DESCRIPTION

The AM10P10D is available in TO-252 Package.

BVDSS	RDSON	ID
-100V	150 mΩ	-10A

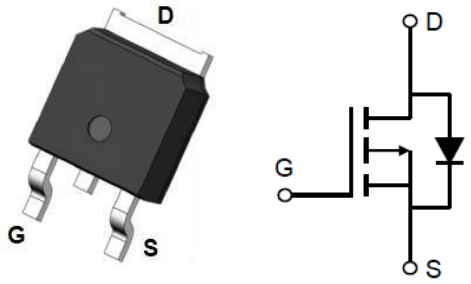
FEATURES

- -100V, -10A
- RDS(ON) Typ = 150mΩ @ VGS = -10V
- RDS(ON) Typ = 170mΩ @ VGS = -4.5V
- Advanced Trench Technology
- Excellent RDS(ON) and Low Gate Charge

APPLICATION

- Load Switch
- PWM Application
- Power Management

PIN DESCRIPTION



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

ORDERING INFORMATION

Package Type	Part Number	
TO-252 SPQ: 2,500/Reel	D	AM10P10DVR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

ABSOLUTE MAXIMUM RATINGS

T_J = 25°C unless otherwise specified

V_{DS}, Drain-to-Source Voltage		-100V
V_{GS}, Gate-to-Source Voltage		±20V
I_D, Continuous Drain Current	T_C = 25℃	-10A
	T_C = 100℃	-6A
I_{DM}, Pulsed Drain Current (1)		-40A
E_{AS}, Single Pulse Avalanche Energy (2)		46mJ
P_D, Power Dissipation	T_C = 25℃	34W
$R_{\theta JC}$, Thermal Resistance, Junction to Case		3.7℃/W
T_J, T_{STG}, Junction & Storage Temperature Range		-55℃ ~ +150℃

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} comdton Starting T,=25°C, V_{DD}=-50V, V_G=-10V, R_G=25ohm, L=0.5mH, I_{AS}=-13.5A

ELECTRICAL CHARACTERISTICS

T_J=25℃, 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	-1.1	-1.6	-2.2	V
Static Drain Source ON-Resistance (3)	$R_{DS(ON)}$	V_{GS}=-10V, I_D= -5A	-	150	195	mΩ
Static Drain Source ON-Resistance (3)	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D= -4A		170	221	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}= -25V, V_{GS}=0V, f=1MHz	-	2577	-	pF
Output Capacitance	C_{oss}		-	66	-	
Reverse Transfer Capacitance	C_{rss}		-	52	-	
Total Gate Charge	Q_g	V_{GS}=0 to -10V, V_{DS}=-50V, I_D=-10A	-	45	-	nC
Gate Source Charge	Q_{gs}		-	4.5	-	
Gate-Drain Charge	Q_{gd}		-	5.7	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=-10V, V_{DD}=-50V R_{GEN}=10Ω, I_D=-6.5A	-	22	-	ns
Turn-On Rese Time	t_r		-	30	-	
Turn-Off Delay Time	$t_{d(off)}$		-	58	-	
Turn-Off Fall Time	t_f		-	48	-	
Drain-Source Diode Characteristics and Max Ratings						
Maximum Continuous Drain to Source Diode Forward Current	I_S	-	-	-	-10	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}	-	-	-	-40	A
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-5A	-	-	-1.2	V

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

TEST CIRCUIT

Fig 1. Gate Charge Test Circuit & Waveform

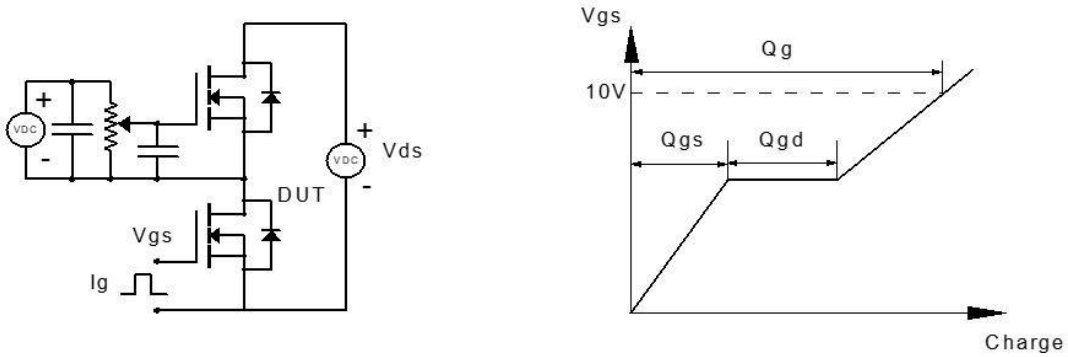


Fig 2. Resistive Switching Test Circuit & Waveform

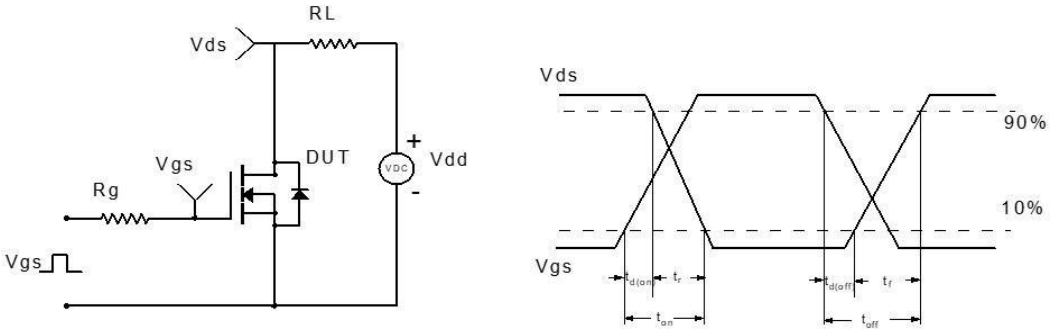


Fig 3. Unclamped Inductive Switching (UIS) Test Circuit & Waveform

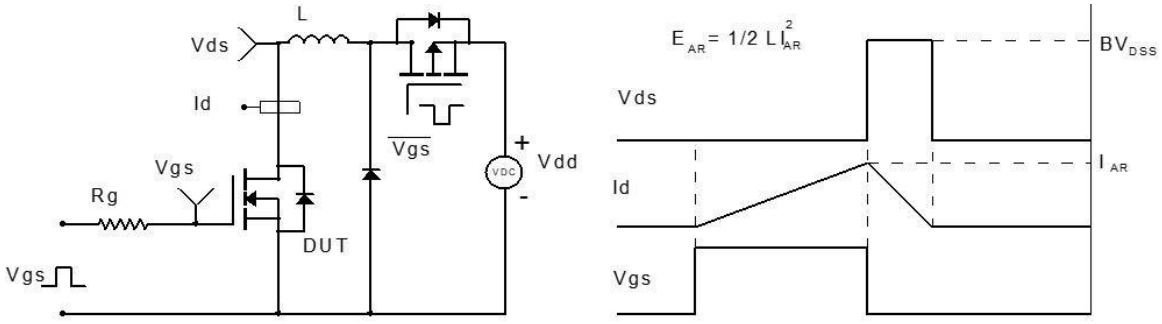
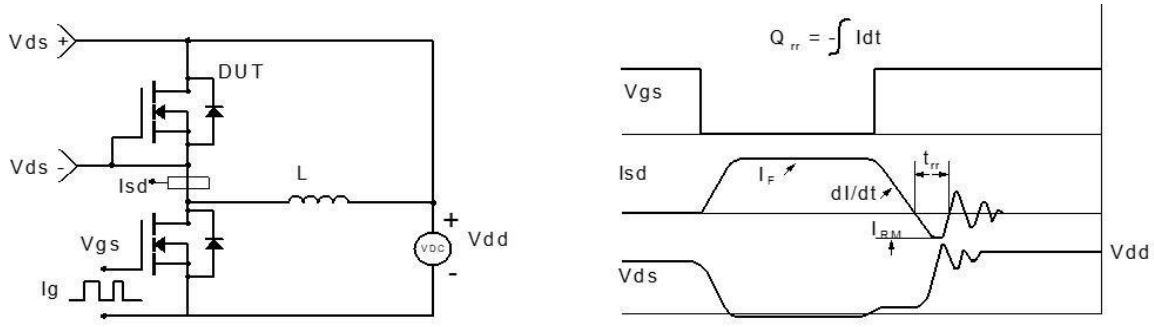
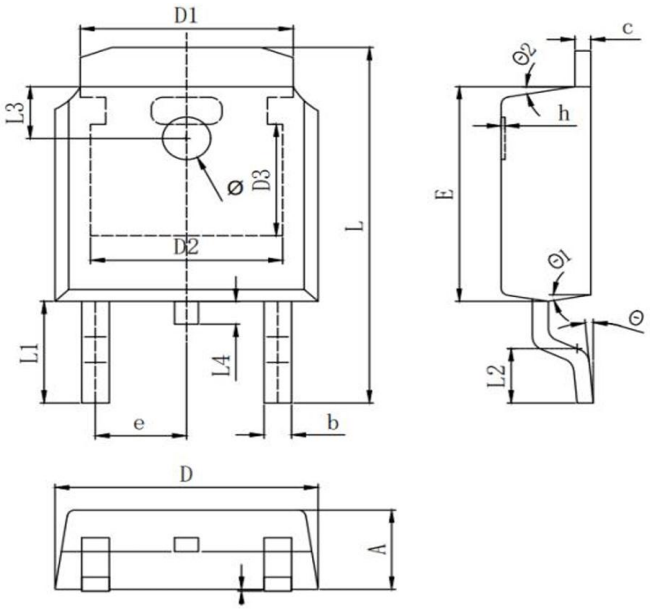


Fig 4. Diode Recovery Test Circuit & Waveform



PACKAGE INFORMATION

Dimension in TO-252 (Unit: mm)



Symbol	Millimeters	
	Min.	Max.
A	2.200	2.400
A1	0.000	0.127
b	0.640	0.740
c	0.460	0.580
D	6.500	6.700
D1	5.334 REF.	
D2	4.826 REF.	
D3	3.166 REF.	
E	6.000	6.200
e	2.286 TYP.	
h	0.000	0.200
L	9.900	10.300
L1	2.888 REF.	
L2	1.400	1.700
L3	1.600 REF.	
L4	0.600	1.000
Φ	1.100	1.300
θ	0°	8°
θ1	9° TYP.	
θ2	9° TYP.	

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