DESCRIPTION

The AM15P60 is available in TO-251 and TO-252 packages.

BVDSS	RDSON	ID
-60V	75mΩ	-15A
	98mΩ	

ORDERING INFORMATION

Package Type	Part Number	
TO-251 SPQ:2,500pcs/Reel	TD3	AM15P60TD3R
		AM15P60TD3VR
TO-252 SPQ:2,500pcs/Reel	D	AM15P60DR
		AM15P60DVR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

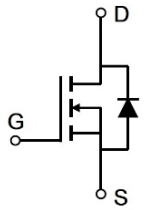
FEATURE

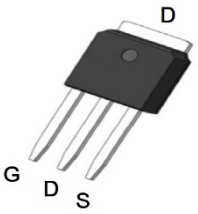
- $R_{DS(ON)}$ < 75mΩ @ V_{GS} = -10V
  $R_{DS(ON)}$ < 98mΩ @ V_{GS} = -4.5V
- Advanced Split Gate Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge

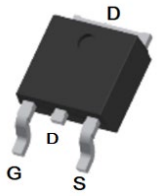
APPLICATION

- Load Switch
- PWM Application
- Power Management

PIN DESCRIPTION







TO-251 TO-252

Pin#	Symbol	Function
1	G	Gate
2,4	D	Drain
3	S	Source

ABSOLUTE MAXIMUM RATINGS

T_C= 25°C, unless otherwise specified.

V_{DS}, Drain-to-Source Voltage		-60V
V_{GS}, Gate-to-Source Voltage		±20V
I_D, Continuous Drain Current	T_C=25℃	-15A
	T_C=100℃	-9A
I_{DM}, Pulsed Drain Current (1)		-60A
E_{AS}, Single Pulsed Avalanche Energy (2)		30mJ
P_D, Power Dissipation	T_C=25℃	83W
$R_{\theta JC}$, Thermal Resistance, Junction to Case		1.5℃/W
T_J, Junction Temperature Range		-55℃~+150℃
T_{STG}, 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} condition: Starting T_J=25℃, V_{DD}=30V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=11A

ELECTRICAL CHARACTERISTICS

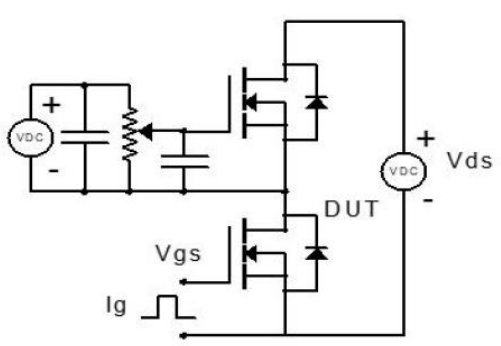
T_J = 25°C, unless otherwise specified.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=-250μA, V_{GS}= 0V	-60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V, V_{GS}= 0V	-	-	-1.0	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±20V, V_{DS}=0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}= V_{GS}, I_D=-250μA	-1.0	-1.6	-2.5	V
Static Drain-Source On-Resistance*	$R_{DS(ON)}$	V_{GS}= -10V, I_D=-15A	-	75	90	mΩ
		V_{GS}= -4.5V, I_D=-10A	-	98	120	mΩ
* Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.						
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-25V, f=1MHz	-	507	-	pF
Output Capacitance	C_{oss}		-	97	-	
Reverse Transfer Capacitance	C_{rss}		-	9	-	
Total Gate Charge	Q_g	V_{GS}=0 to -10V, V_{DS}=-30V, I_D=-5A	-	8.5	-	nC
Gate Source Charge	Q_{gs}		-	1.8	-	
Gate Drain("Miller") Charge	Q_{gd}		-	1.5	-	

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Switching Characteristics						
Turn-on Delay Time	$t_{d(ON)}$	V_{GS}=-10V, I_D=-5A, V_{DD}=-30V, R_{GEN}=3Ω	-	10	-	ns
Turn-on Rise Time	t_r		-	6	-	
Turn-off Delay Time	$t_{d(OFF)}$		-	40	-	
Turn-off Fall Time	t_f		-	13	-	
Drain-Source Diode Characteristics and Max Ratings						
Maximum Continuous Drain to Source Diode Forward Current	I_S	-	-	-	-15	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}	-	-	-	-60	A
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-15A	-	-	1.2	V
Body Diode Reverse Recovery Time	t_{rr}	I_F=-10A, di/dt=100A/us	-	50	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	105	-	nC

TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Gate Charge Test Circuit & Waveform



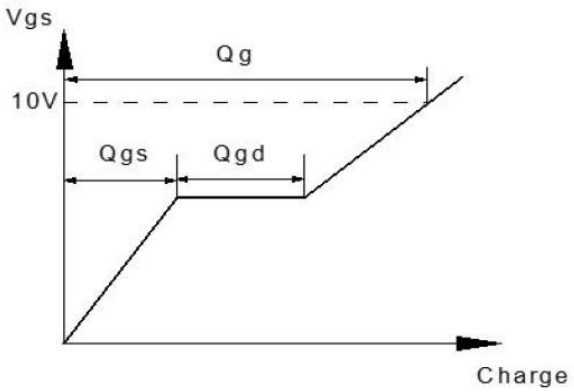


Fig 2. Resistive Switching Test Circuit & Waveform

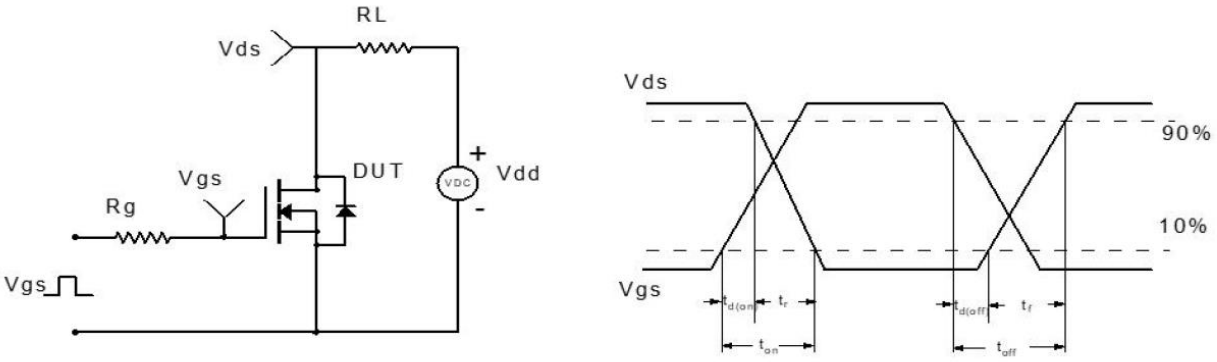


Fig 3. Unclamped Inductive Switching Test Circuit& Waveform

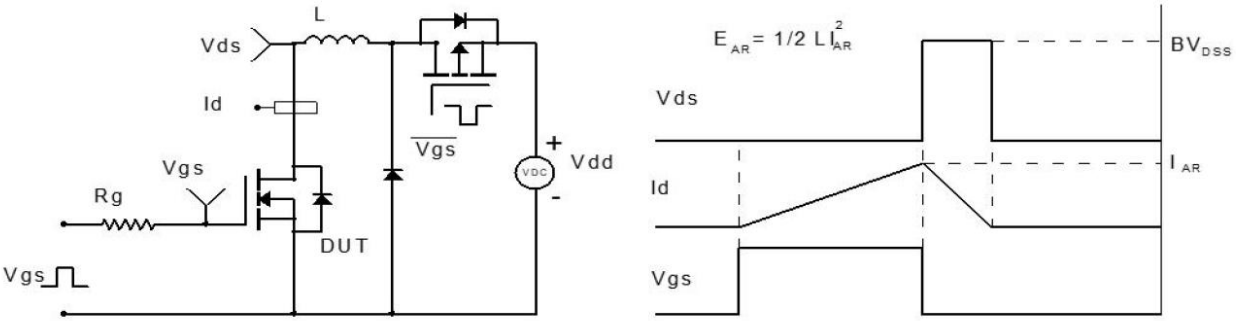
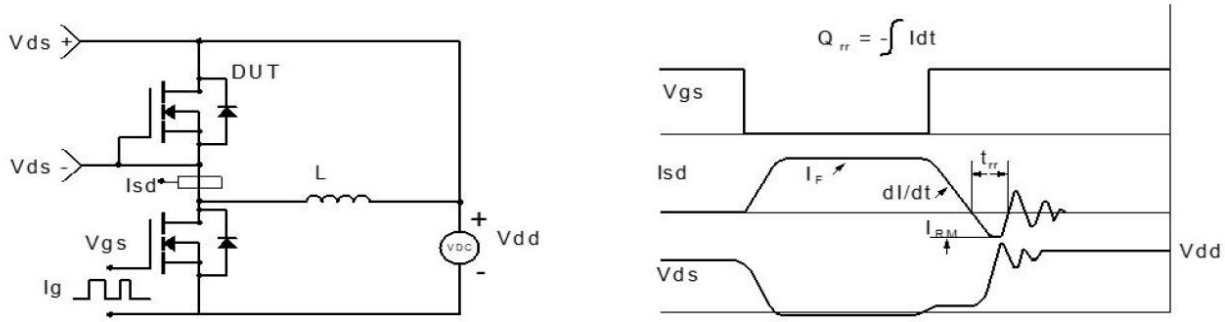
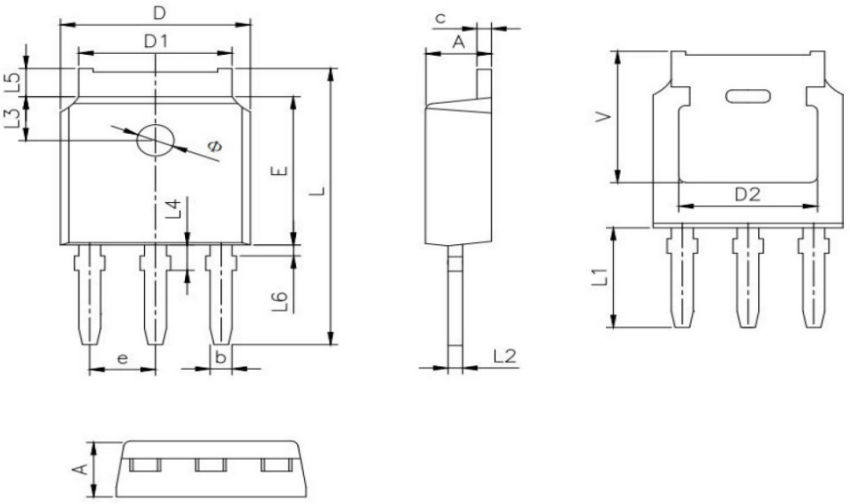


Fig 4. Diode Recovery Test Circuit & Waveform



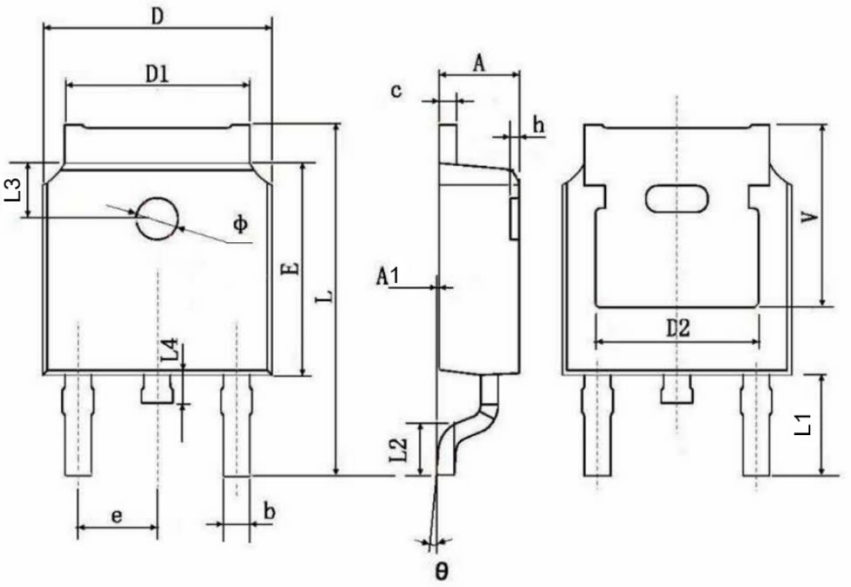
PACKAGE INFORMATION

Dimension in TO-251 (Unit: mm)



Symbol	Min.	Max.
A	2.200	2.400
b	0.660	0.860
c	0.460	0.580
D	6.500	6.700
D1	5.100	5.460
D2	4.830 REF	
E	6.000	6.200
e	2.190	2.390
L	11.020	11.420
L1	4.100 REF	
L2	0.580 BSC	
L3	1.800 REF	
L4	0.950	1.150
L5	0.900	1.250
L6	0.150	0.750
Φ	1.100	1.300
V	5.400 REF	

Dimension in TO-252 (Unit: mm)



Symbol	Min.	Max.
A	2.200	2.400
A1	0.000	0.127
b	0.660	0.860
c	0.470	0.600
D	6.500	6.700
D1	5.100	5.460
D2	4.830 REF	
E	6.000	6.200
e	2.186	2.386
L	9.800	10.400
L1	2.900 REF	
L2	1.400	1.600
L3	1.800 REF	
L4	0.600	1.000
Φ	1.100	1.300
θ	0°	8°
h	0.000	0.300
V	5.400 REF	

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