DESCRIPTION

The AM027NS10HPJ is available in PDFN8(5x6) package.

BVDSS	RDSON	ID
100V	2.7mΩ	171A

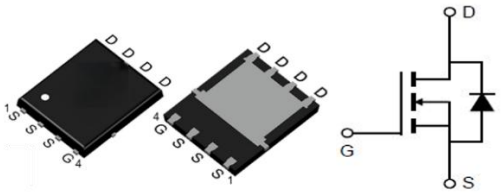
FEATURE

- Low on resistance
- Low reverse transfer capacitances
- 100% single pulse avalanche energy test
- 100% ΔVDS test

APPLICATION

- Motor Control and Drive
- Charge/Discharge for Battery Management System
- Synchronous Rectifier for SMPS

PIN DESCRIPTION



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

ORDERING INFORMATION

Package Type	Part Number	
PDFN8(5x6) SPQ: 3,000pcs/Box	PJ	AM027NS10HPJ8VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

ABSOLUTE MAXIMUM RATINGS

T_J=25℃,unless otherwise noted.

V_{DS}, Drain-Source Voltage		100V
V_{GS}, Gate-Source Voltage		±20V
I_D, Continuous Drain Current	T_C=25℃	171A
	T_C=100℃	121A
I_{DM_pulse}, Pulsed Drain Current (T_C=25℃, t_p limited by T_{jmax})		684A
E_{AS}, Avalanche Energy, Single Pulse	L=0.5mH, Rg=25Ω*	900mJ
P_{tot}, Power Dissipation	T_C=25℃	188W
T_{STG}, Storage Temperature Range		-50℃ ~ +175℃
T_J, Operating Junction Temperature Range		-50℃ ~ +175℃
R_{thJC}, Thermal Resistance, Junction–Case		0.8℃/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.

*EAS was tested at TJ= 25℃, L = 0.5mH, Id=42A.

ELECTRICAL CHARACTERISTICS

T_J=25℃,unless otherwise noted.

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Static Characteristic						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	100	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= 100V, V_{GS}=0V, T_J=25℃	-	-	1	μA
		V_{DS}= 100V, V_{GS}=0V, T_J=125℃	-	-	100	
Gate-Source Leakage Current	I_{GSS}	V_{DS}= 0V, V_{GS}=±20V	-	-	±100	nA
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=80A T_J=25℃	-	2.7	3.2	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.6	-	3.6	V
Transconductance	gfs	V_{DS}=5V, I_D=80A	-	94	-	S
Dynamic Characteristic						
Input Capacitance	C_{iss}	V_{DS}=50V, V_{GS}=0V, f=1MHz	-	5161	-	pF
Output Capacitance	C_{oss}		-	973	-	
Reverse Transfer Capacitance	C_{rss}		-	40	-	
Turn-On Delay Time	$t_{d(on)}$	V_{DD}= 50V, R_{G_ext} =3Ω V_{GS}= 10V, I_D=80A	-	22	-	ns
Turn-On Rise Time	t_r		-	50	-	
Turn-Off Delay Time	$t_{d(off)}$		-	41		
Turn-Off Fall Time	t_f		-	23	-	
Total Gate Charge	Q_G	V_{DS}= 50V, I_D=80A, V_{GS}= 10V	-	79	-	nC
Gate-Source charge	Q_{gS}		-	30	-	
Gate-Drain charge	Q_{gd}		-	18	-	
Gate Plateau Voltage	$V_{plateau}$		-	5.6	-	V
Body Diode Characteristic						
Diode Max Current	I_S	-	-	-	171	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_{SD}=80A	-	-	1.2	V
Diode Reverse Recovery Time	t_{rr}	I_F=50A, T_J=25℃ dI/dt=100A/μs	-	64	-	ns
Diode Reverse Recovery Charge	Q_{rr}		-	97	-	nC

TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Output Characteristics

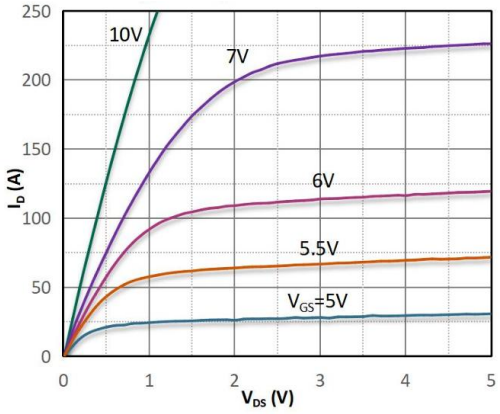


Fig 2. Transfer Characteristics

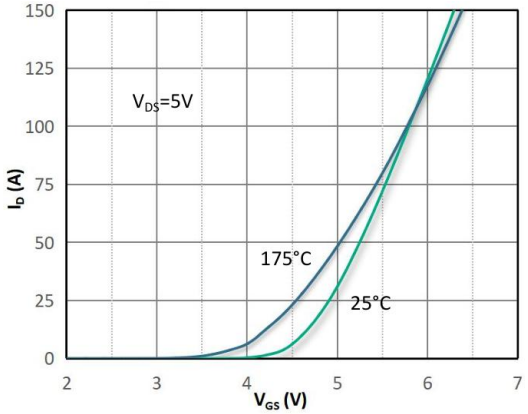


Fig 3. $R_{ds(on)}$ vs. Drain Current

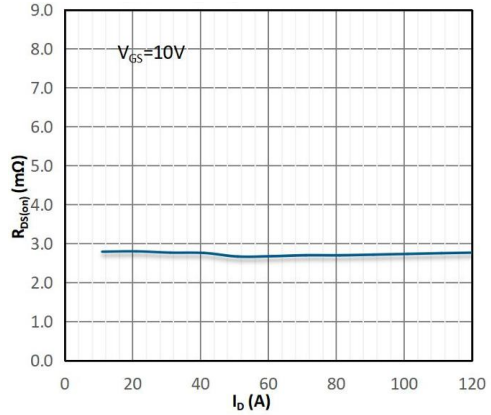


Fig 4. Rds(on) vs. Gate Voltage

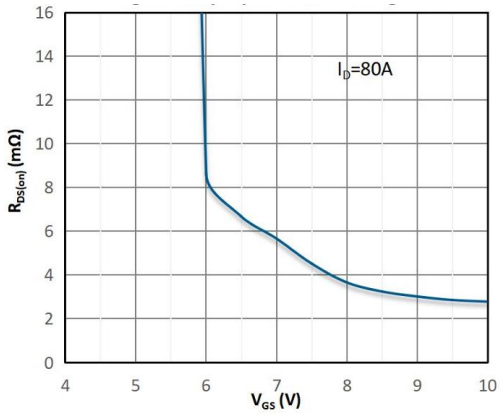


Fig 5. Rds(on) vs. Temperature

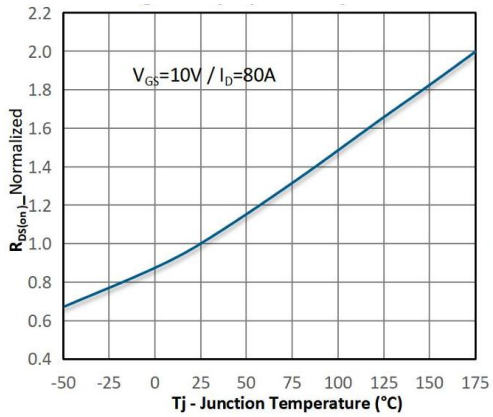


Fig 6. Capacitance Characteristics

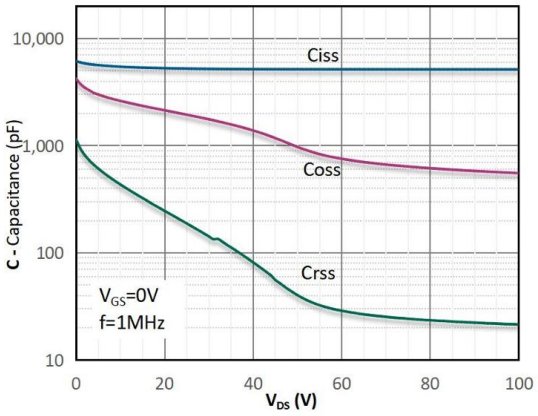


Fig 7. Gate Charge Characteristics

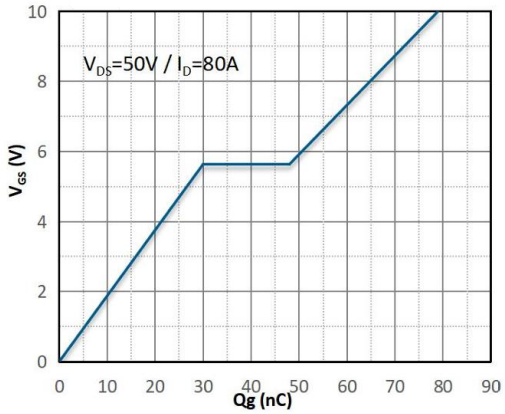


Fig 8. Body-Diode Forward Characteristics

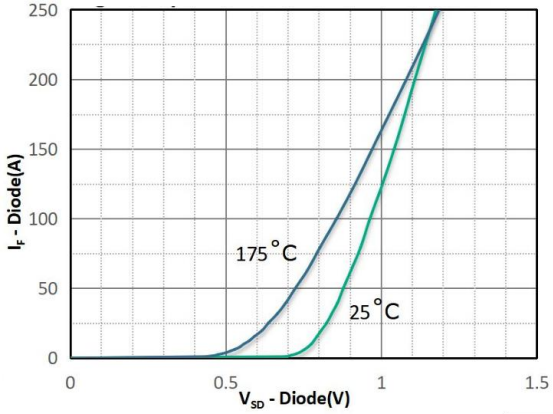


Fig 9. Power De-Rating

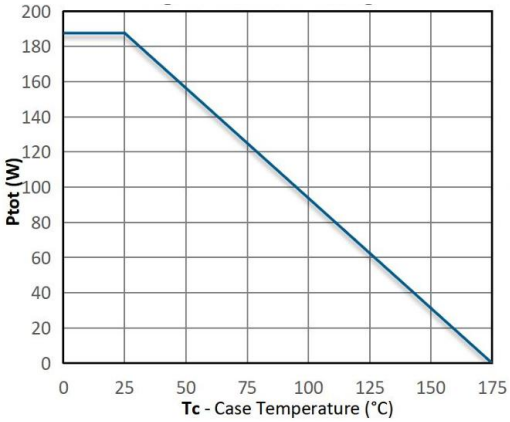


Fig 10. Current De-Rating

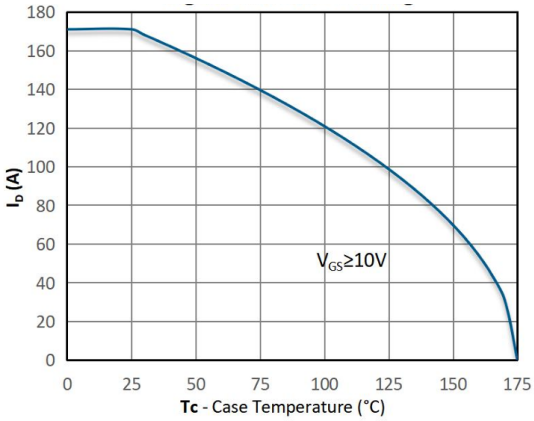


Fig 11. Safe Operating Area

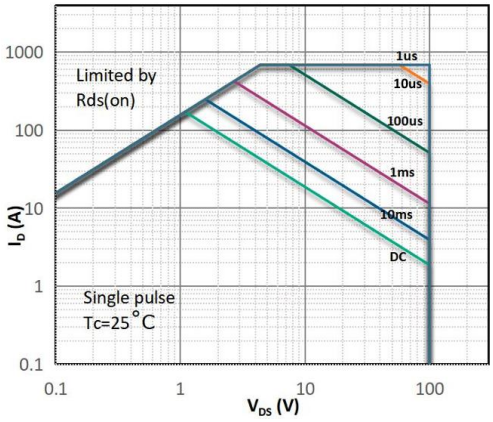


Fig 12. Max. Transient Thermal Impedance

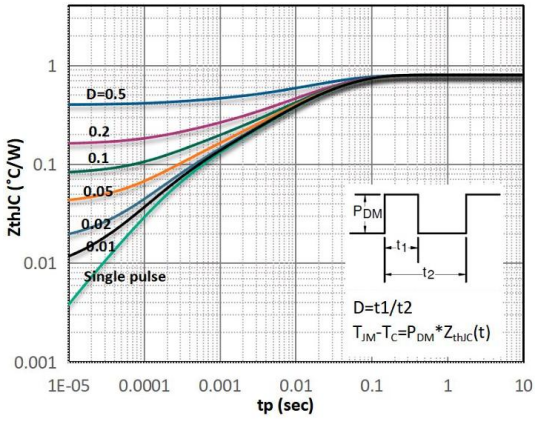


Fig 15. Gate Charge & Test Circuit

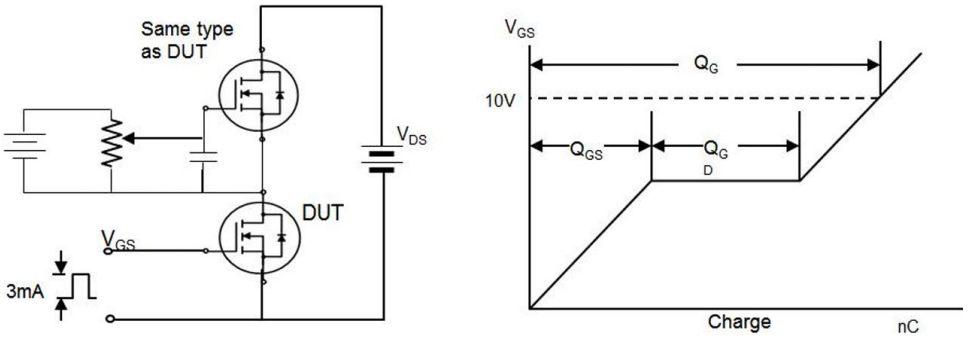


Fig 16. Switching Test Circuit & Waveform

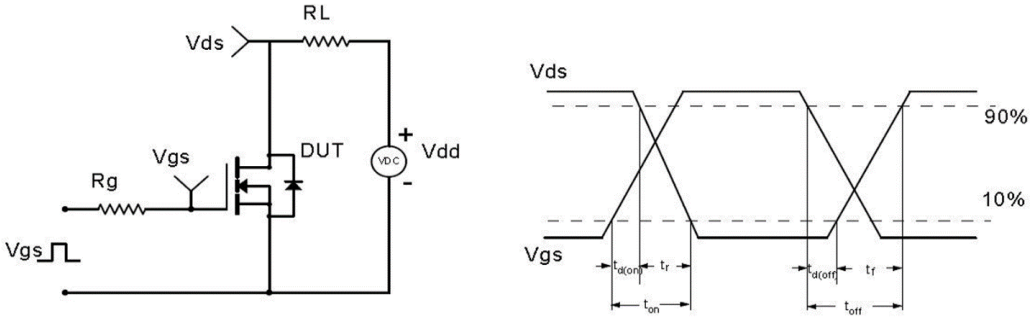


Fig 17. Circuit& Waveform

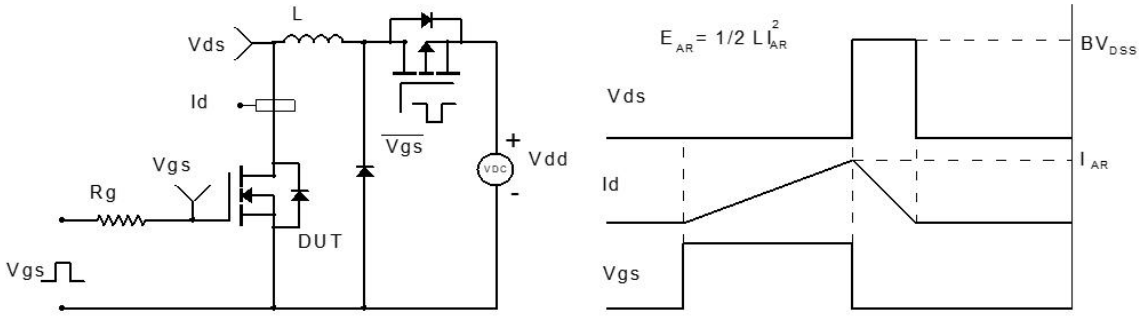
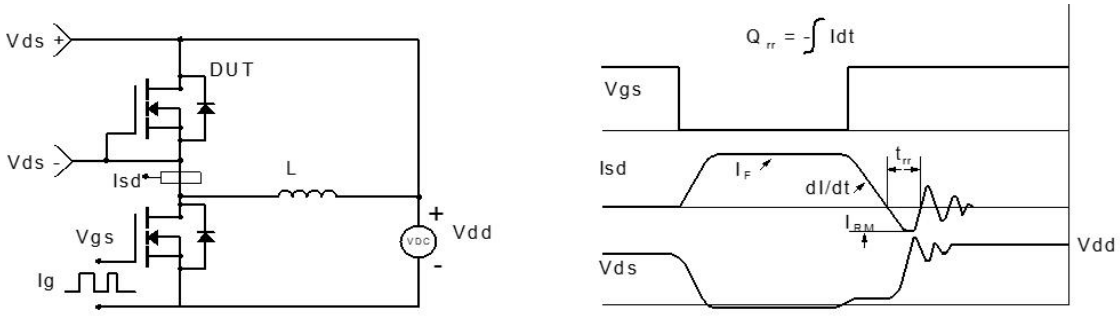
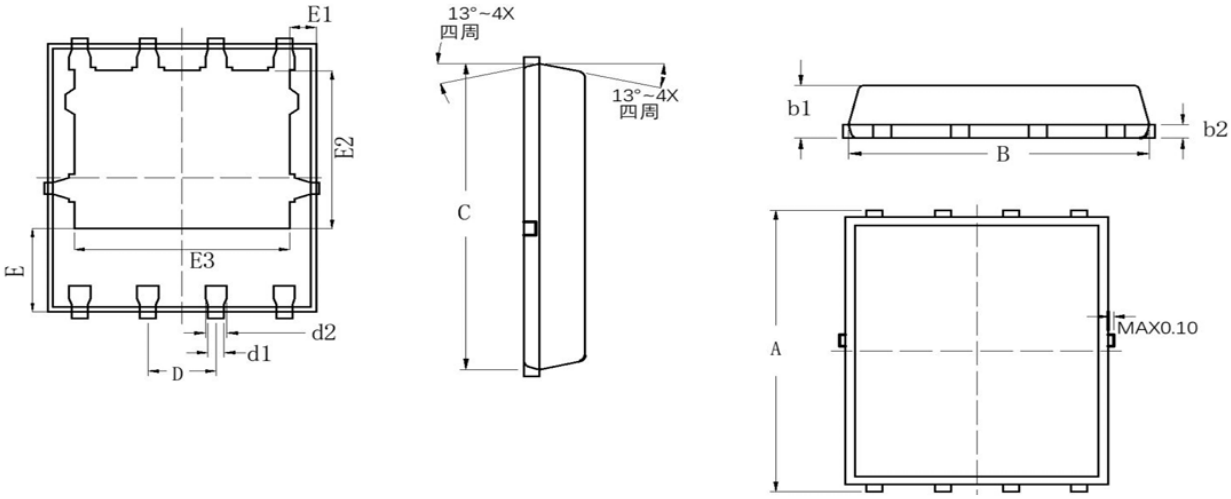


Fig 18. Diode Recovery Test Circuit & Waveform



PACKAGE INFORMATION

Dimension in DFN8(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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