



60V Dual N-Channel Enhancement-Mode MOSFET

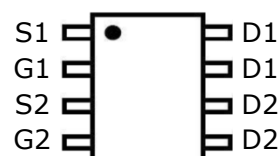
General Features

- $V_{DS} = 60V$
Max. $R_{DS(ON)}$, $V_{GS}@4.5V$, $I_{DS}@4.7A = 44m\Omega$
Max. $R_{DS(ON)}$, $V_{GS}@10V$, $I_{DS}@5.3A = 35m\Omega$
High Power and current handling capability
- Lead Free product is acquired
- Logic Level
- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- Avalanche Rated
- dv/dt rated
- Green Product (RoHS compliant)
- 150°C operating temperature

Application

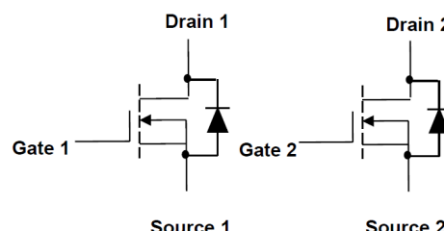
- Battery protection
- Load switch
- Power management

SOP-08



Top View

Internal Schematic Diagram



N-Channel MOSFET

Ordering Information

Device	Package	Packing	Finish	Halogen	Packing Unit
AM5N06DS	SOP-8	Reel&Tape	Sn	Free	2,500 ea

Package Outline

ST
1 Line : Device Name

nd
2 Line : Date Code

- YY : Last two digit of calendar year
- WW : Work week code
- C : Assembly site

rd
3 Line : Device name : AM5N06DS OR AM5N06DD

- S : SOP-8 PKG code
- D : DIP-8 PKG code



SOP-8



Maximum Ratings and Thermal Characteristics (T_A=25 °C, unless otherwise noted)

Rating		Symbol	Value	Unit
Drain-Source Voltage		V _{DS}	60	V
Gate-Source Voltage		V _{GS}	±20	
Drain Current-Continuous@ Current-Pulsed (Note 1)		I _D (25°C)	6.5	A
		I _{DM}	24.7	
Maximum Power Dissipation	T _A = 25°C	P _D	3.7	W
	T _A = 75°C		2.4	
Operating Junction and Storage Temperature Range		T _J ,T _{STG}	-55 to 150	°C
Avalanche Current		I _{AR}	25	A
Avalanche Energy with Single Pulse		E _{AS}	26.3	mJ
Reverse diode dv/dt		dv/dt	6	kV/μs
Thermal Resistance, Junction – to –Ambient (Note 2)		R _{θJA}	62.5	°C/W

Note : 1. Repetitive Rating : Pulse width limited by the maximum junction temperature

2. 1-in² 2oz Cu PCB board

3. Guaranteed by design; not subject to production testing

Electrical Characteristic (T_C=25 °C, unless otherwise noted)

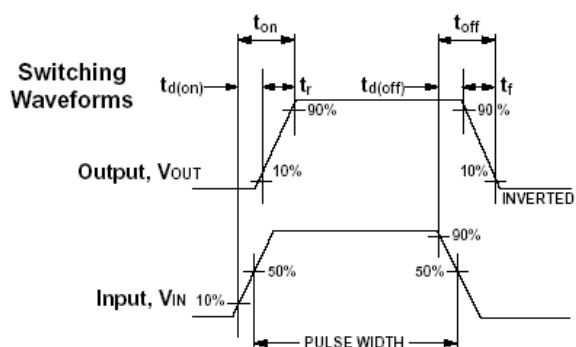
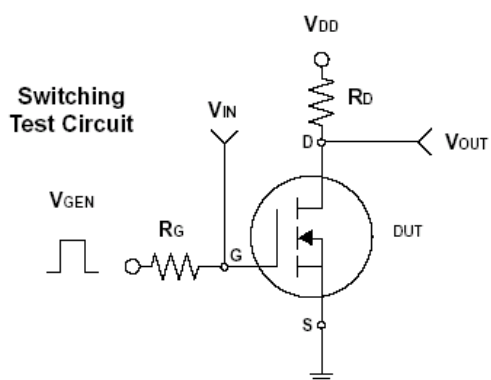
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BVDSS	VGS=0V ID=250 μ A	60			V
Zero Gate Voltage Drain Current	IDSS	VDS=48V,VGS=0V			1	μ A
Gate-Body Leakage Current	IGSS	VGS=±20V,VDS=0V			±100	nA
ON CHARACTERISTICS (Note 3)						
Gate Threshold Voltage	VGS(th)	VDS=VGS,ID=250 μ A	1	1.7	3	V
Drain-Source On-State Resistance	R _{DS(ON)}	VGS=4.5V, ID=4.7A		40	60.0	m Ω
		VGS=10V, ID=5.3A		35	50.0	
DYNAMIC CHARACTERISTICS (Note1)						
Input Capacitance	Ciss	VDS = 30V, VGS = 0V, F = 1.0MHz		710		pF
Output Capacitance	Coss			61		pF
Reverse Transfer Capacitance	Crss			29		pF
Turn-on Delay Time	td(on)	VDD=30V, RL = 6.8 Ω VGEN = 4.5V, RG = 1 Ω ID = 4.4A		17		nS
Turn-on Rise Time	tr			17		nS
Turn-Off Delay Time	td(off)			25		nS
Turn-Off Fall Time	tf			7		nS
Total Gate Charge	Qg	V _{DS} = 30V, I _D = 5.3A, V _{GS} = 5V		7.2		nC
Gate-Source Charge	Qgs			2.1		nC
Gate-Drain Charge	Qgd			2.7		nC
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode Forward Voltage	VSD	VGS=0V,IS=2A			1.2	V
Diode Forward Current	IS				3.1	A
Body Diode Reverse Recovery Time	Trr	IF = 4A, di/dt = 101.3A/us TJ = 25°C		22.3		nS
Body Diode Reverse Recovery Charge	Qrr			14.6		nC

NOTES:

- Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.

1. Guaranteed by design, not subject to production testing.

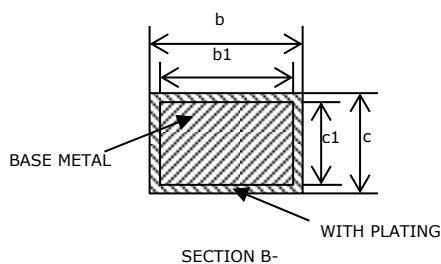
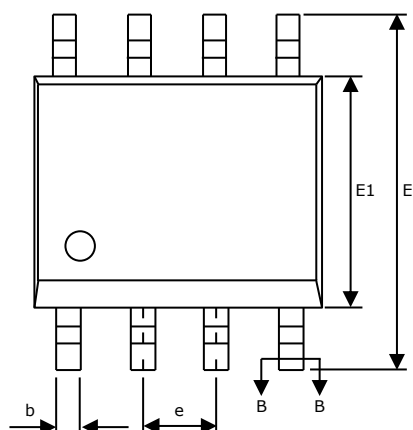
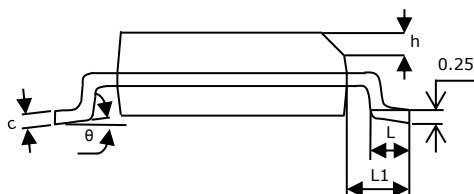
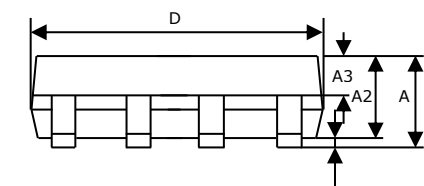
REV. 00



Package Dimensions

SOP-8

Unit : mm



SOP-8L unit : mm			
DIM	MIN	NOM	MAX
A	—	—	1.75
A1	0.10	—	0.225
A2	1.30	1.40	1.50
A3	0.60	0.65	0.70
b	0.39	—	0.48
b1	0.38	0.41	0.43
c	0.21	—	0.26
c1	0.19	0.20	0.21
D	4.70	4.90	5.10
E	5.80	6.00	6.20
E1	3.70	3.90	4.10
e	1.27BSC		
h	0.25	—	0.50
L	0.50	—	0.80
L1	1.05BSC		
θ	0	—	8°
L/F	80*80	90*90	95*130



Revision History

No	Date	Contents
0	2016-06-13	Initial Brief Datasheet Release



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