DESCRIPTION

AM1160H is available in a TO-252 package.

FEATURES

- 600V/11A,
  $R_{DS(ON)}$= 0.36Ω(max.) @ V_{GS}= 10V
  V_{DS}@T_J, max=700V (typ.)
- Reliable and Rugged
- Avalanche Rated
- Available in a TO-252 package.

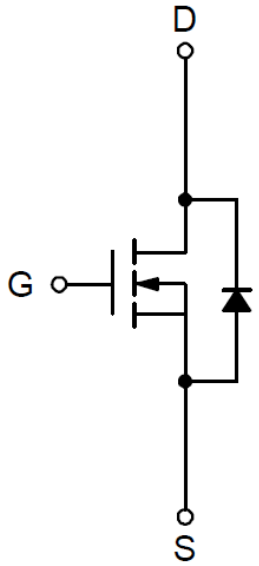
ORDERING INFORMATION

Package Type	Part Number	
TO-252 SPQ: 2,500pcs/Reel	D	AM1160HDR
		AM1160HDVR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

APPLICATION

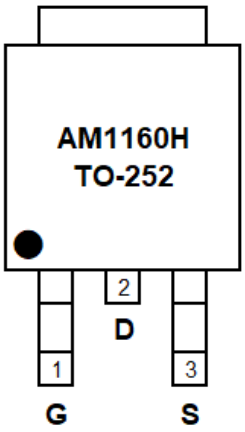
- AC/DC Power Conversion in Switched Mode Power Supplies (SMPS).
- Uninterruptible Power Supply (UPS),
- Adapter.

PIN DESCRIPTION



N-Channel MOSFET

PIN DESCRIPTION



Top View

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

ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless otherwise noted

V_{DSS}, Drain-Source Voltage		600V
V_{GSS}, Gate-Source Voltage		±30V
T_J, Maximum Junction Temperature		150°C
T_{STG}, Storage Temperature Range		-55°C~+150°C
I_S, Diode Continuous Forward Current		11A[NOTE1]
I_{DP}, Pulse Drain Current Tested	T_C=25°C	44A[NOTE2]
I_D, Continuous Drain Current	T_C=25°C	11A[NOTE1]
	T_C=100°C	6.9A[NOTE1]
P_D, Maximum Power Dissipation	T_C=25°C	108W
	T_C=100°C	43W
$R_{\theta JC}$, Thermal Resistance-Junction to Case		1.15°C/W
$R_{\theta JA}$, Thermal Resistance-Junction to Ambient		62.5°C/W
Drain-Source Avalanche Ratings		
dv/dt[NOTE2], MOSFET dv/dt Ruggedness		50V/ns
E_{AS}[NOTE3], Avalanche Energy, Single Pulsed		140mJ
I_{AR}[NOTE4], Avalanche Current		2A
E_{AR}[NOTE4], Repetitive Avalanche Energy		0.4mJ

Stress beyond above listed “Absolute Maximum Ratings” may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

NOTE1: limited by maximum junction temperature.

NOTE2: V_{DS}=480V, I_D=11A.

NOTE3: I_D=2A, V_{DD}=50V, T_J=25°C.

NOTE4: Repetitive Rating: Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS

T_A = 25℃, unless otherwise noted

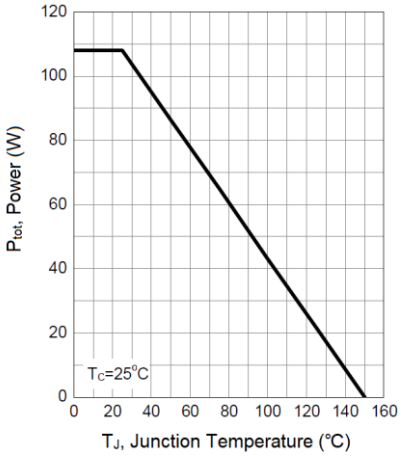
Parameter	Symbol	Conditions	Min	Typ.	Max	Units
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_{DS}=250μA	600	-	-	V
		T_J =150°C	-	700	-	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=480V, V_{GS}=0V	-	-	1	μA
		T_J =150°C	-	-	200	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=250μA	2.5	3.5	4.5	V
Gate Leakage Current	I_{GSS}	V_{GS}=±30V, V_{DS}=0V	-	-	±100	nA
Drain-Source On-state Resistance	$R_{DS(ON)}$ NOTE5	V_{GS}=10V, I_{DS}=4A	-	0.3	0.36	Ω
Diode Characteristics						
Diode Forward Voltage	V_{SD} NOTE5	I_{SD}=11A, V_{GS}=0V	-	0.9	1.3	V
Reverse Recovery Time	t_{rr}	I_{SD}=11A, V_R=360V, dI_{SD}/dt=100A/μs	-	240	-	ns
Reverse Recovery Charge	Q_{rr}		-	2.85	-	μC
Peak Reverse Recovery Current	I_{rm}		-	27	-	A
Dynamic CharacteristicsNOTE6						
Gate Resistance	R_G	V_{GS}=0V, V_{DS}=0V, f=1MHz	-	2	-	Ω
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, Frequency=1.0MHz	-	820	1100	pF
Output Capacitance	C_{oss}		-	730	-	
Reverse Transfer Capacitance	C_{rss}		-	16	-	
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=400V, R_L=36Ω, I_{DS}=11A, V_{GEN}=10V, R_G=6Ω	-	11	-	ns
Turn-on Rise Time	t_r		-	12	-	
Turn-off Delay Time	$t_{d(off)}$		-	26	-	
Turn-off Fall Time	t_f		-	8	-	
Gate Charge CharacteristicsNOTE6						
Total Gate Charge	Q_g	V_{DS}=480V, V_{GS}=10V, I_{DS}=4A	-	24.5	32	nC
Gate-Source Charge	Q_{gs}		-	6.1	-	
Gate-Drain Charge	Q_{gd}		-	10.5	-	

NOTE6: Pulse test; pulse width≤300μs, duty cycle≤2%.

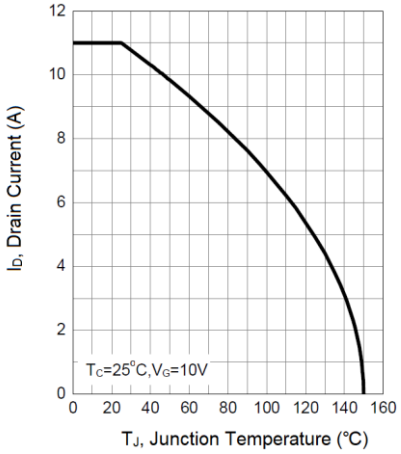
NOTE7: Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS

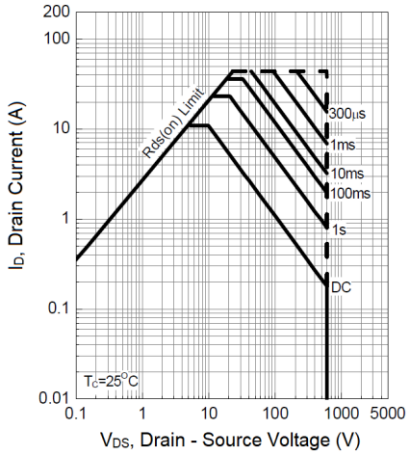
1. Power Dissipation



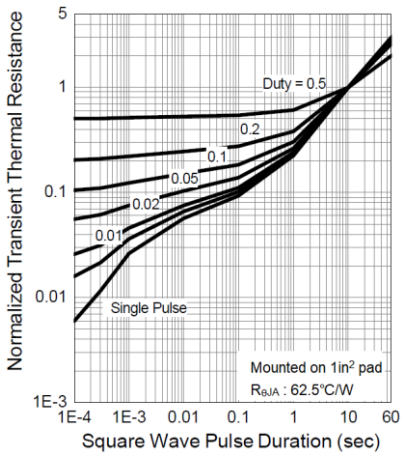
2. Drain Current



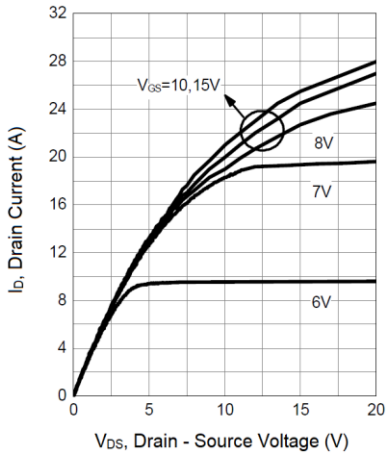
3. Safe Operation Area



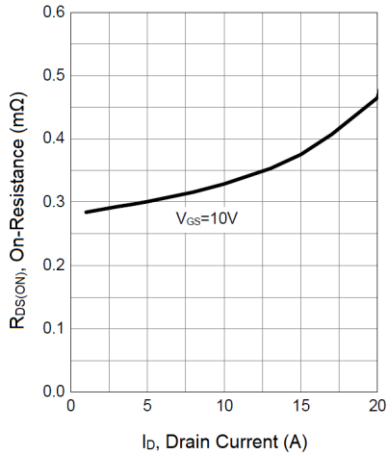
4. Thermal Transient Impedance



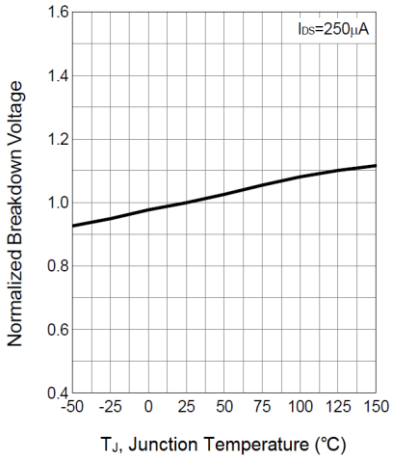
5. Output Characteristics



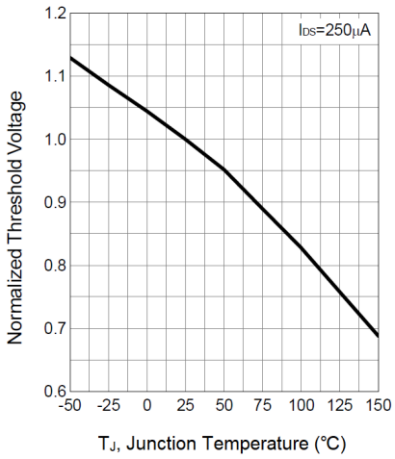
6. Drain-Source On Resistance



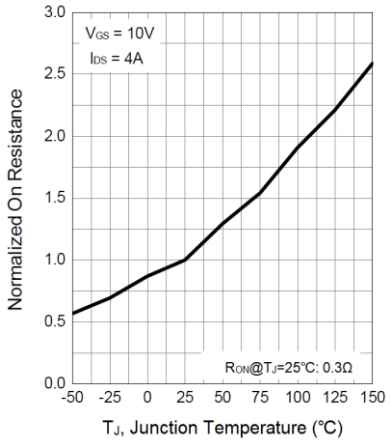
7. BV_{DSS} vs. Junction Temperature



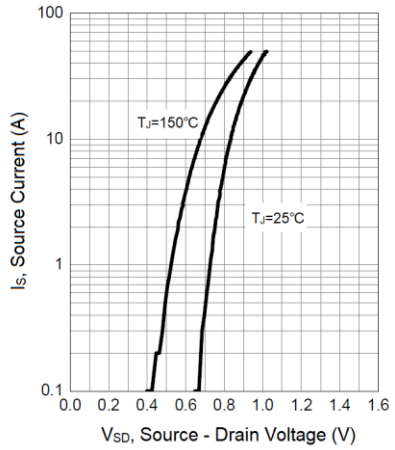
8. Gate Threshold Voltage



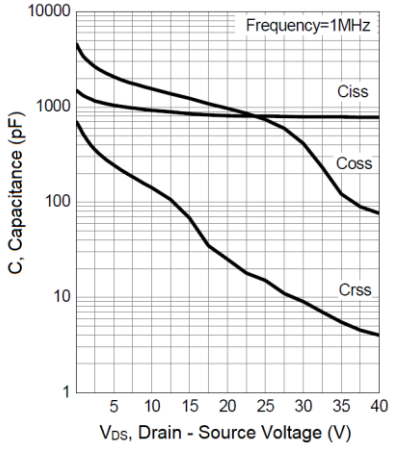
9. Drain-Source On Resistance



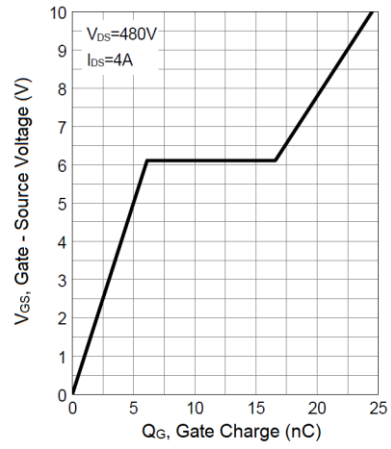
10. Source-Drain Diode Forward



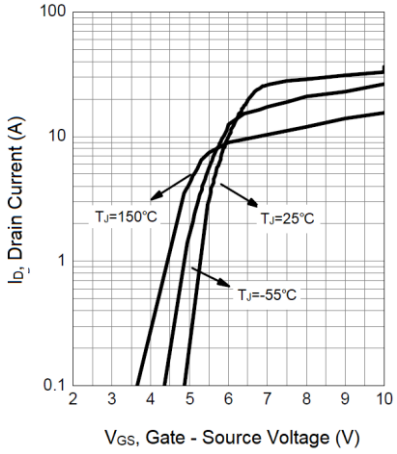
11. Capacitance



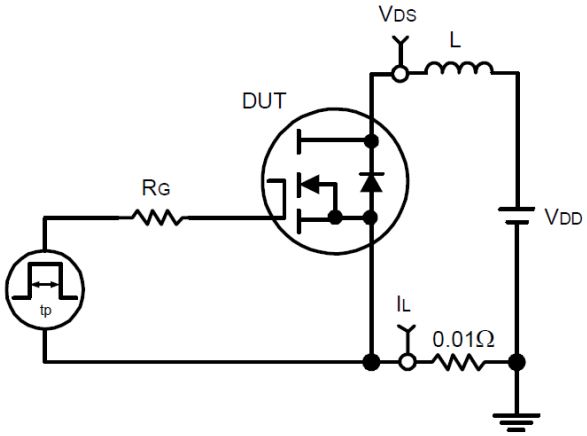
12. Gate Charge

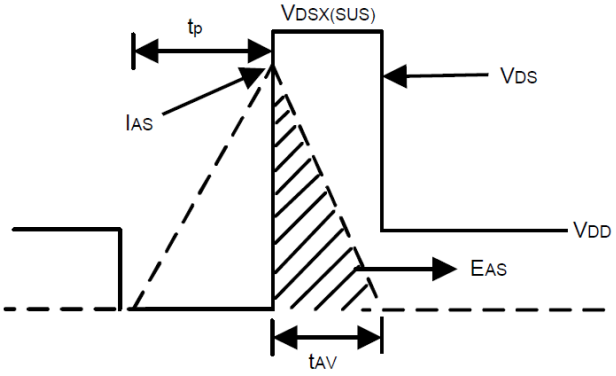


13. Transfer Characteristics

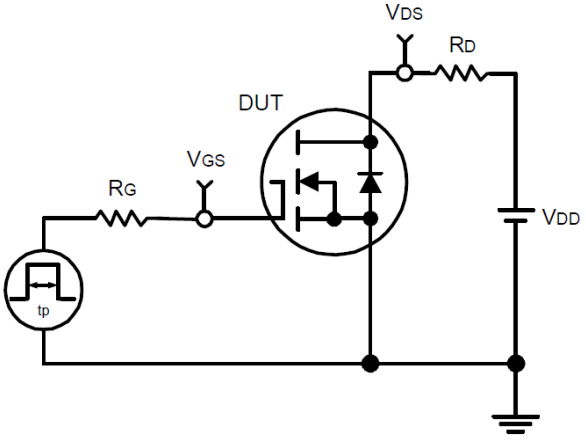


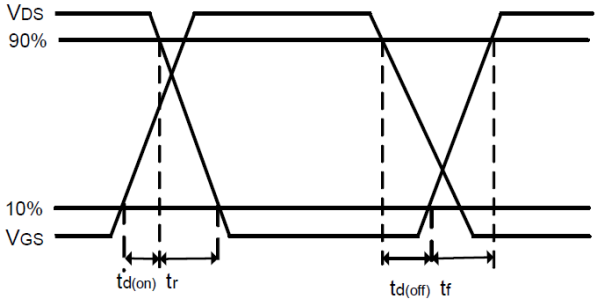
Avalanche Test Circuit and Waveforms





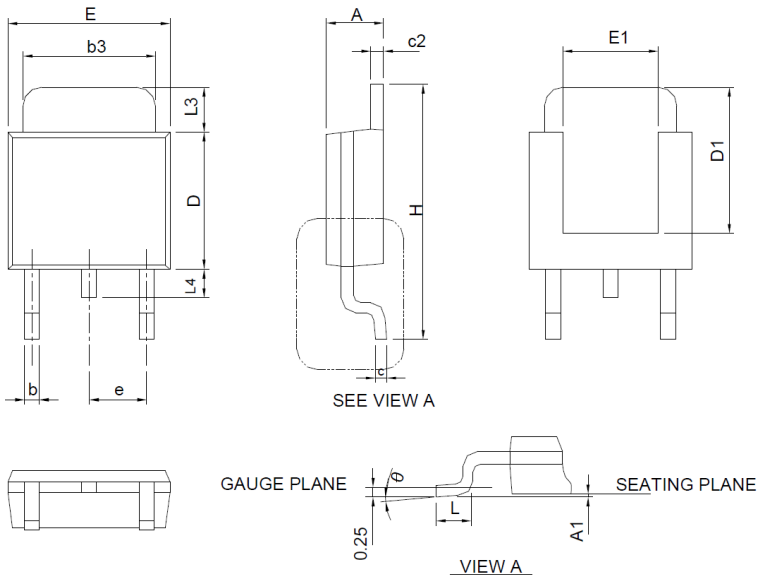
Switching Time Test Circuit and Waveforms

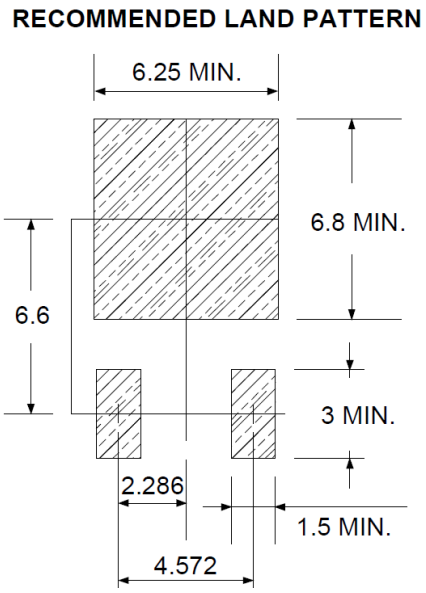




PACKAGE INFORMATION

Dimension in TO-252 (Unit: mm)





Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	2.18	2.39	0.086	0.094
A1	-	0.13	-	0.005
b	0.50	0.89	0.020	0.035
b3	4.95	5.46	0.195	0.215
c	0.46	0.61	0.018	0.024
c2	0.46	0.89	0.018	0.035
D	5.33	6.22	0.210	0.245
D1	4.57	6.00	0.180	0.236
E	6.35	6.73	0.250	0.265
E1	3.81	6.00	0.150	0.236
e	2.29 BSC		0.090 BSC	
H	9.40	10.41	0.370	0.410
L	0.90	1.78	0.035	0.070
L3	0.89	2.03	0.035	0.080
L4	-	1.02	-	0.040
θ	0°	8°	0°	8°

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