

**DESCRIPTION**

The AM095NS10H is available in TO-252 Package.

BVDSS	RDS(ON)	ID
100V	9.5mΩ	60A

APPLICATION

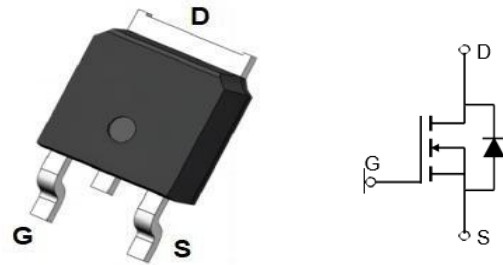
- Load Switch
- PWM Application
- Power Management

ORDERING INFORMATION

Package Type	Part Number	
TO-252 SPQ: 2,500/Reel	D	AM095NS10HDVR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

FEATURES

- 100V, 60A
- $R_{DS(ON)}$ Typ. = 9.5mΩ @ $V_{GS} = 10V$
- Advanced Split Gate Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge

PIN DESCRIPTION

Pin#	Symbol	Function
1	G	Gate
2	D	Drain
3	S	Source

ABSOLUTE MAXIMUM RATINGS

$T_J = 25^\circ\text{C}$ unless otherwise specified

V_{DS} , Drain-to-Source Voltage		100V
V_{GS} , Gate-to-Source Voltage		$\pm 20V$
I_D , Continuous Drain Current	$T_C = 25^\circ\text{C}$	60A
	$T_C = 100^\circ\text{C}$	36A
I_{DM} , Pulsed Drain Current ⁽¹⁾		240A
E_{AS} , Single Pulse Avalanche Energy ⁽²⁾		90mJ
P_D , Power Dissipation	$T_C = 25^\circ\text{C}$	78W
$R_{\theta JC}$, Thermal Resistance, Junction to Case		1.6°C/W
T_J, T_{STG} , Junction & Storage 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 $T_J=25^\circ\text{C}$, $V_{DD}=-50V$, $V_G=10V$, $R_G=25\text{ohm}$, $L=0.5\text{mH}$, $I_{AS}=19A$



ELECTRICAL CHARACTERISTICS

T_J=25°C, unless otherwise noted.

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(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-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS (th)}	V _{GS} =V _{DS} , I _D =250μA	2.4	3	3.6	V
Static Drain Source ON-Resistance ⁽³⁾	R _{DS(ON)}	V _{GS} =10V, I _D = 30A	-	9.5	12.3	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 50V, V _{GS} =0V, f=1MHz	-	1176	-	pF
Output Capacitance	C _{oss}		-	558	-	
Reverse Transfer Capacitance	C _{rss}		-	7.6	-	
Total Gate Charge	Q _g	V _{GS} =0 to 10V, V _{DS} =50V, I _D =20A	-	2.8	-	nC
Gate Source Charge	Q _{gs}		-	4.9	-	
Gate Drain (“Miller”) Charge	Q _{gd}		-	7	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V, V _{DD} =50V R _{GEN} =6Ω, I _D =20A	-	13.5	-	ns
Turn-On Rise Time	t _r		-	17	-	
Turn-Off Delay Time	t _{d(off)}		-	30	-	
Turn-Off Fall Time	t _f		-	18	-	
Drain-Source Diode Characteristics and Max Ratings						
Maximum Continuous Drain to Source Diode Forward Current	I _S	-	-	-	60	A
Maximum Pulsed Drain to Source Diode Forward Current	I _{SM}	-	-	-	240	A
Drain to Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =30A	-	-	1.2	V
Body Diode Reverse Recovery Time	trr	I _F = 20A		50		ns
Body Diode Reverse Recovery Charge	Q _{rr}	di/dt = 100A/us		80		nC

(3) Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.



TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Output Characteristics

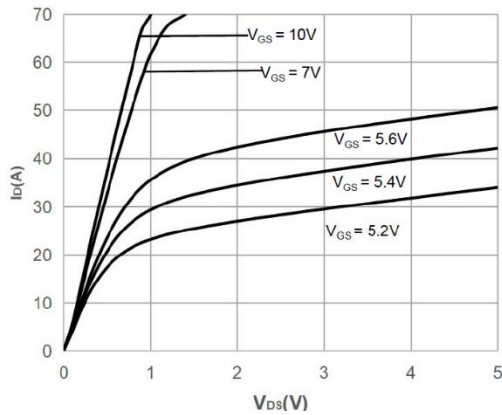


Fig 2. Typical Transfer Characteristics

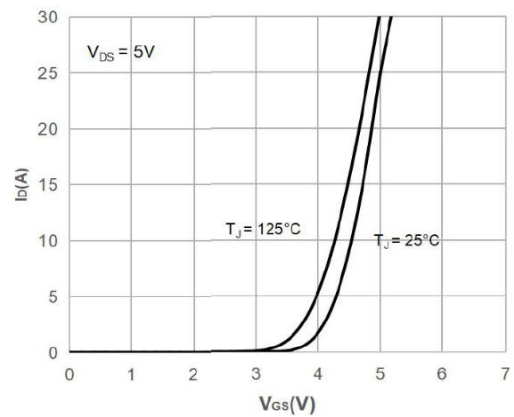


Fig 3. On-Resistance vs. Drain Current

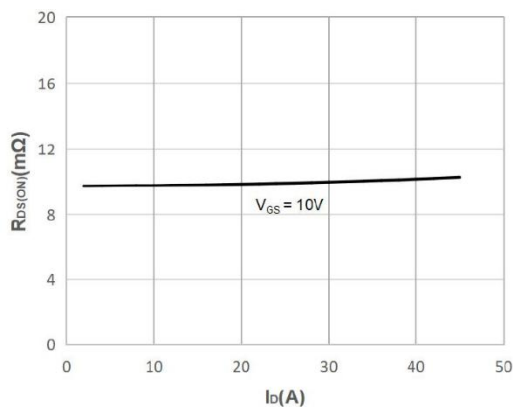


Fig 4. Body Diode Characteristics

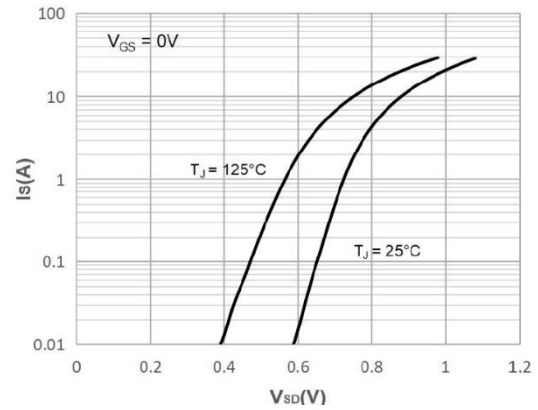


Fig 5. Gate Charge Characteristics

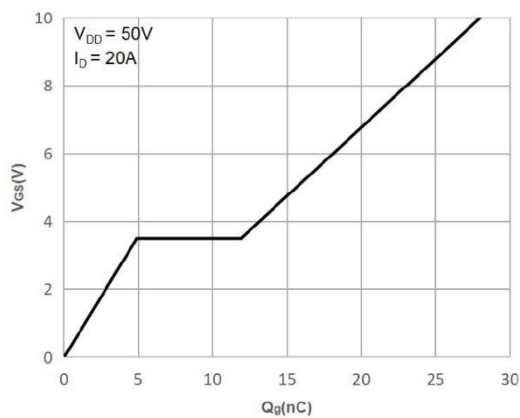


Fig 6. Capacitance Characteristics

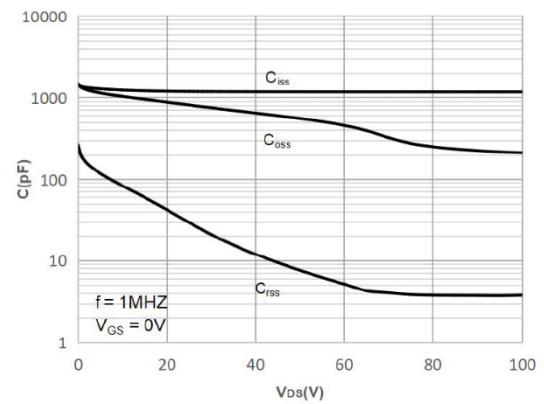




Fig 7. Normalized Breakdown Voltage
vs. Junction Temperature

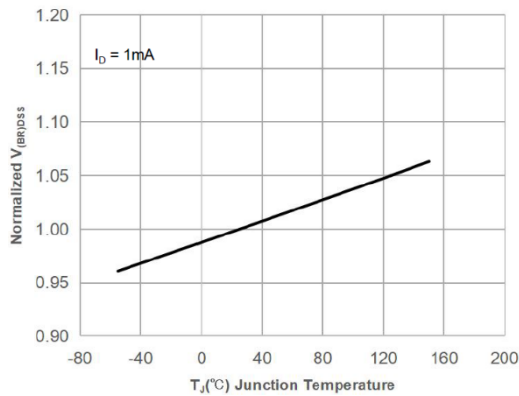


Fig 8. Normalized on Resistance
vs. Junction Temperature

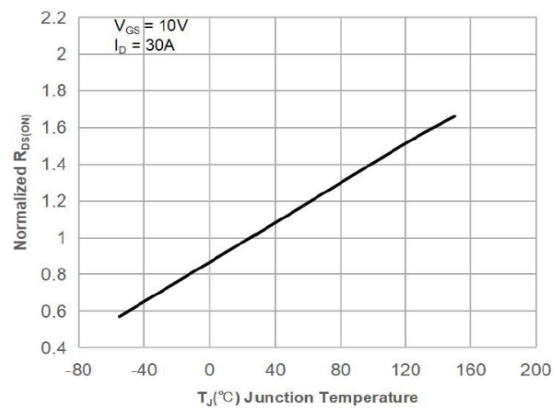


Fig 9. Maximum Safe Operating Area

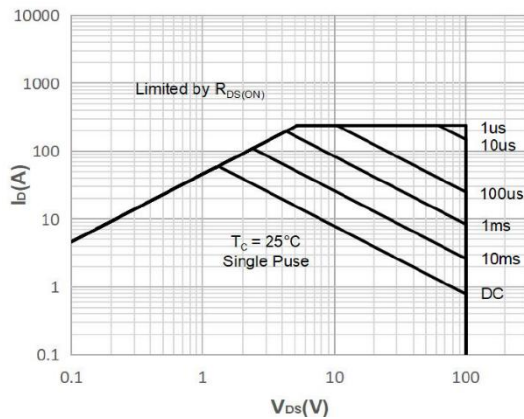


Fig 10. Maximum Continuous Drain Current
vs. Case Temperature

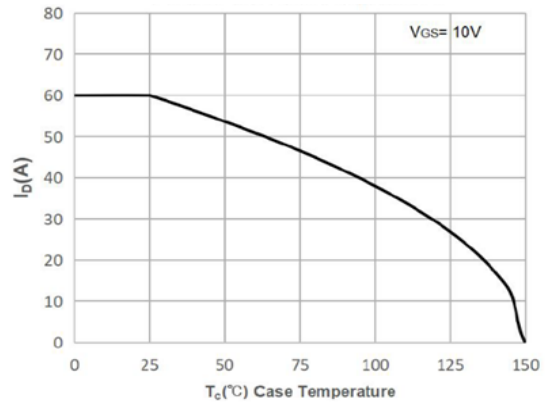


Fig 11. Normalized Maximum Transient Thermal
Impedance

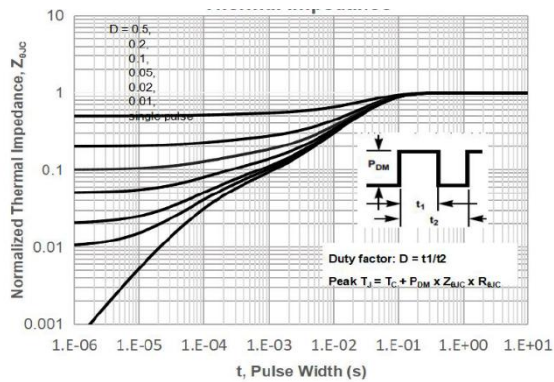


Fig 12. Peak Current Capacity

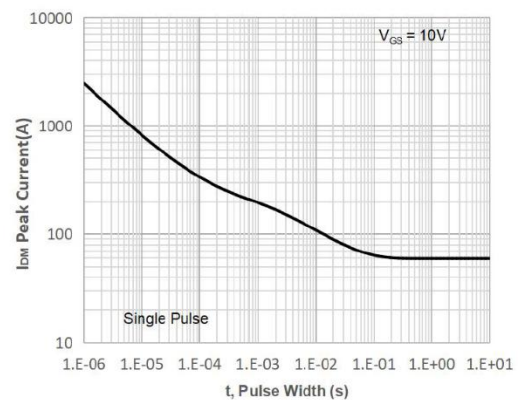




Fig 13. Gate Charge Test Circuit & Waveform

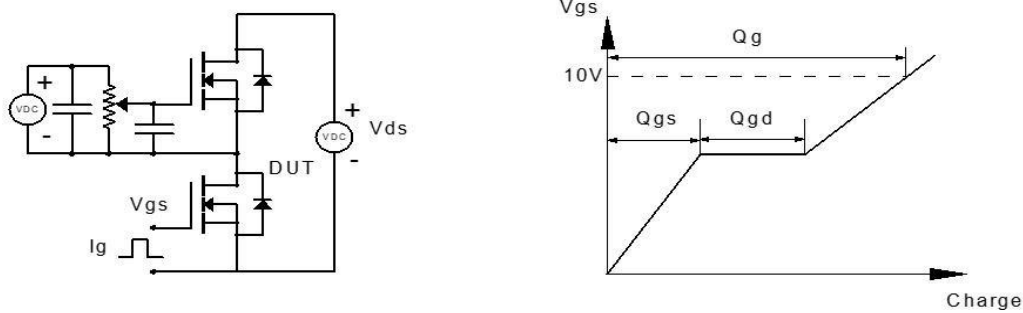


Fig 14. Resistive Switching Test Circuit & Waveform

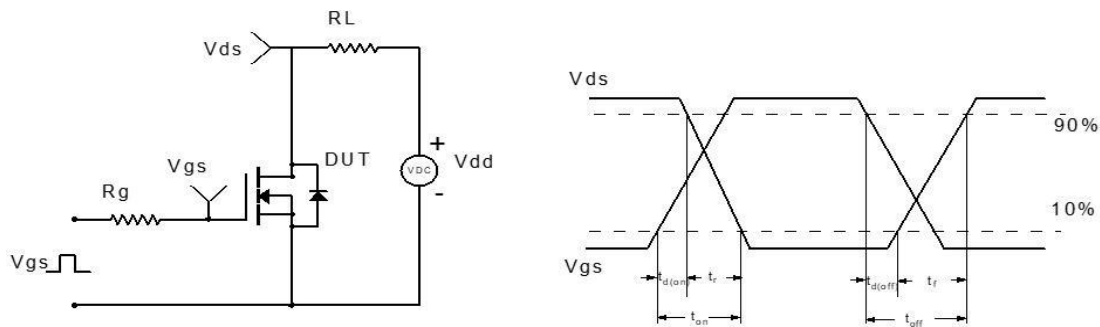


Fig 15. Unclamped Inductive Switching Test Circuit & Waveform

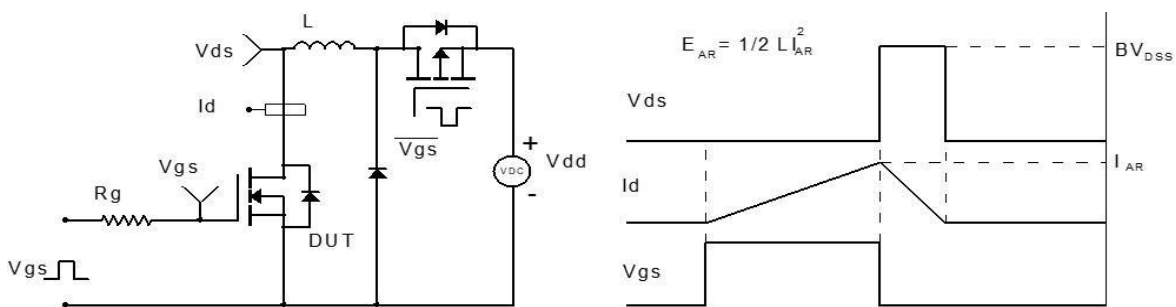
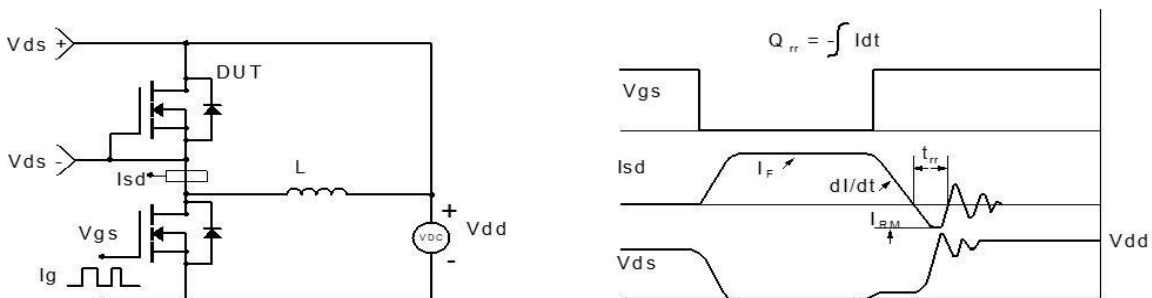


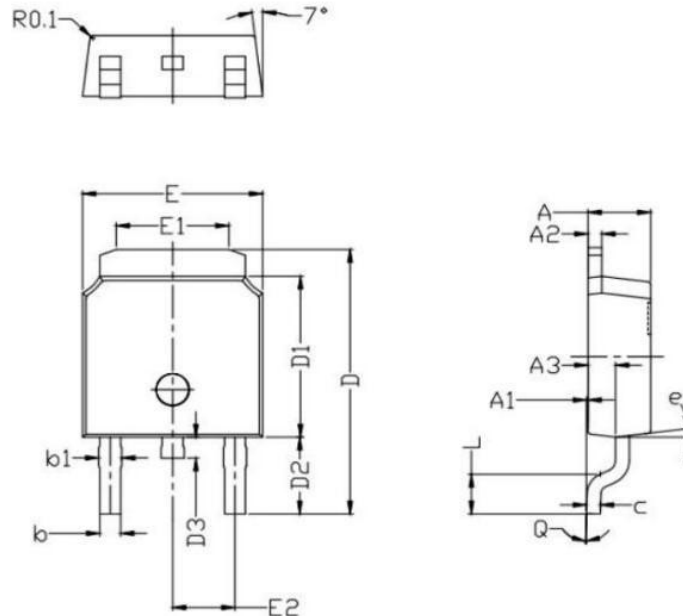
Fig 16. Diode Recovery Test Circuit & Waveform





PACKAGE INFORMATION

Dimension in TO-252 (Unit: mm)



Symbol	MILLIMETER	
	Min.	Max.
A	2.250	2.400
A1	0.010	0.150
A2	0.500	0.550
A3	0.960	1.060
b	0.740	0.800
b1	0.880	0.950
c	0.500	0.550
D	9.800	10.350
D1	6.050	6.180
D2	2.850	2.950
D3	0.700	2.900
E	6.550	6.700
E1	4.050	4.200
E2	2.250	2.300
L	1.400	1.600
e	7	
Q	0°	5°



IMPORTANT NOTICE

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