DESCRIPTION

The AM06P04 is available in SOP-8 Package.

BVDSS	RDSON	ID
-40V	26 mΩ	-6.3A

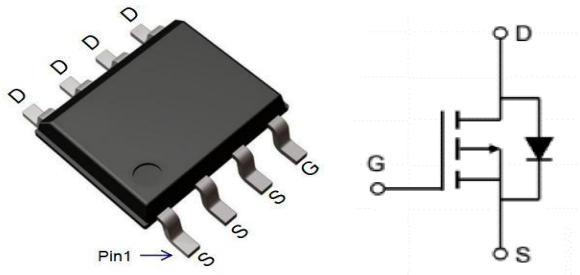
FEATURES

- -40V, -6.3A
- RDS(ON) Typ = 26mΩ @ VGS = -10V
- RDS(ON) Typ = 37mΩ @ 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
1,2,3	S	Source
4	G	Gate
5,6,7,8	D	Drain

ORDERING INFORMATION

Package Type	Part Number	
SOP8 SPQ: 4,000/Reel	M8	AM06P04M8VR
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		-40V
V_{GS}, Gate-to-Source Voltage		±20V
I_D, Continuous Drain Current	T_A = 25℃	-6.3A
	T_A = 100℃	-3.78A
I_{DM}, Pulsed Drain Current (1)		-25.2A
E_{AS}, Single Pulse Avalanche Energy (2)		30mJ
P_D, Power Dissipation	T_A = 25℃	2.3W
$R_{\theta JC}$, Thermal Resistance, Junction to Case		55℃/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} condition Starting T_J=25°C, V_{DD}=-20V, V_G=-10V, R_G=25Ω, L=0.5mH, I_{AS}=-11A

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	-40	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= 200V, 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	-	26	34	mΩ
Static Drain Source ON-Resistance (3)	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D= -3A		37	48	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}= -20V, V_{GS}=0V, f=1MHz	-	887	-	pF
Output Capacitance	C_{oss}		-	92	-	
Reverse Transfer Capacitance	C_{rss}		-	79	-	
Total Gate Charge	Q_g	V_{GS}=0 to -10V, V_{DS}=-20V, I_D=-3A	-	35	-	nC
Gate Source Charge	Q_{gs}		-	35	-	
Gate-Drain Charge	Q_{gd}		-	7	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=-10V, V_{DD}=-20V R_{GEN}=3Ω, I_D=-5A	-	13	-	ns
Turn-On Rese Time	t_r		-	10	-	
Turn-Off Delay Time	$t_{d(off)}$		-	20	-	
Turn-Off Fall Time	t_f		-	12	-	
Drain-Source Diode Characteristics and Max Ratings						
Maximum Continuous Drain to Source Diode Forward Current	I_S	-	-	-	-6.3	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}	-	-	-	-25.2	A
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-5A	-	-	-1.2	V
Body Diode Reverse Recovery Time	Trr	I_F =-3A, di/dt =100A/us	-	23	-	nS
Body Diode Reverse Recovery Charge	Qrr		-	15	-	nC

(3) $R_{\theta JA}$ is measured with the device mounted on a 1inch2 pad of 2oz copper FR4 PCB

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

TEST CIRCUIT

Fig 1. Gate Charge Test Circuit & Waveform

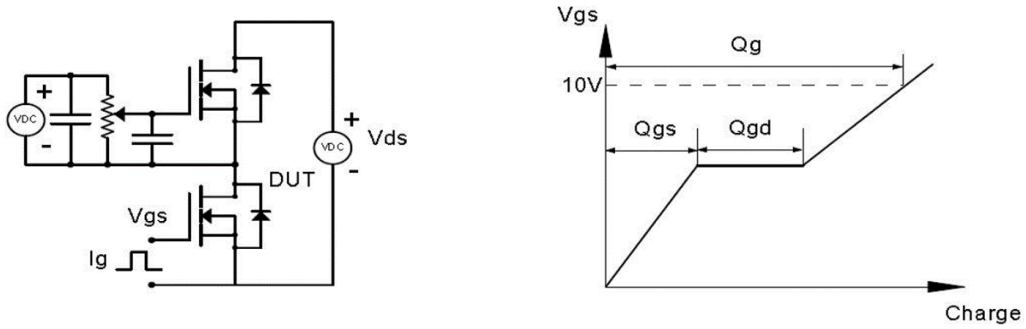


Fig 2. Resistive Switching Test Circuit & Waveform

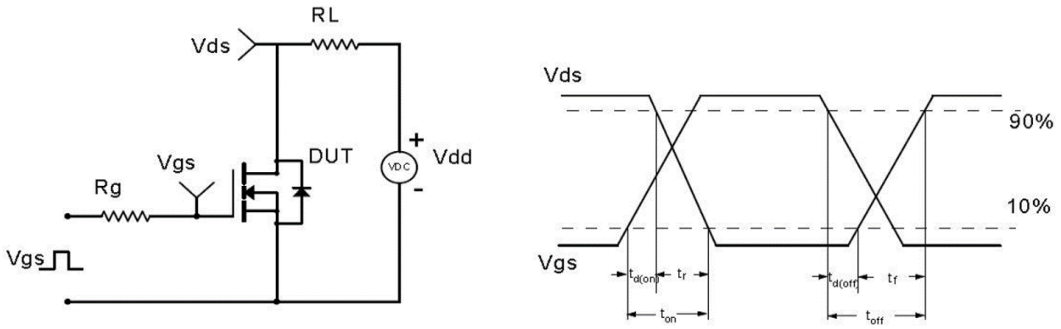


Fig 3. Unclamped Inductive Switching (UIS) Test Circuit & Waveform

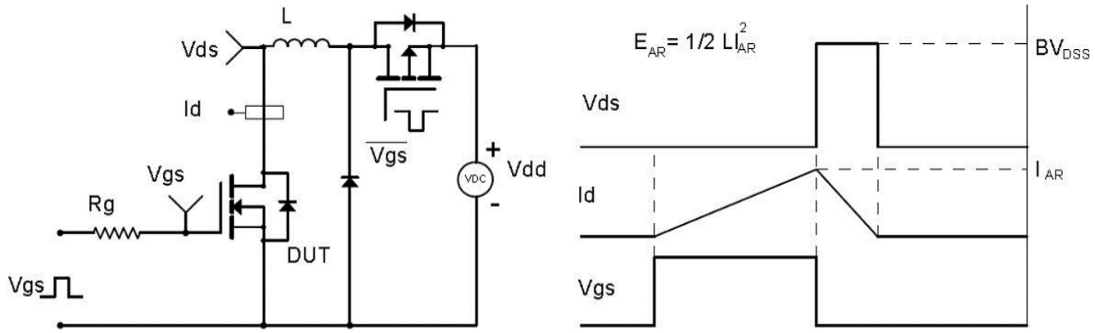
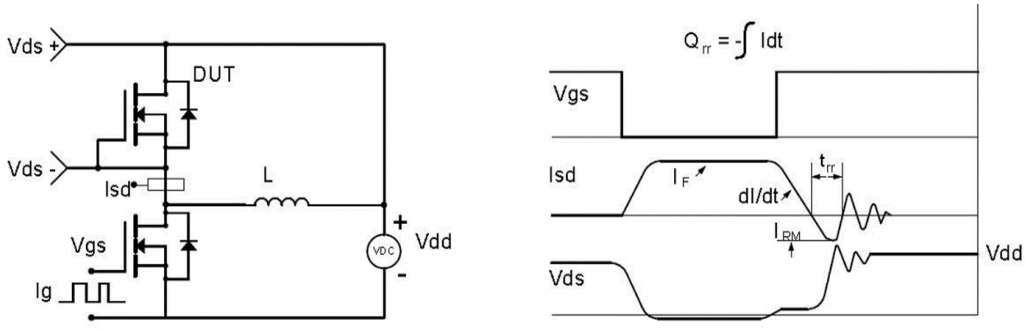
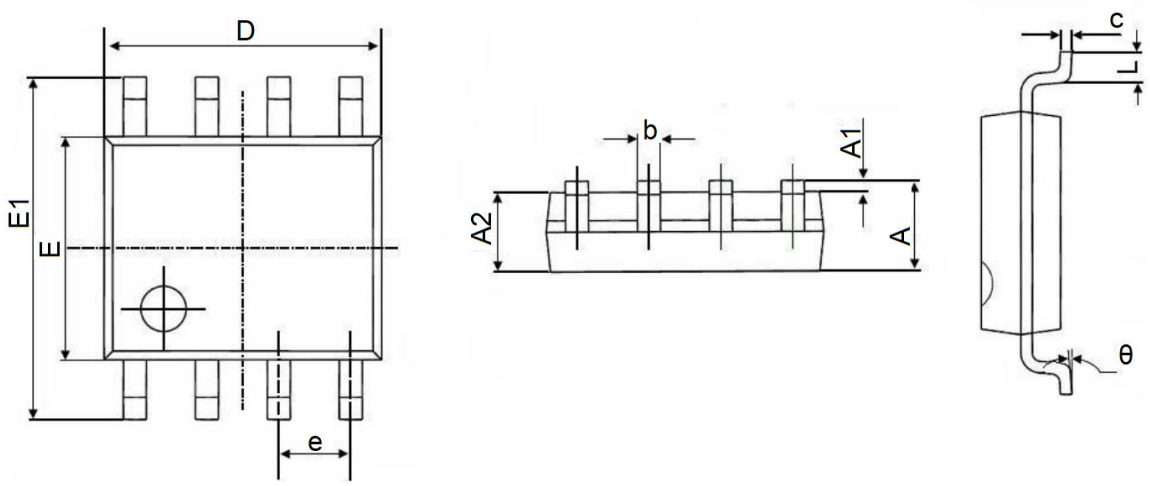


Fig 4. Diode Recovery Test Circuit & Waveform



PACKAGE INFORMATION

Dimension in SOP-8 (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°

IMPORTANT NOTICE

AiT Semiconductor Inc. (AiT) reserves the right to make changes to any its product, specifications, to discontinue any integrated circuit product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

AiT Semiconductor Inc. integrated circuit products are not designed, intended, authorized, or warranted to be suitable for use in life support applications, devices or systems or other critical applications. Use of AiT products in such applications is understood to be fully at the risk of the customer. As used herein may involve potential risks of death, personal injury, or server property, or environmental damage. In order to minimize risks associated with the customer's applications, the customer should provide adequate design and operating safeguards.

AiT Semiconductor Inc. assumes to no liability to customer product design or application support. AiT warrants the performance of its products of the specifications applicable at the time of sale.