

**DESCRIPTION**

The AM10NS10LM is available in SOP8 package.

BVDSS	RDS(ON)	ID
100V	10mΩ	12A

APPLICATION

- Power switching application
- Battery management
- Uninterruptible power supply

ORDERING INFORMATION

Package Type	Part Number	
SOP8	M	AM10NS10LM
Note	SPQ:4,000pcs/Reel	
AiT provides all RoHS products		

ABSOLUTE MAXIMUM RATINGS

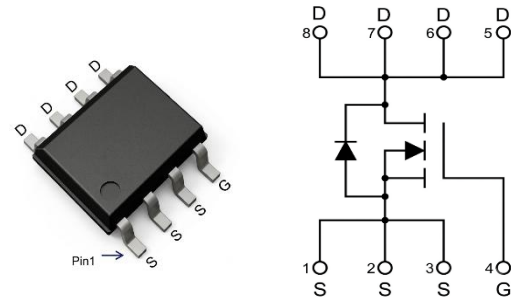
T_A= 25°C, unless otherwise specified.

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V _{DS}	100	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current		I _D	12	A
Continuous Drain Current	T _A = 100°C		8	
Pulsed Drain Current			48	
Single Pulse Avalanche Energy		E _{AS}	30	mJ
Power Dissipation		P _D	3.5	W
Power Dissipation	T _A = 100°C		1.4	W
Operation Junction and Storage Temperature Range		T _J , T _{STG}	-55 ~ 150	°C
Thermal Resistance, Junction-Ambient		R _{θja}	35.7	°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.

FEATURES

- V_{DS} = 100V, I_D = 12A
R_{DS(ON)} Typ = 10mΩ @ V_{GS} = 10V
R_{DS(ON)} Typ = 13mΩ @ V_{GS} = 4.5V
- Fast switching
- Low on resistance and gate charge
- Advanced Split Gate Trench Technology
- 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



ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise specified.

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250uA	100	-	-	V
Drain- Source Leakage Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V	-	-	1	μA
Gate- Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{GS} =0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	1.3	1.7	2.3	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =10A	-	10	14	mΩ
		V _{GS} =4.5V, I _D =8A	-	13	18	
Gate Resistance	R _G	V _{DS} =50V, V _{GS} =0V, f=1MHz	-	1.88	-	Ω
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{GS} =0 V, V _{DS} =50V, f=1.0MHz	-	1955	-	pF
Output Capacitance	C _{oss}		-	607	-	pF
Reverse Transfer Capacitance	C _{rss}		-	14	-	pF
Total Gate Charge	Q _g	V _{DS} =50V, I _D =10A, V _{GS} =10V	-	32	-	nC
Gate-Source Charge	Q _{gs}		-	11.3	-	nC
Gate-Drain Charge	Q _{gd}		-	4.8	-	nC
Gate Plateau Voltage	V _{plateau}		-	3.5	-	V
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{GS} =10V, V _{DD} =50V, R _G =2.2Ω, I _D =10A	-	9.5	-	ns
Turn-on Rise Time	t _r		-	19	-	ns
Turn-off Delay Time	t _{d(off)}		-	37	-	ns
Turn-off Fall Time	t _f		-	32	-	ns
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1A	-	-	1.2	V
Diode Forward Source Current	I _S	-	-	-	12	A
Reverse Recovery Time	T _{rr}	V _{GS} =0V, I _S =10A, di/dt=100 A/μs	-	49	-	nS
Reverse Recovery Charge	Q _{rr}		-	78	-	nC

Note:

The test condition is V_{DD}=50V, V_{GS}=10V, L=0.5mH, R_G=25Ω;



TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Typical Output Characteristics

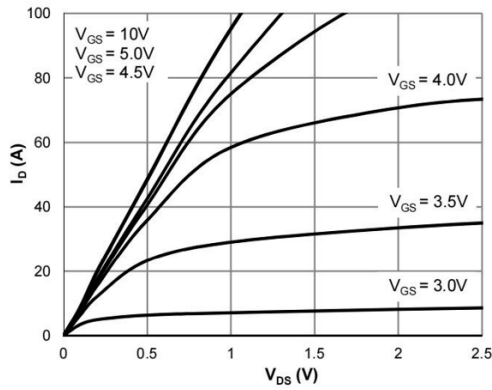


Fig 2. Typical Transfer Characteristics

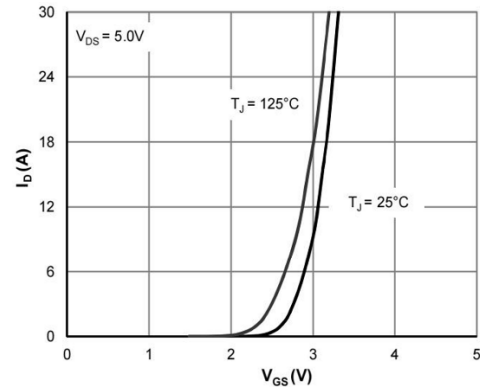


Fig 3. On-Resistance vs. Drain Current

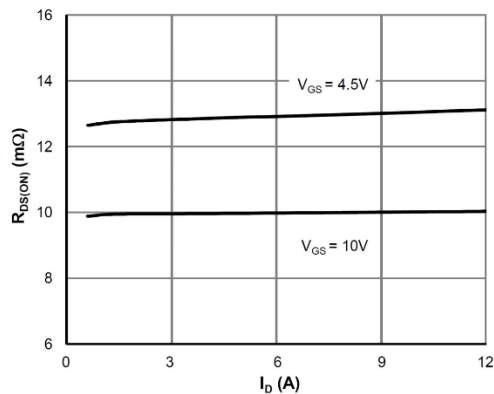


Fig 4. On-Resistance vs. Junction Temperature

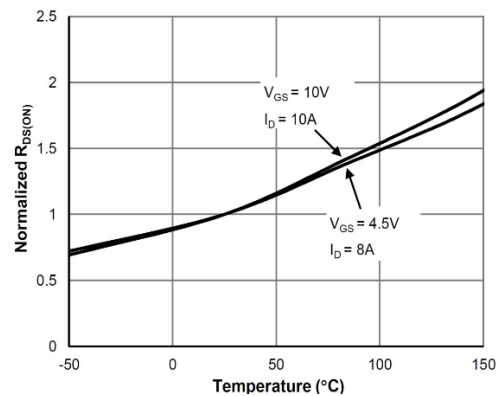


Fig 5. Body-Diode Characteristics

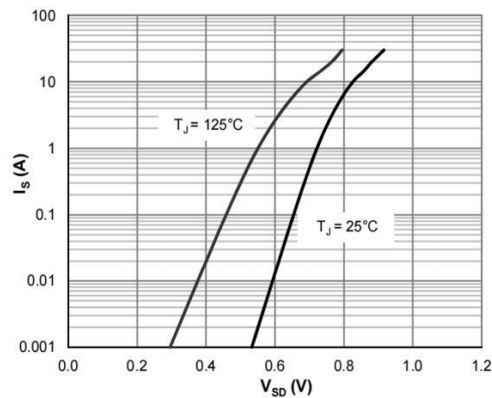


Fig 6. Capacitance Characteristics

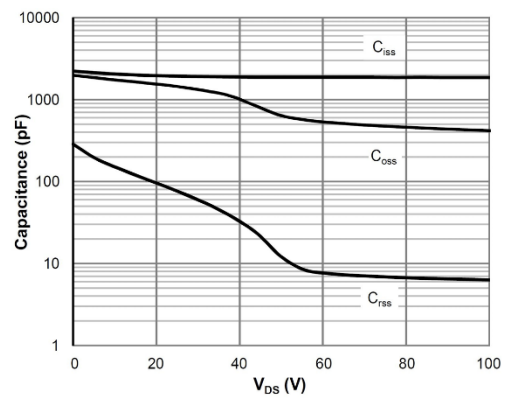




Fig 7. Current De-rating

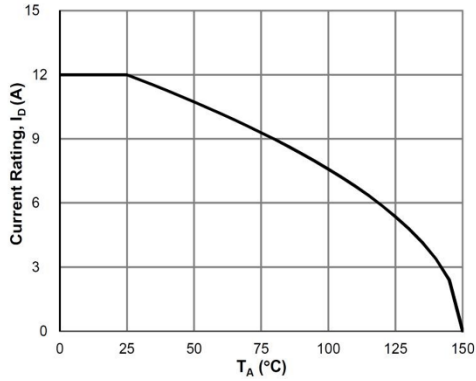


Fig 8. Power De-rating

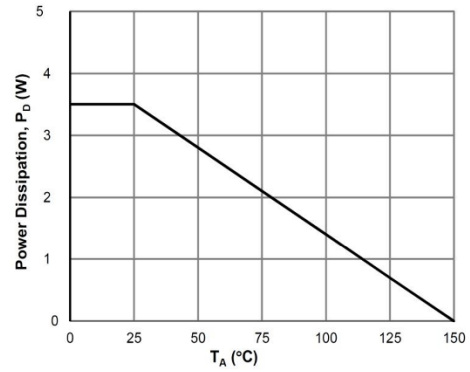


Fig 9. Maximum Safe Operating Area

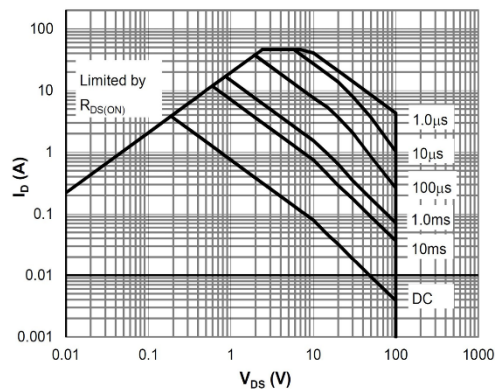


Fig 10. Single Pulse Power Rating, Junction-to-Ambient

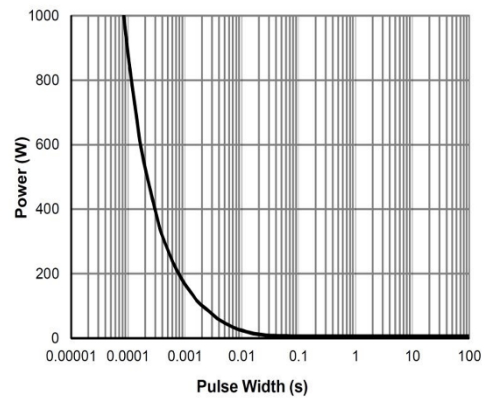
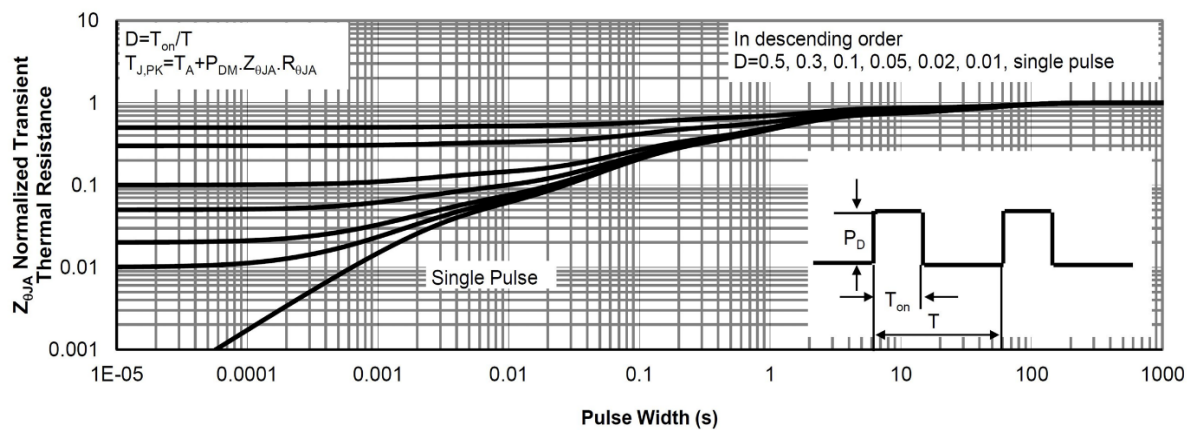


Fig 11. Normalized Maximum Transient Thermal Impedance





TEST CIRCUIT AND WAVEFORM

Fig 12. Gate Charge Test Circuit & Waveform

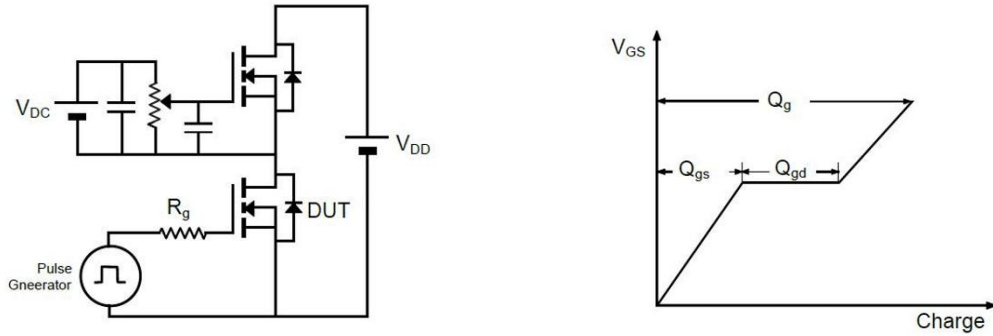


Fig 13. Resistive Switching Test Circuit & Waveform

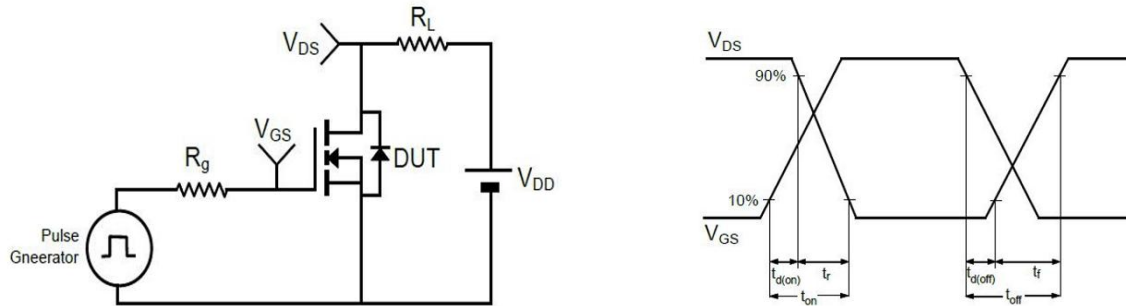


Fig 14. Un-clamped Inductive Load Switching Test Circuit & Waveform

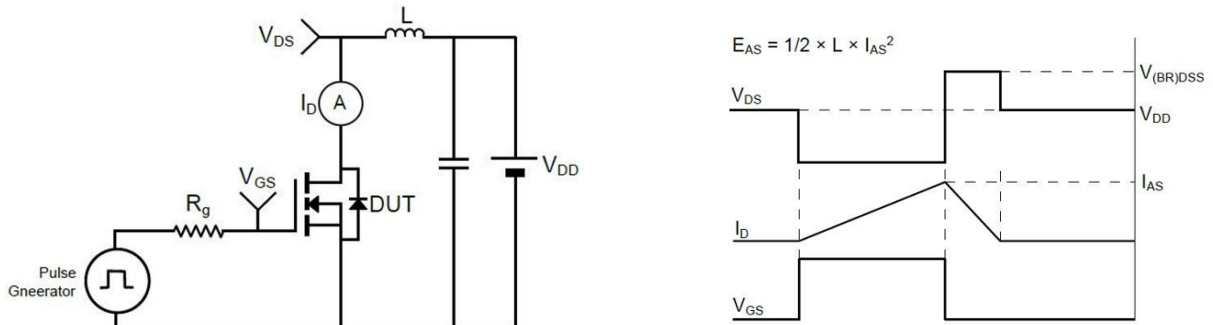
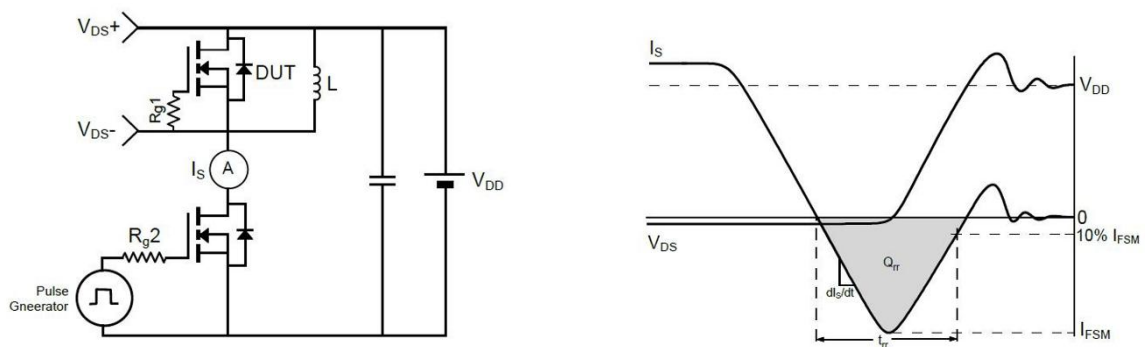


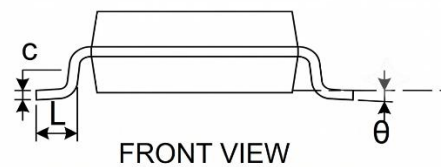
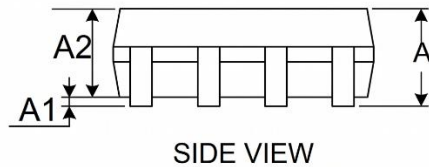
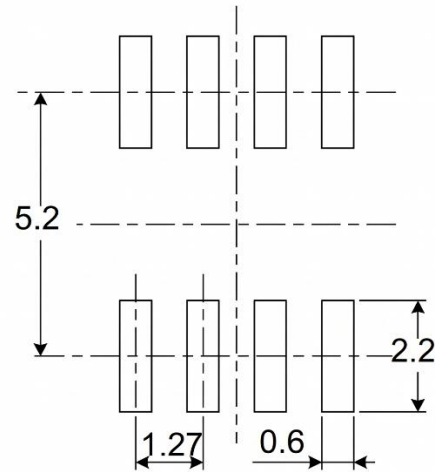
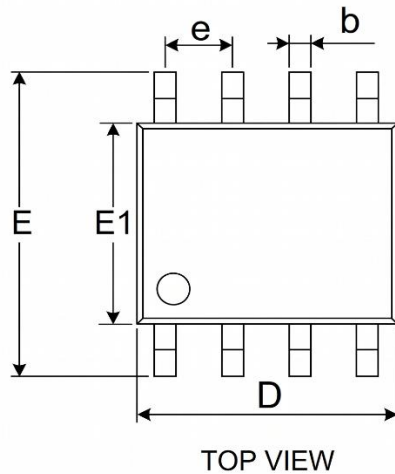
Fig 15. Diode Reverse Recovery Test Circuit & Waveforms





PACKAGE INFORMATION

Dimension in SOP8 (Unit: mm):



Symbol	Millimeters	
	Min	Max
A	1.350	1.750
A1	0.100	0.250
A2	1.350	1.550
b	0.330	0.510
c	0.170	0.250
D	4.700	5.100
E	3.800	4.000
E1	5.800	6.200
e	1.270 BSC	
L	0.400	1.270
θ	0°	8°

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