



DESCRIPTION

The AM4437 is available in SOP8 Packages.

BVDSS	RDSON	ID
-12V	12mΩ	-11A

APPLICATION

- Notebook
- Load Switch
- Networking

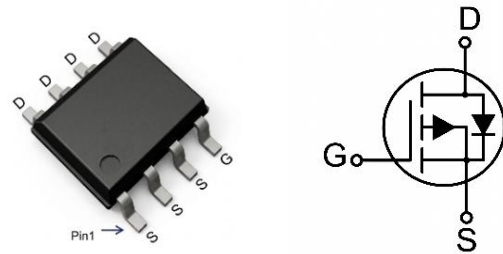
ORDERING INFORMATION

Package Type	Part Number	
SOP8 SPQ: 4,000pcs/Reel	M8	AM4437M8R
Note	R: Tape & Reel	
AiT provides all RoHS products		

FEATURE

- $R_{DS(ON)}$, Typ= 12mΩ @ $V_{GS}=-4.5V$
- Improved dv/dt capability
- Fast switching
- Green Device Available
- Suit for -1.8V Gate Drive Applications

PIN DESCRIPTION



Pin#	Symbol	Function
1,2,3	S	Source
4	G	Gate
5,6,7,8	D	Drain

ABSOLUTE MAXIMUM RATINGS

$T_A = 25^{\circ}C$, unless otherwise specified.

Parameter		Symbol	Value	Unit
Drain-to-Source Voltage		V_{DS}	-12	V
Gate-to-Source Voltage		V_{GS}	±12	V
Continuous Drain Current		I_D	-11	A
Continuous Drain Current	$T_C = 100^{\circ}C$		-7	
Pulsed Drain Current ¹		I_{DM}	-44	A
Power Dissipation		P_D	2.5	W
Power Dissipation - Derate above 25°C		P_D	0.02	W/°C
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C
Thermal Resistance Junction to Ambient		$R_{\theta JA}$	50	°C/W

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.



ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise specified.

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-12	-	-	V
BV _{DSS} Temperature Coefficient	ΔBV _{DSS} /ΔT _J	Ref. to 25°C, I _D = -1mA	-	-0.01	-	V/°C
Drain to Source Leakage Current	I _{DSS}	V _{DS} = -12V, V _{GS} = 0V, T _J =25°C	-	-	-1	μA
		V _{DS} = -10V, V _{GS} = 0V, T _J =125°C	-	-	-10	
Gate to Source Leakage Current	I _{GSS}	V _{GS} = ±12V, V _{DS} =0V	-	-	±100	nA
Drain-to-Source On-Resistance	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-8A	-	12	16	mΩ
		V _{GS} =-2.5V, I _D =-6A	-	16	22	
		V _{GS} =-1.8V, I _D =-3A	-	21	35	
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = -250μA	-0.3	-0.6	-1.0	V
V _{GS(TH)} Temperature Coefficient	ΔV _{GS(TH)}		-	3	-	mV/°C
Forward Transconductance	g _{fs}	V _{DS} =-10V, I _D =-6A	-	20	-	S
Dynamic Characteristics						
Input Capacitance	C _{iSS}	V _{GS} = 0V, V _{DS} = -12V f = 1.0MHz	-	2320	3370	pF
Output Capacitance	C _{oSS}		-	280	410	
Reverse Transfer Capacitance	C _{rSS}		-	175	260	
Total Gate Charge	Q _g	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-6A	-	27	40	nC
Gate to Source Charge	Q _{gs}		-	2.4	4.8	
Gate to Drain Charge	Q _{gd}		-	5.3	8	
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{GS} =-4.5V, V _{DD} =-10V, I _D =-1A, R _G =25Ω	-	16.2	31	ns
Rise Time	t _r		-	43.5	83	
Turn-Off Delay Time	t _{d(off)}		-	114	217	
Fall Time	t _f		-	28.8	55	
Drain-Source Body Diode Characteristics						
Pulsed Source Current	I _{SM}	V _G =V _D =0V, Force Current	-	-	-11	A
Continuous Source Current	I _S		-	-	-22	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V	-	-	-1.2	V

Notes:

1. Repetitive Rating: Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%.
3. Essentially independent of operating temperature.



TYPICAL PERFORMANCE CHARACTERISTICS

Fig1. Continuous Drain Current vs. T_c

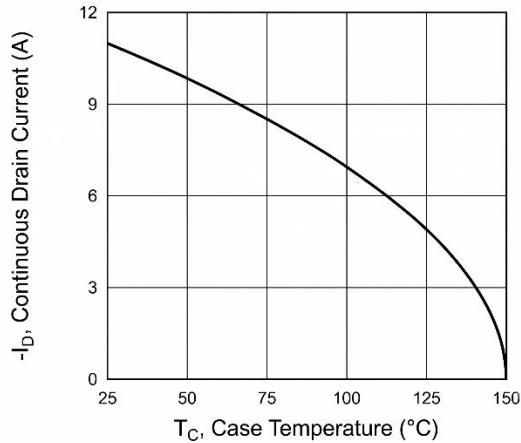


Fig 2. Normalized $R_{DS(on)}$ vs. T_J

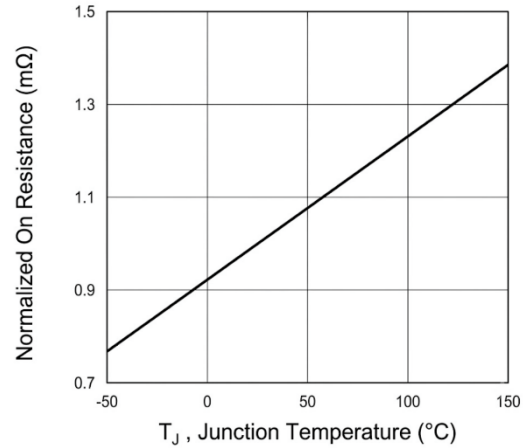


Fig 3. Normalized V_{th} vs. T_J

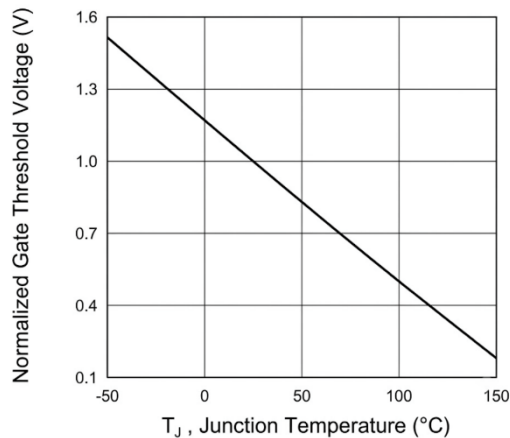


Fig 4. Gate Charge Waveform

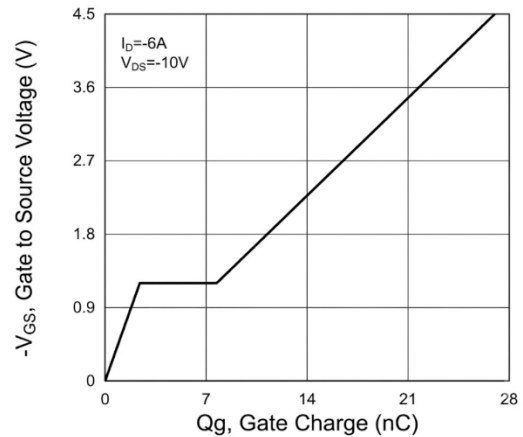


Fig 5. Normalized Transient Response

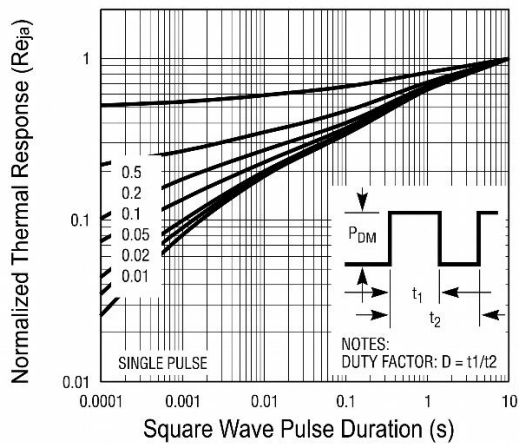


Fig 6. Maximum Safe Operation Area

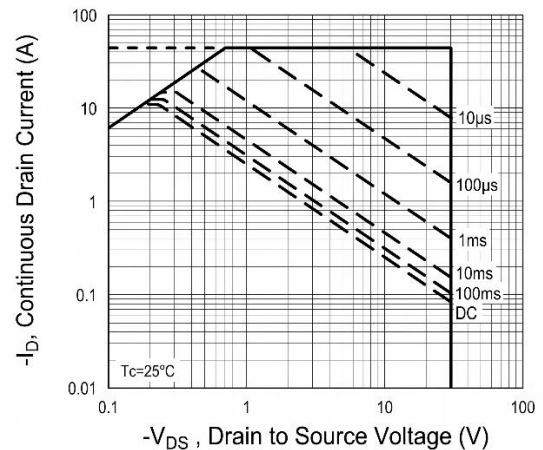




Fig 7. Switching Time Waveform

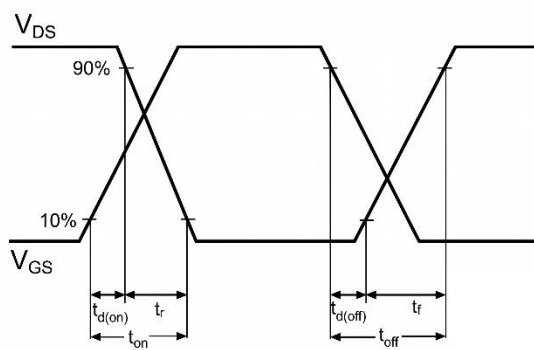
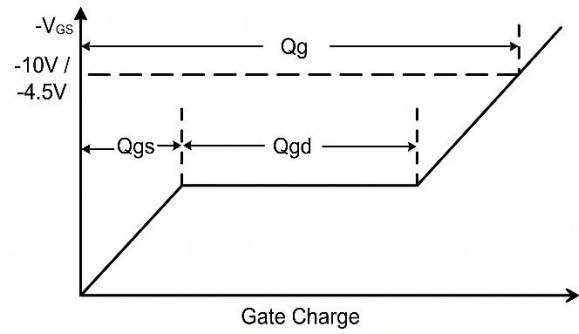


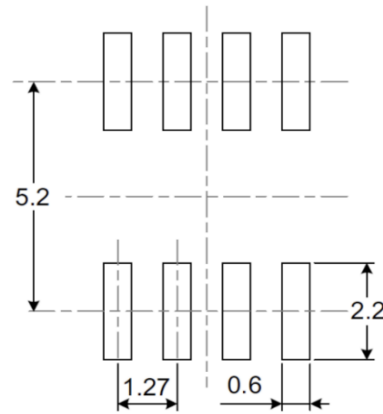
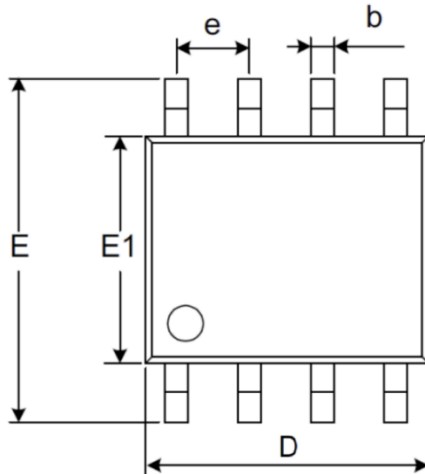
Fig 8. Gate Charge Waveform



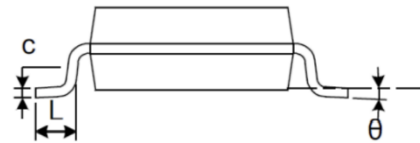
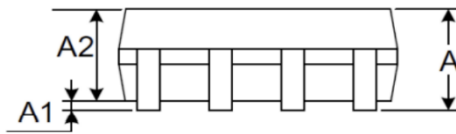


PACKAGE INFORMATION

Dimension in SOP8 (Unit: mm):



RECOMMEND LAND PATTERN



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	4.800	5.000
E	5.800	6.200
E1	3.800	4.000
e	1.270 BSC	
L	0.400	1.270
θ	0°	8°



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