DESCRIPTION

The AM4812 is the N-Channel logic enhancement mode power field effect transistor which is produced using high cell density. Advanced trench technology to provide excellent $R_{DS(ON)}$.

This high density process is especially tailored to minimize on-state resistance.

The AM4812 is particularly suited for low voltage application, and low in-line power loss are needed in a very small outline surface mount package.

The AM4812 is available in SOP8 Package.

FEATURES

- 30V / 7.8A, $R_{DS(ON)}$ = 16mΩ (typ.)@V_{GS} = 10V
- 30V / 5.8A, $R_{DS(ON)}$ = 22mΩ (typ.)@V_{GS} = 4.5V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and Maximum DC current capability
- Available in SOP8 Package

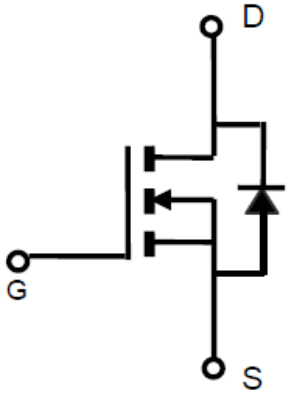
APPLICATION

- High Frequency Point-of-Load Synchronous
- New working DC-DC Power System
- Load Switch

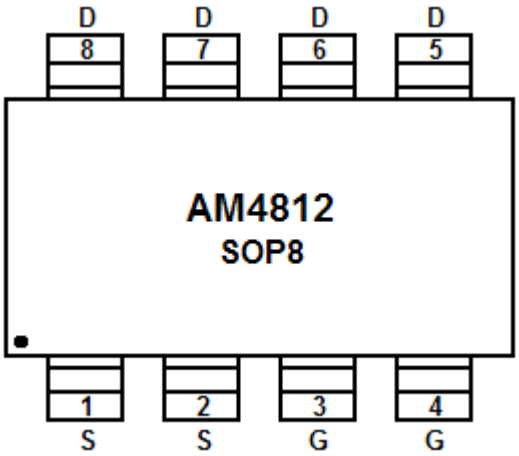
ORDERING INFORMATION

Package Type	Part Number	
SOP8	M8	AM4812M8R
		AM4812M8VR
Note	R: Tape & Reel V: Green Package	
AiT provides all Pb free products Suffix " V " means Green Package		

N CHANNEL MOSFET



PIN DESCRIPTION



Top View

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

ABSOLUTE MAXIMUM RATINGS

T_A = 25°C unless otherwise specified

V_{DSS}, Drain-Source Voltage		30V
V_{GSS}, Gate-Source Voltage		±20V
I_D, Continuous Drain Current, V_{GS} = 10V NOTE1	T_A=25°C	10A
I_{DM}, Pulsed Drain Current NOTE2		20A
P_D, Power Dissipation	T_A=25°C	3.2W
	T_A=70°C	2W
T_J, Operation Junction Temperature		-55°C /150°C
T_{STG}, Storage Temperature Range		-55°C /150°C

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.

NOTE1: The value of $R_{\theta JA}$ is measured with the device mounted on 1in 2 FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C.

NOTE2: The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.

THERMAL INFORMATION

Parameter	Symbol	Typ	Unit
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	85	°C/W
Thermal Resistance-Junction to Case	$R_{\theta JC}$	48	°C/W

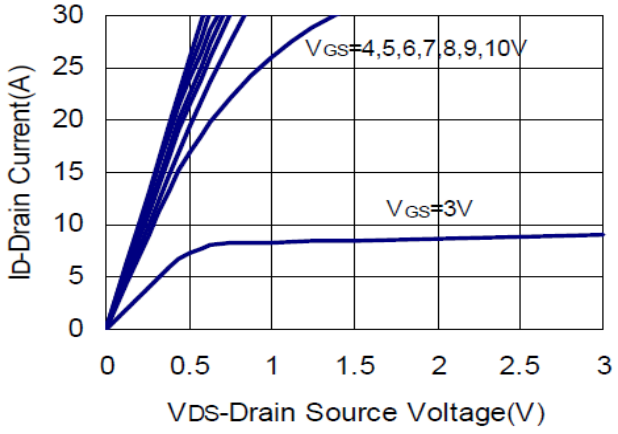
ELECTRICAL CHARACTERISTICS

T_A = 25°C unless otherwise specified

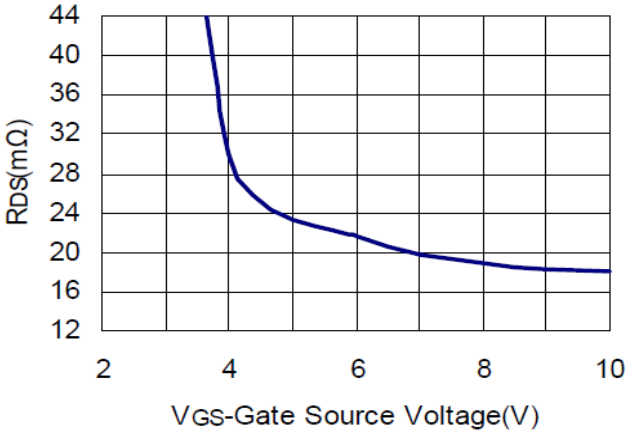
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.0	-	2.5	V
Gate Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24V, V_{GS} = 0V	-	-	1	μA
		V_{DS} = 24V, V_{GS} = 0V T_J = 55°C	-	-	5	
On-State Drain Current	$I_{D(ON)}$	V_{DS} ≧ 5V, V_{GS} = 10V	25	-	-	A
Drain-source On-Resistance	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 7.8A	-	16	20	mΩ
		V_{GS} = 4.5V, I_D = 5.8A	-	22	28	
Source-Drain Diode						
Diode Forward Voltage	V_{SD}	I_S = 2A, V_{GS} = 0V	-	0.8	1.2	V
Dynamic Parameters						
Total Gate Charge	Q_g	V_{DS} = 15V	-	7.2	-	nC
Gate-Source Charge	Q_{GS}	V_{GS} = 10V	-	1.6	-	
Gate-Drain Charge	Q_{GD}	I_D = 7.8A	-	2	-	
Input Capacitance	C_{iss}	V_{DS} = 15V V_{GS} = 0V f = 1MHz	-	570	-	pF
Output Capacitance	C_{oss}		-	80	-	
Reverse Transfer Capacitance	C_{rss}		-	64	-	
Turn-On Time	$t_{d(on)}$	V_{DD} = 15V V_{GS} = 10V I_D = 5A R_G = 3.3Ω	-	4.2	-	nS
	t_r		-	10.2	-	
Turn-Off Time	$t_{d(off)}$		-	16	-	
	t_f		-	6.2	-	

TYPICAL CHARACTERISTICS

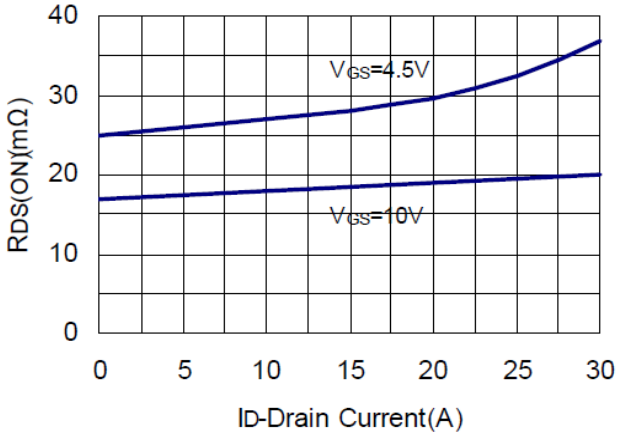
1. Output Characteristics



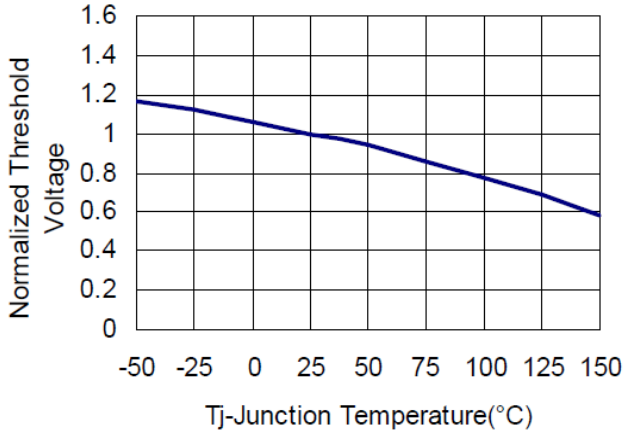
2. Drain-Source On Resistance



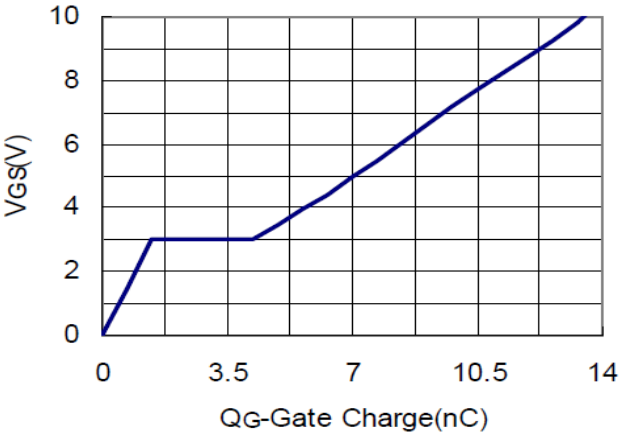
3. Drain Source On Resistance



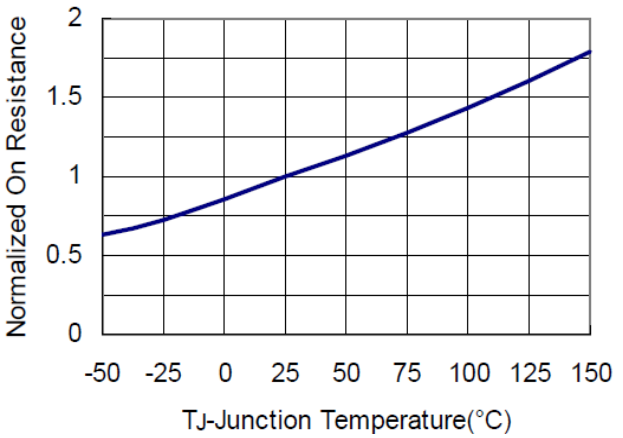
4. Gate Threshold Voltage



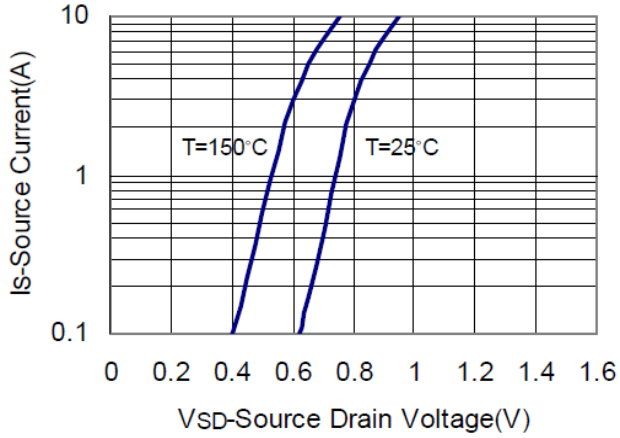
5. Gate Charge



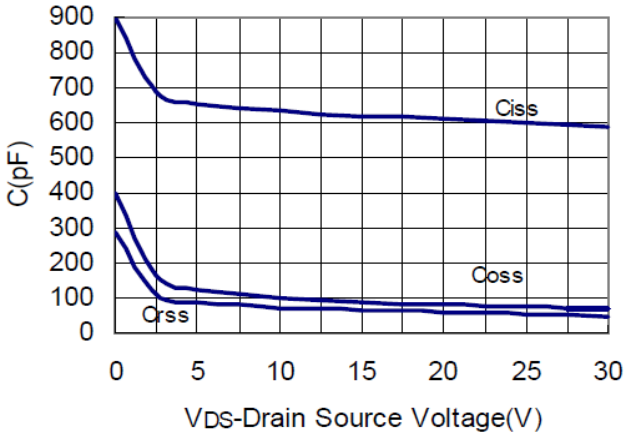
6. Drain Source On Resistance



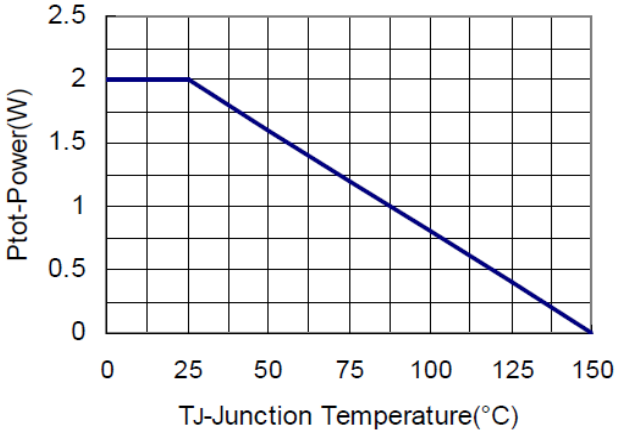
7. Source Drain Diode Forward



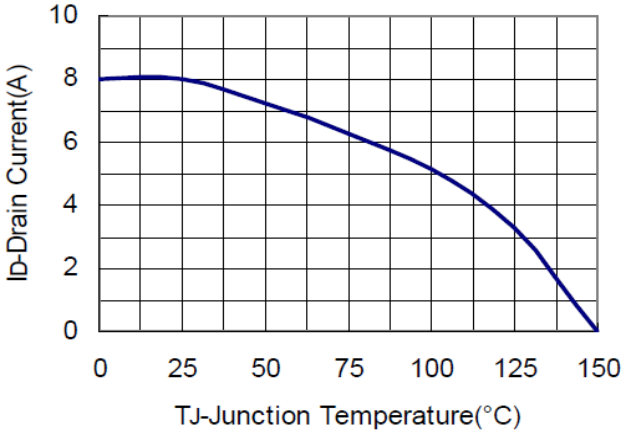
8. Capacitance



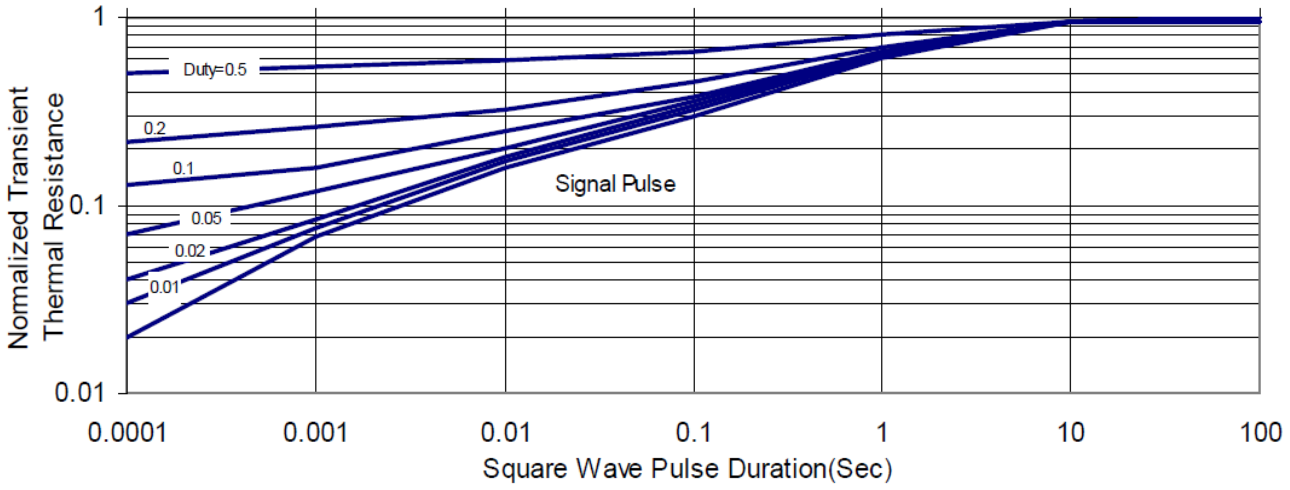
9. Power Dissipation



10. Drain Current

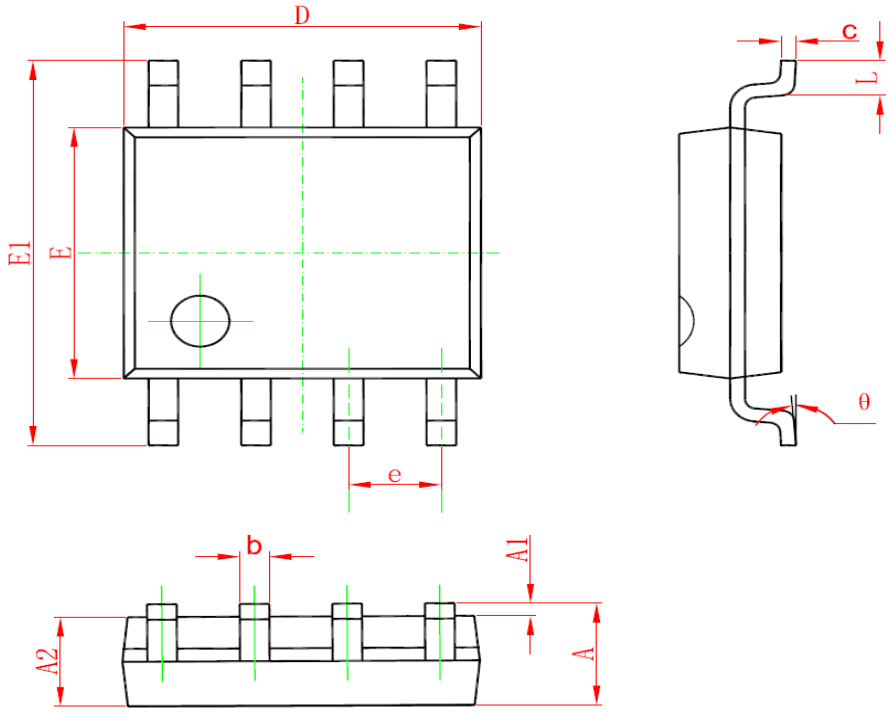


11. Thermal Transient Impedance



PACKAGE INFORMATION

Dimension in SOP8 Package (mm)



Symbol	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°

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