DESCRIPTION

The AM80N06PJ is available in PDFN8(5x6) Package.

VDSS	RDSON	ID
60V	4.6mΩ	80A

APPLICATIONS

- Load Switch
- PWM Application
- Power Management

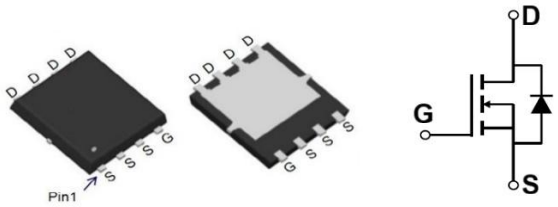
ORDERING INFORMATION

Package Type	Part Number	
PDFN8(5x6) SPQ: 5,000pcs/Reel	PJ8	AM80N06PJ8R
Note	R: Tape & Reel	
AiT provides all RoHS products		

FEATURE

- 60V, 80A
- $R_{DS(ON)}$ Typ.= 4.6mΩ @ V_{GS} = 10V
- $R_{DS(ON)}$ Typ.= 5.4mΩ @ V_{GS} = 4.5V
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- 100% UIS TESTED!
- 100% ΔVds TESTED!

PIN DESCRIPTION



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

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 Pulsed Avalanche Energy (2)		175mJ
P_D, Power Dissipation	T_C = 25°C	65.7W
$R_{\theta JC}$, Thermal Resistance, Junction-to-Case		1.9°C/W
T_{STG}, Storage Temperature Range		-55°C ~ +150°C
T_J, Junction Temperature Range		-55°C ~ +150°C

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.

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

(2) E_{AS} condition: Starting T_J=25°C, V_{DD}= 30V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=26.5A

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	2.2	V
Static Drain-Source ON-Resistance *	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 20A	-	4.6	6	mΩ
		V_{GS} = 4.5V, I_D = 10A	-	5.4	7	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}= 25V, V_{GS}=0V, f=1.0MHZ	-	4765	-	pF
Output Capacitance	C_{oss}		-	277	-	
Reverse Transfer Capacitance	C_{rss}		-	245	-	
Total Gate Charge	Q_g	V_{DS} = 30V , I_D = 10A V_{GS}=0V ~ 10V	-	98	-	nC
Gate-Source Charge	Q_{gs}		-	12.5	-	
Gate-Drain(“Miller”) Charge	Q_{gd}		-	32	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}= 30V, I_D = 15A R_{GEN}=1.8Ω, V_{GS}= 10V	-	9	-	ns
Turn-On Rise Time	t_r		-	6.1	-	
Turn-Off Delay Time	$t_{d(off)}$		-	33.2	-	
Turn-Off Fall Time	t_f		-	7.5	-	
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	t_{rr}	I_F= 15A, di/dt = 100A/μs	-	31	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	48	-	nC

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

TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Gate Charge Test Circuit

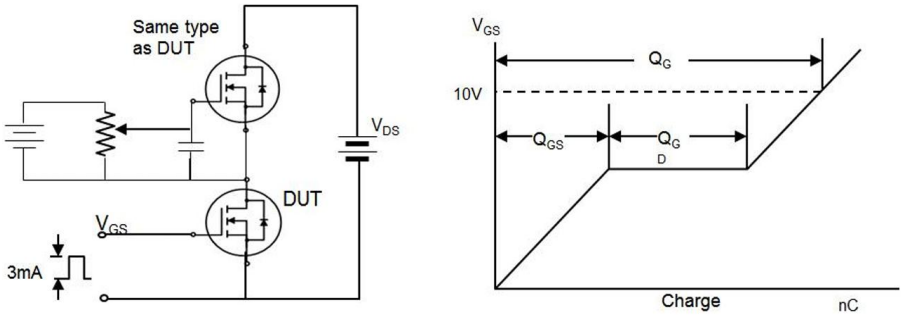


Fig 2. Resistive Switching Test Circuit & Waveform

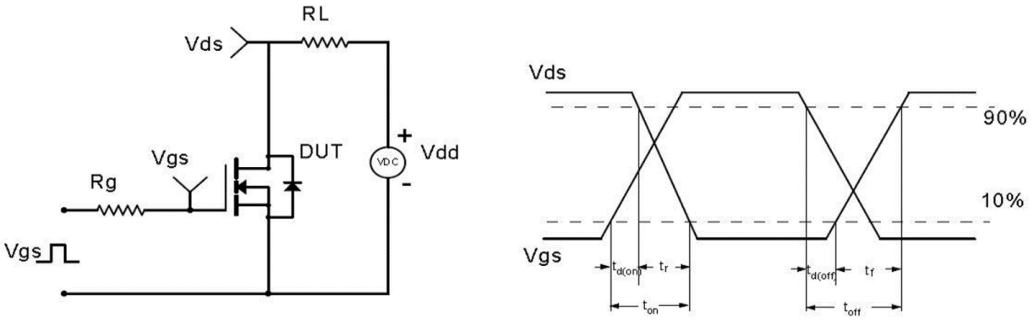


Fig 3. Unclamped Inductive Switching Test Circuit& Waveform

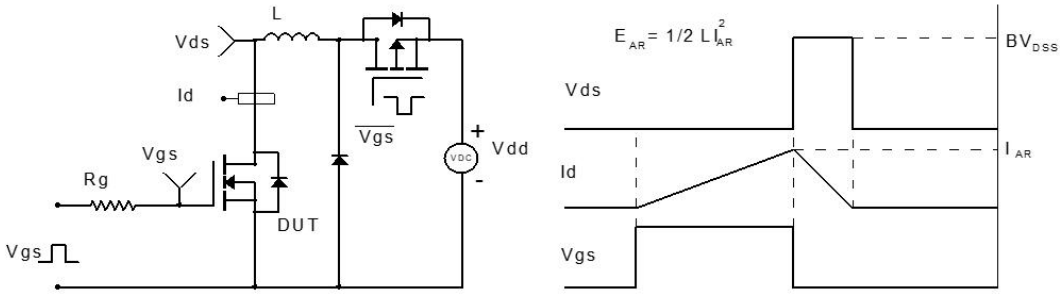
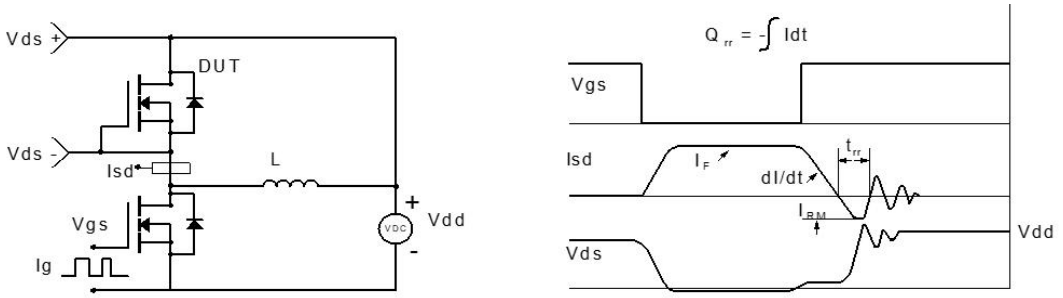
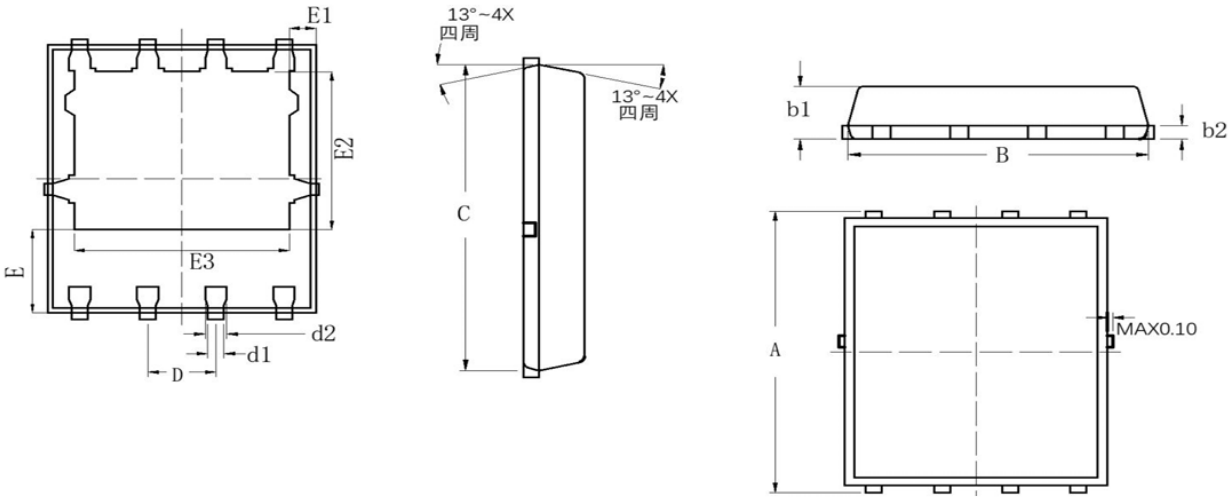


Fig 4. Diode Recovery Test Circuit & Waveform



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

IMPORTANT NOTICE

AiT Semiconductor Inc. (AiT) reserves the right to make changes to any its product, specifications, to discontinue any integrated circuit product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

AiT Semiconductor Inc. integrated circuit products are not designed, intended, authorized, or warranted to be suitable for use in life support applications, devices or systems or other critical applications. Use of AiT products in such applications is understood to be fully at the risk of the customer. As used herein may involve potential risks of death, personal injury, or server property, or environmental damage. In order to minimize risks associated with the customer's applications, the customer should provide adequate design and operating safeguards.

AiT Semiconductor Inc. assumes to no liability to customer product design or application support. AiT warrants the performance of its products of the specifications applicable at the time of sale.