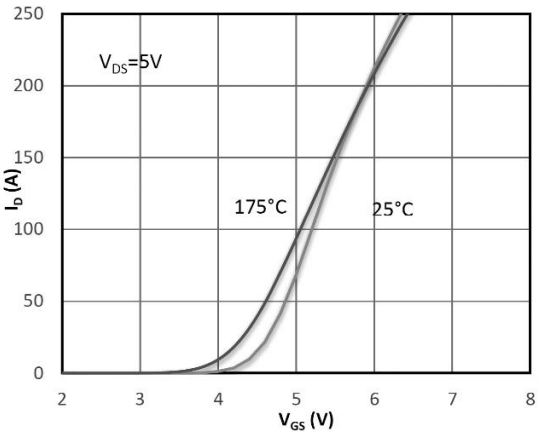


Fig 3. On resistance ($R_{DS(on)}$) vs. Drain Current

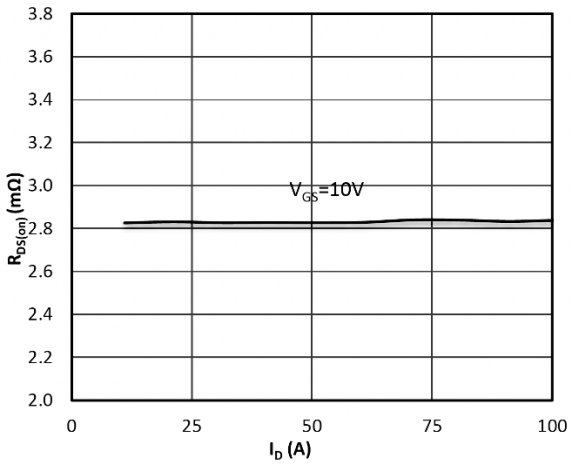


Fig 4. On resistance ($R_{DS(on)}$) vs. Gate Voltage

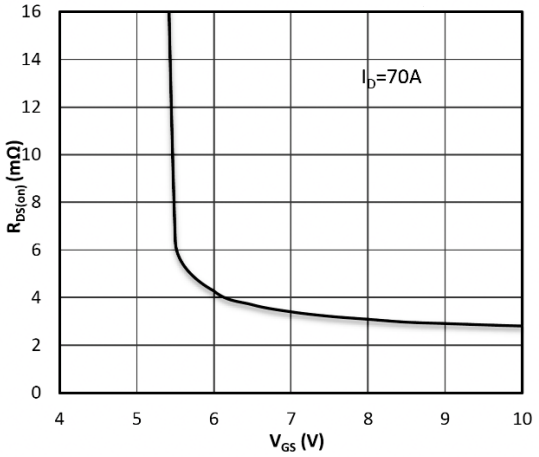


Fig 5. On resistance ($R_{DS(on)}$) vs. Temperature

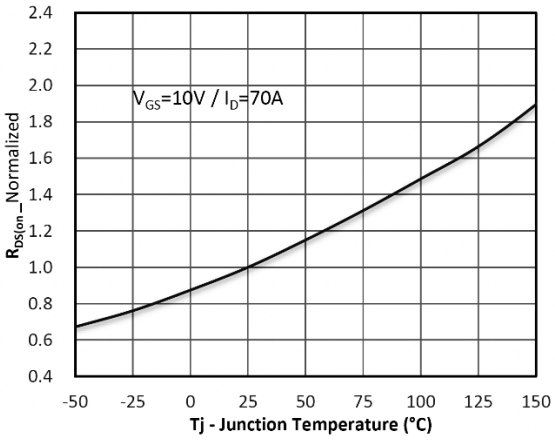


Fig 6. Capacitance Characteristics

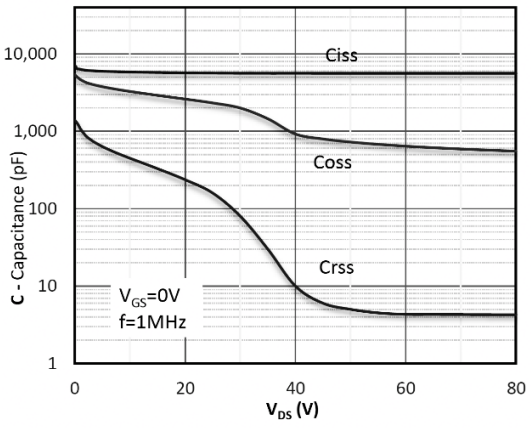


Fig 7. Gate Charge Characteristics

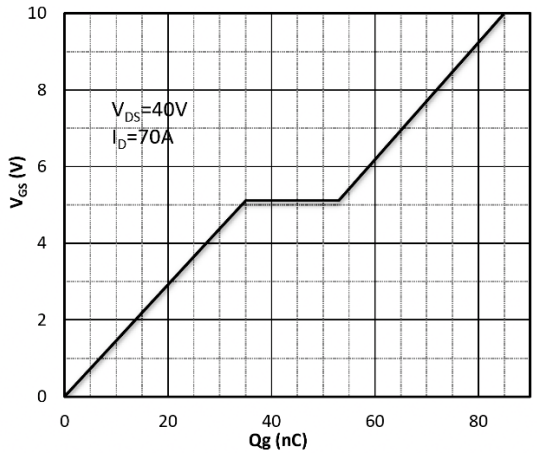


Fig 8. Body-diode Forward Characteristics

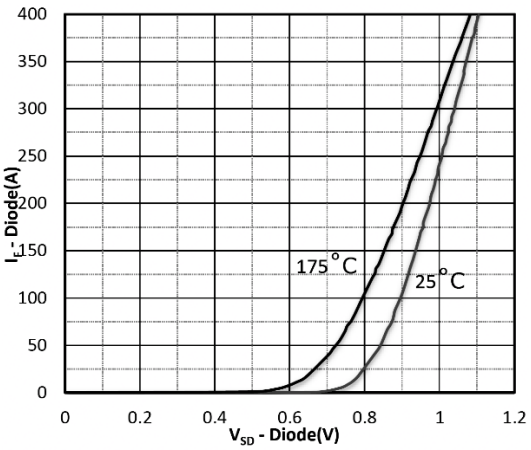


Fig 9. Power De-rating

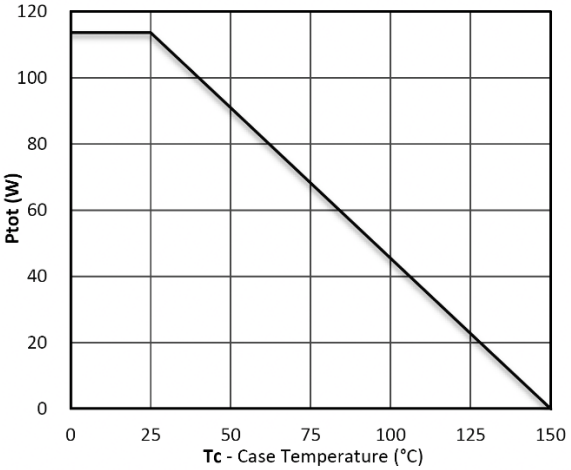


Fig 10. Current De-rating

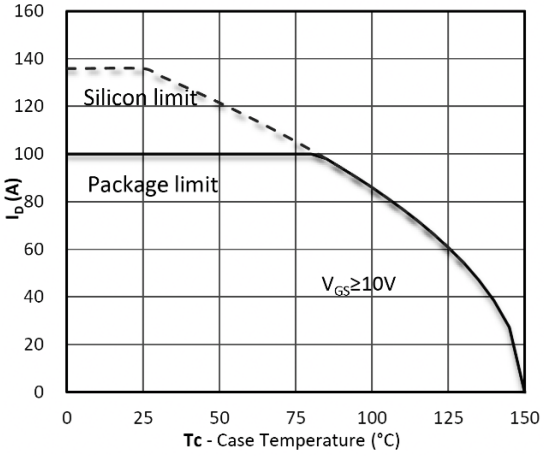


Fig11. Maximum Safe Operating Area

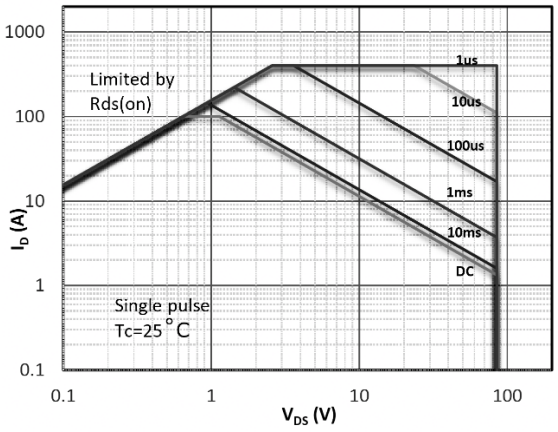


Fig 12. Max. Transient Thermal Impedance

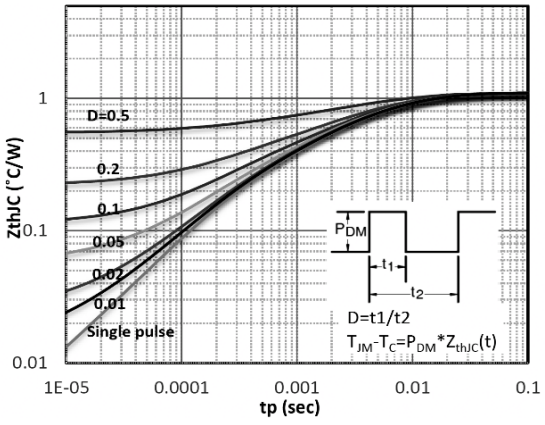


Fig 13. Gate Charge Test Circuit

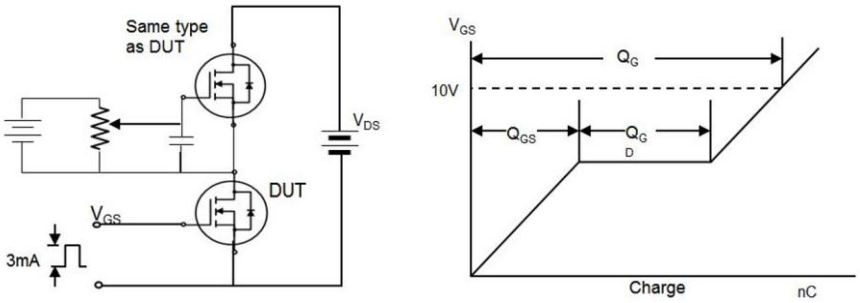


Fig 14. Resistive Switching Test Circuit & Waveform

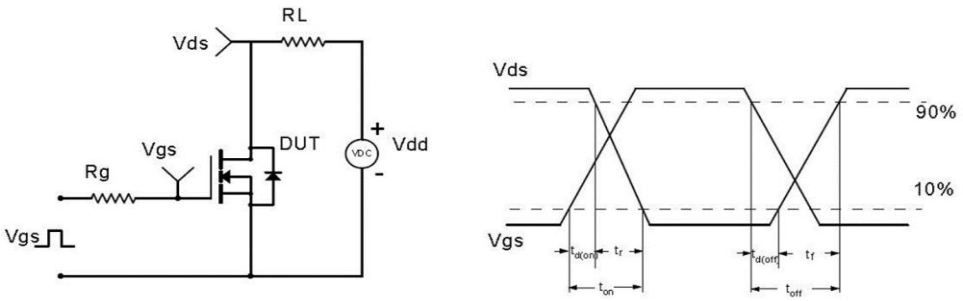


Fig 15. Unclamped Inductive Switching Test Circuit& Waveform

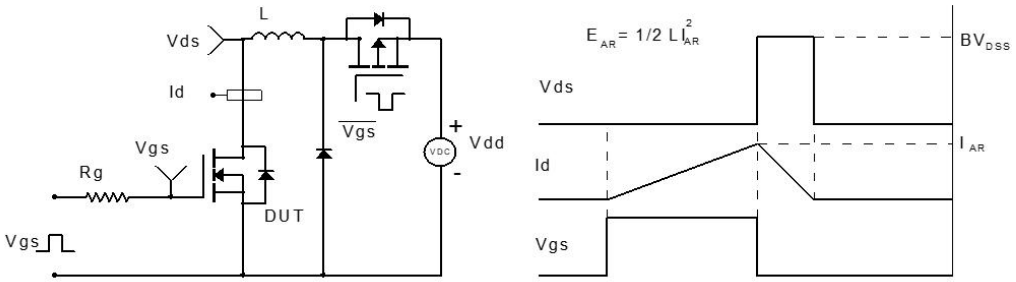
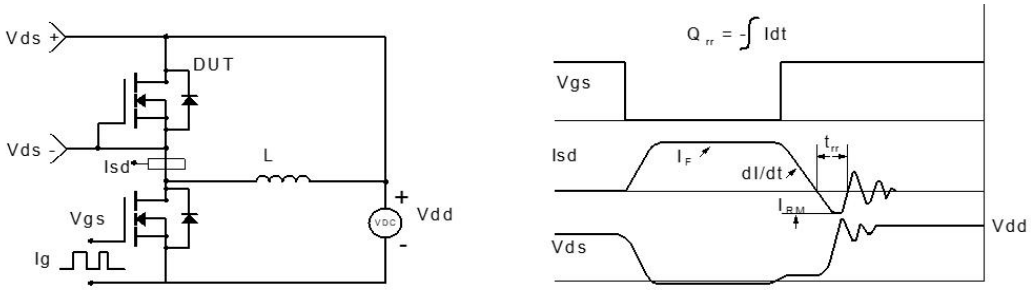


Fig 16. Diode Recovery Test Circuit & Waveform



PACKAGE INFORMATION

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

Symbol	Millimeters	
	Min.	Max.
A	6.000	6.200
B	4.875	4.925
b1	0.975	1.025
b2	0.246	0.262
C	5.775	5.825
D	1.245	1.295
d1	0.275	0.325
d2	0.375	0.425
E	1.725	1.825
E1	0.395	0.495
E2	3.425	3.525
E3	3.960	4.060

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