DESCRIPTION

The AM15N10 is available in PDFN8(3x3) Package.

BVDSS	RDSON	ID
100V	85mΩ	15A

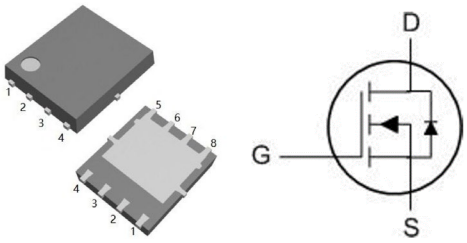
FEATURE

- Low Gate Charge
- Low Ciss
- Fast Switching
- Improved dv/dt Capability

APPLICATION

- High Frequency Switching and Synchronous Rectification.
- DC/DC Converter.

PIN DESCRIPTION



PDFN8 (3x3)

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

ORDERING INFORMATION

Package Type	Part Number	
PDFN8(3x3) SPQ: 5,000pcs/Reel	PJ8S	AM15N10PJ8SVR
Note	R: Tape & Reel V: Halogen free Package	
AiT provides all RoHS products		

ABSOLUTE MAXIMUM RATINGS

T_C=25℃,unless otherwise noted.

V_{DSS}, Drain-Source Voltage		100V
V_{GS}, Gate-Source Voltage		±20V
I_D, Continuous Drain Current	T_C=25℃	15A
	T_C=100℃	9A
I_{DM}, Pulsed Drain Current *		60A
E_{AS}, Single Pulse Avalanche Energy	L=0.5mH, V_D=50V, T_C=25℃	29mJ
P_D, Maximum Power Dissipation	T_C=25℃	20.8W
T_{STG}, Storage Temperature Range		-50℃ ~ +150℃
T_J, Operating Junction Temperature Range		-50℃ ~ +150℃
TL, Maximum Lead Temperature for Soldering Purposes, 1/8" from Case for 5 Seconds		260℃
$R_{th(ch-c)}$, Thermal Resistance, Channel to Case		6℃/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.

* Repetitive Rating: pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS

T_C=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	-	-	1	μA
Gate-Source Leakage Current, Forward	I_{GSSF}	V_{DS}= 0V, V_{GS}=20V	-	-	100	nA
Gate-Source Leakage Current, Reverse	I_{GSSR}	V_{DS}= 0V, V_{GS}= -20V	-	-	-100	nA
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=5A	-	71	85	mΩ
		V_{GS}=4.5V, I_D=3A	-	82	110	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.2	-	2.5	V
Gate Resistance	R_g	V_{GS}=0V, V_{DS} Open, f=1MH	-	0.8	-	Ω
Forward Transconductance	gfs	V_{DS}=5V, I_D=5A	-	3.6	-	S
Dynamic Characteristic						
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz	-	1188	-	pF
Output Capacitance	C_{oss}		-	55	-	
Reverse Transfer Capacitance	C_{rss}		-	44	-	
Turn-On Delay Time	$t_{d(on)}$	V_{DD}= 50V, R_L=14Ω V_{GS}= 10V	-	13.4	-	ns
Turn-On Rise Time	t_r		-	0.8	-	
Turn-Off Delay Time	$t_{d(off)}$		-	36.4		
Turn-Off Fall Time	t_f		-	4.6	-	
Gate Charge Characteristic						
Total Gate Charge	Q_G	V_{DS}= 80V, I_D=15A, V_{GS}= 10V	-	23	-	nC
Gate-Source charge	Q_{gS}		-	5.5	-	
Gate-Drain charge	Q_{gd}		-	5.5	-	
Reverse Diode						
Continuous Diode Forward Current	I_S		-	-	15	A
Pulsed Current Forward Current	I_{S_pulse}		-	-	60	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=5A	-	-	1.20	V
Reverse Recovery Time	t_{rr}	I_F=1A, V_D=30V, di/dt=100A/μs	-	27	-	ns
Reverse Recovery Charge	Q_{rr}		-	19.8	-	nC

TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Typical Output Characteristics

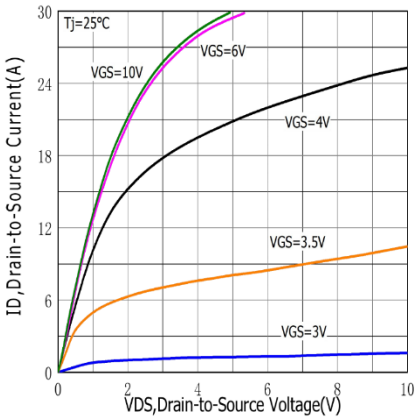


Fig 2. Typical Gate Charge vs. Gate to Source Voltage

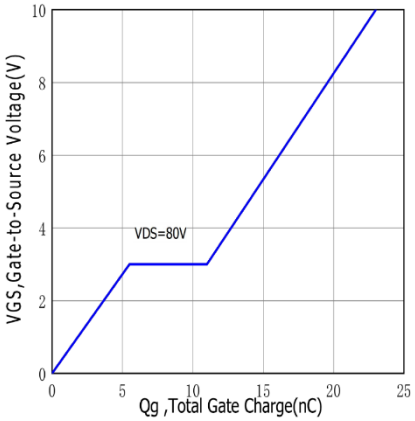


Fig 3. Typical Body Diode Transfer Characteristics

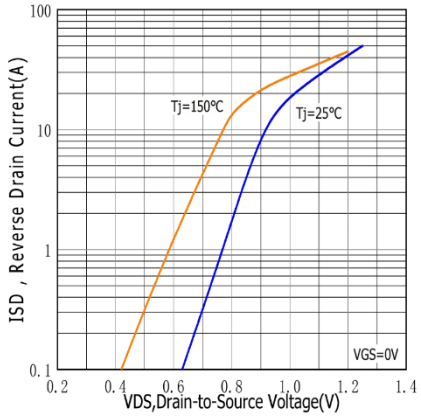


Fig 4. Typical Capacitance vs. Drain to Source Voltage

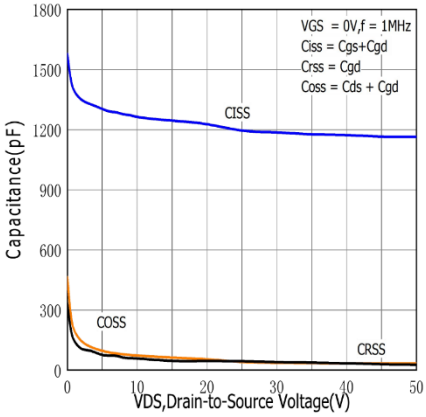


Fig 5. Typical Breakdown Voltage vs. Junction Temperature

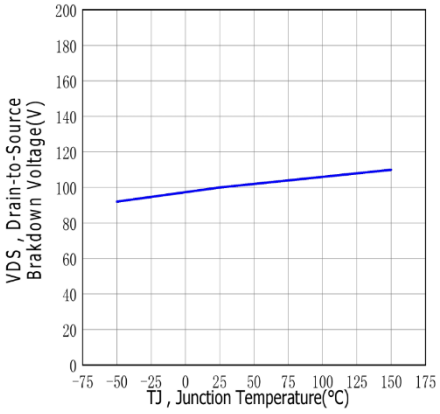


Fig 6. Typical Drain to Source on Resistance vs. Junction Temperature

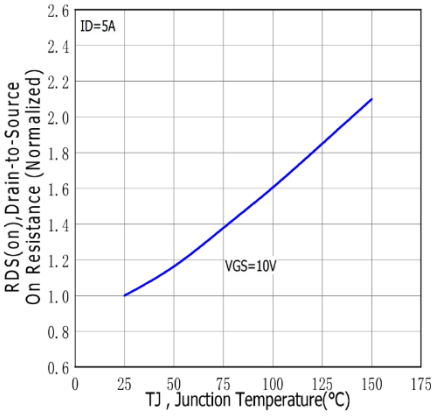


Fig 7. Maximum Forward Bias Safe Operating Area

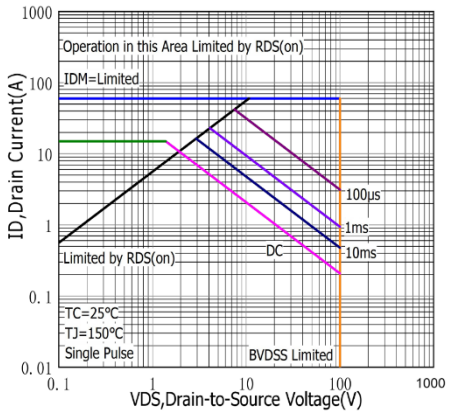


Fig 8. Typical Drain to Source ON Resistance vs. Drain Current

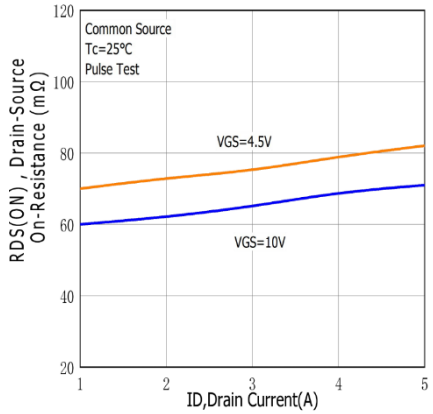


Fig 9. Maximum EAS vs. Channel Temperature

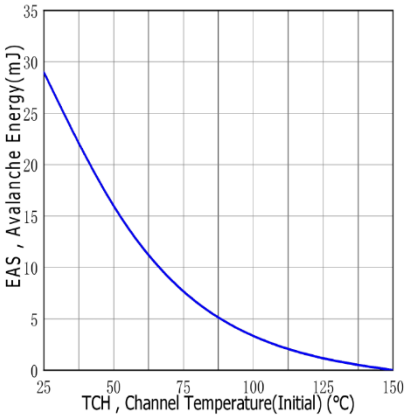


Fig 10. Typical Threshold Voltage vs. Case Temperature

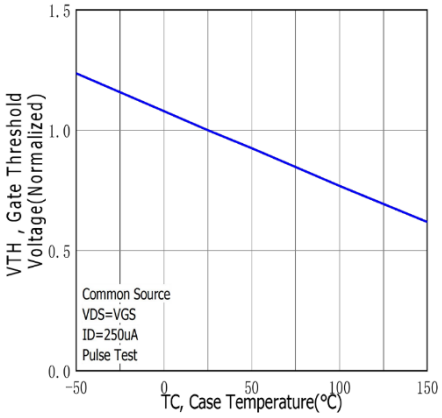


Fig 11. Typical Transfer Characteristics

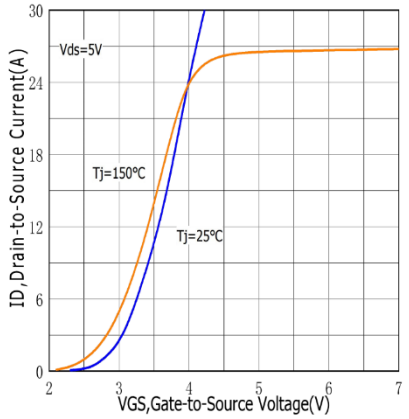


Fig 12. Maximum Power Dissipation vs. Case Temperature

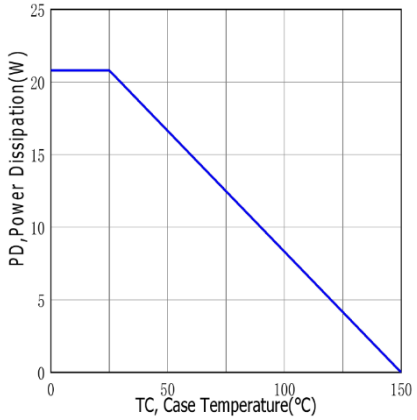


Fig 13. Maximum Effective Thermal Impedance, Junction to Case

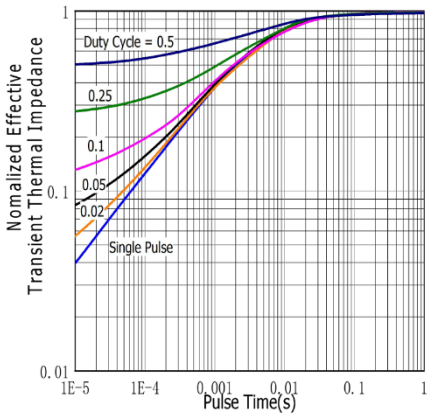


Fig 14. Peak Diode Recovery dv/dt Test Circuit

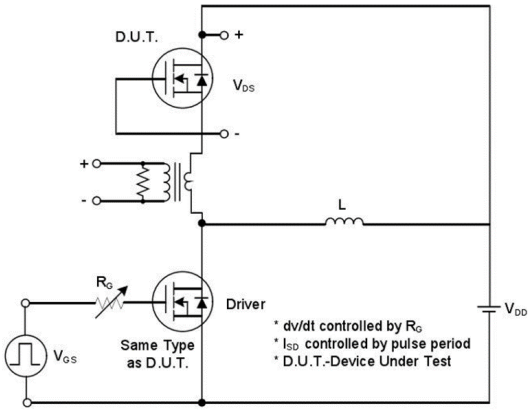


Fig 15. Peak Diode Recovery dv/dt Waveforms

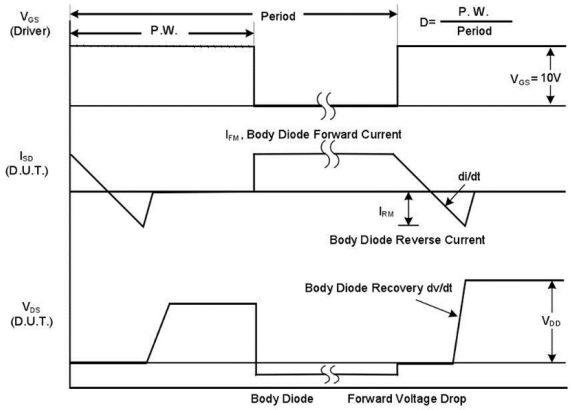


Fig 16. Switching Test Circuit

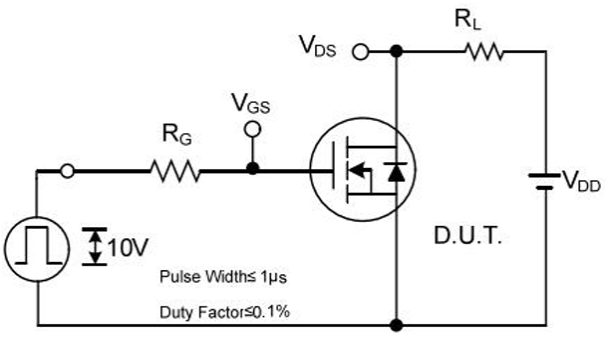


Fig 17. Switching Waveforms

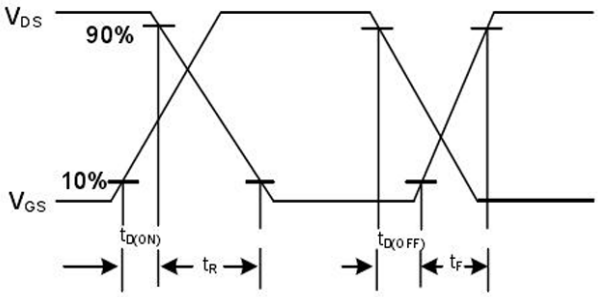


Fig 18. Gate Charge Test Circuit

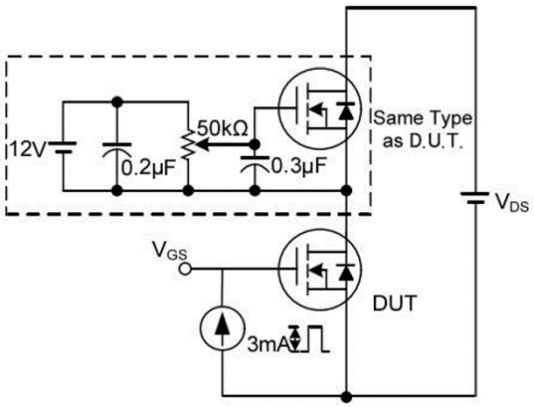


Fig 19. Gate Charge Waveform

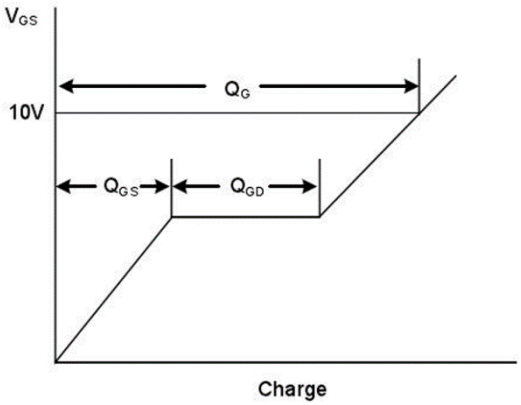


Fig 20. Unclamped Inductive Switching Test Circuit

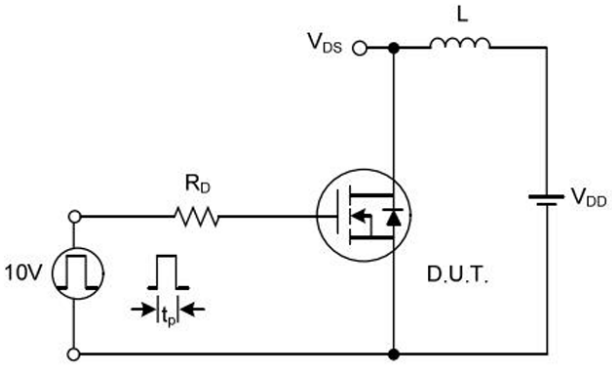
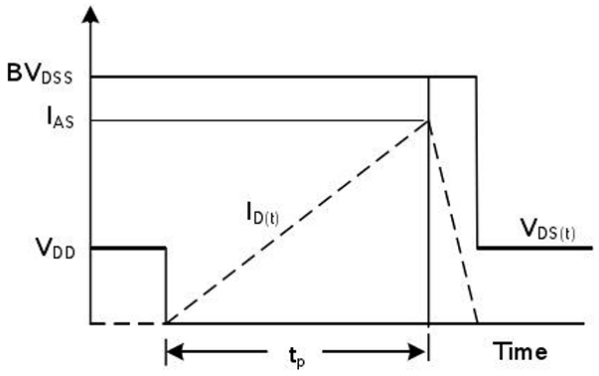
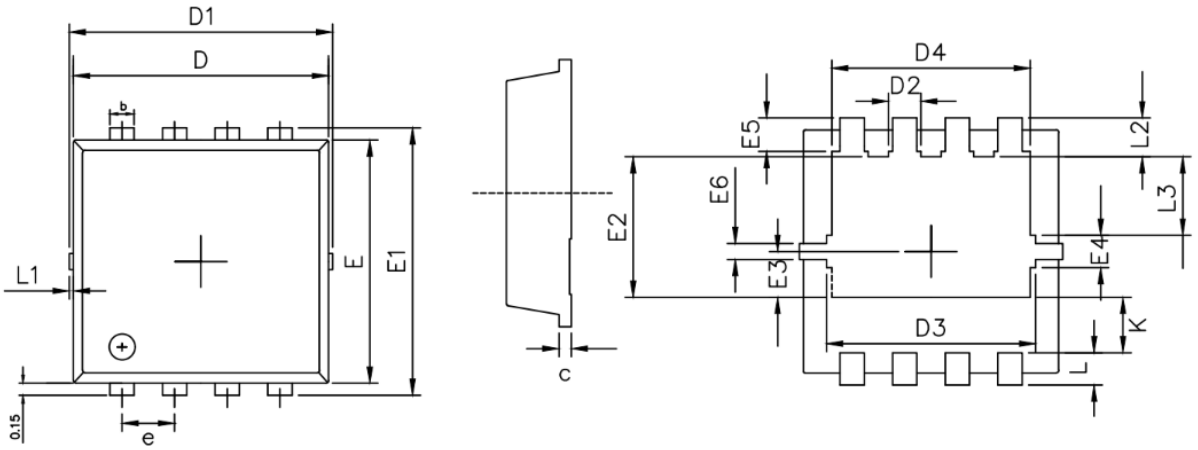


Fig 21. Unclamped Inductive Switching Waveforms

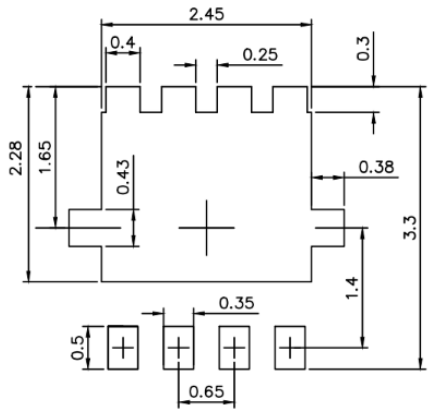


PACKAGE INFORMATION

Dimension in PDFN8(3x3) (Unit: mm)



RECOMMENDED LAND PATERN



Symbol	Millimeters (mm)	
	Min.	Max.
A	0.700	1.000
b	0.240	0.400
c	0.100	0.250
D	3.000	3.250
D1	3.100	3.500
D2	0.300	0.500
D3	2.500	2.700
D4	2.350	2.550
E	2.900	3.100
E1	3.150	3.450
E2	1.650	1.850
E3	0.480	0.680
E4	0.230	0.500
E5	0.200	0.400
E6	0.075	0250
e	0.550	0.750
K	0.520	0.820
L	0.250	0.550
L1	0.000	0.100
L2	0.280	0.580
L3	0.880	1.080

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