

N-CH100V Fast Switching MOSFETs

❖ GENERAL DESCRIPTION

The AMS0026 is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The AMS0026 meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

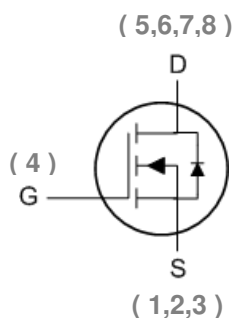
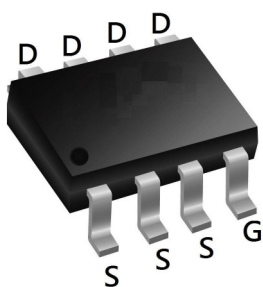
❖ FEATURES

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Green Device Available

Product Summary

BVDSS	RDSON	ID
100V	20mΩ	7.5A

SOP8 Pin configuration



❖ ORDER/MARKING INFORMATION

Order Information	Top Marking
AMS0026 X X <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> Package Type S: SOP-8L </div> <div style="text-align: center;"> Packing Blank : Bag A : Taping </div> </div>	AM 0 0 2 6 → Part number Y Y W W X → ID code:internal WW:01~26 (A~Z) 27~52 (a~z) → Year: 11=2011 12=2012 ⋮ 19=2019

❖ ABSOLUTE MAXIMUM RATINGS

Characteristics	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current, V_{GS} @ 10V (Note 1)	$I_D @ T_A = 25^\circ C$	7.5	A
Continuous Drain Current, V_{GS} @ 10V (Note 1)	$I_D @ T_A = 70^\circ C$	6	A
Pulsed Drain Current (Note 2)	I_{DM}	40	A
Single Pulse Avalanche Energy (Note 3)	EAS	16	mJ
Avalanche Current	I_{AS}	18	A
Total Power Dissipation (Note 4)	$P_D @ T_A = 25^\circ C$	2.5	W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C
Thermal Resistance Junction-ambient (Note 1) ($t \leq 10S$)	$R_{\theta JA}$	50	°C/W
Thermal Resistance Junction-ambient (Note 1) (Steady State)		85	°C/W

Note 1: The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

Note 2: The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

Note 3: The EAS data shows Max. rating . The test condition is $V_{DD}=25V$, $V_{GS}=10V$, $L=0.1mH$

Note 4: The power dissipation is limited by 150°C junction temperature

Note 5: The Min. value is 100% EAS tested guarantee.

Note 6: The data is theoretically the same as I_D and I_{DM} , in real applications, should be limited by total power dissipation.

❖ ELECTRICAL CHARACTERISTICS

 (T_J=25 °C, unless otherwise noted)

Characteristics	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	100	-	-	V
BVDSS Temperature Coefficient	ΔBV _{DSS} /ΔT _J	Reference to 25°C, I _D =1mA	-	0.098	-	V/°C
Static Drain-Source On-Resistance (Note 2)	R _{DS(ON)}	V _{GS} =10V, I _D =7A	-	16	20	mΩ
		V _{GS} =4.5V, I _D =5A	-	19	25	
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250uA	1.2	-	2.5	V
V _{GS(th)} Temperature Coefficient	ΔV _{GS(th)}		-	-5.5	-	mV/°C
Drain-Source Leakage Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V, T _J =25°C	-	-	10	uA
		V _{DS} =80V, V _{GS} =0V, T _J =55°C	-	-	100	
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Forward Transconductance	g _{fs}	V _{DS} =5V, I _D =7A	-	24	-	S
Gate Resistance	R _g	V _{DS} =0V, V _{GS} =0V, f=1MHz	-	1.6	-	Ω
Total Gate Charge (10V)	Q _g	V _{DS} =80V, V _{GS} =10V, I _D =7A	-	36	-	nC
Gate-Source Charge	Q _{gs}		-	95	-	
Gate-Drain Charge	Q _{gd}		-	10	-	
Turn-On Delay Time	T _{d(on)}	V _{DD} =50V, V _{GS} =10V, R _G =3.3Ω, I _D =7A	-	11.5	-	ns
Rise Time	T _r		-	29	-	
Turn-Off Delay Time	T _{d(off)}		-	42	-	
Fall Time	T _f		-	18	-	
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, R _G =3.3Ω, f=1MHz	-	1930	-	pF
Output Capacitance	C _{oss}		-	245	-	
Reverse Transfer Capacitance	C _{rss}		-	125	-	
Diode Characteristics						
Continuous Source Current (Note 1, 6)	I _S	V _G =V _D =0V, Force Current	-	-	7	A
Pulsed Source Current (Note 2, 6)	I _{SM}		-	-	40	A
Diode Forward Voltage (Note 2)	V _{SD}	V _{GS} =0V, I _S =1A, T _J =25°C	-	-	1.2	V
Reverse Recovery Time	t _{rr}	I _F =7A, dI/dt=100A/μs, T _J =25°C	-	48	-	nS
Reverse Recovery Charge	Q _{rr}	T _J =25°C	-	29	-	nC

 Note 1: The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

Note 2: The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%

 Note 3: The EAS data shows Max. rating. The test condition is V_{DD}=25V, V_{GS}=10V, L=0.1mH

Note 4: The power dissipation is limited by 150°C junction temperature

Note 5: The Min. value is 100% EAS tested guarantee.

 Note 6: The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

❖ TYPICAL CHARACTERISTICS

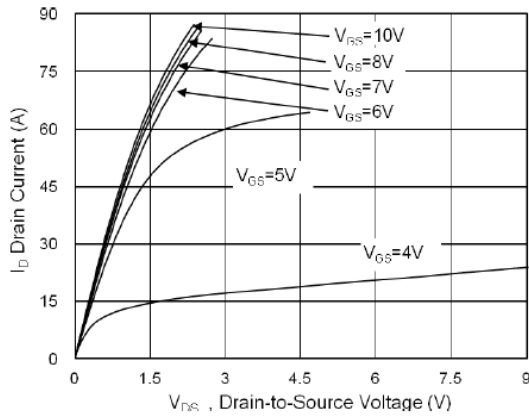


Fig.1 Typical Output Characteristics

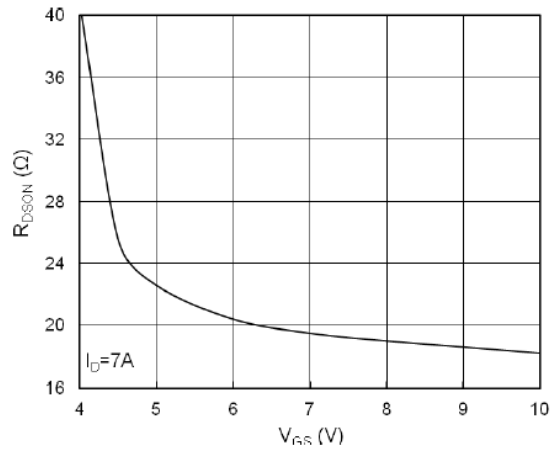


Fig.2 On-Resistance vs. Gate-Source

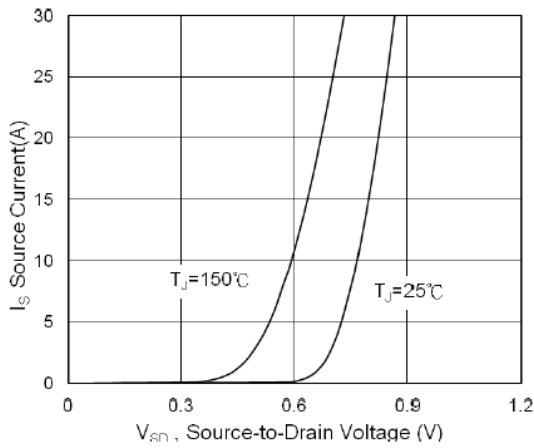


Fig.3 Forward Characteristics Of Reverse

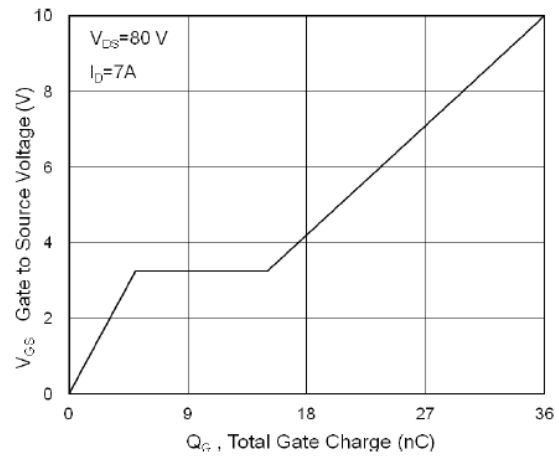


Fig.4 Gate-Charge Characteristics

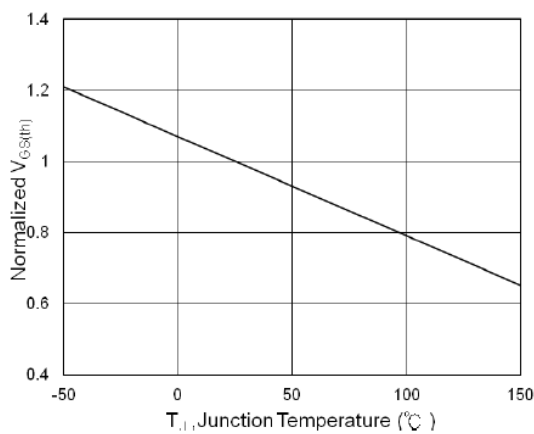


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

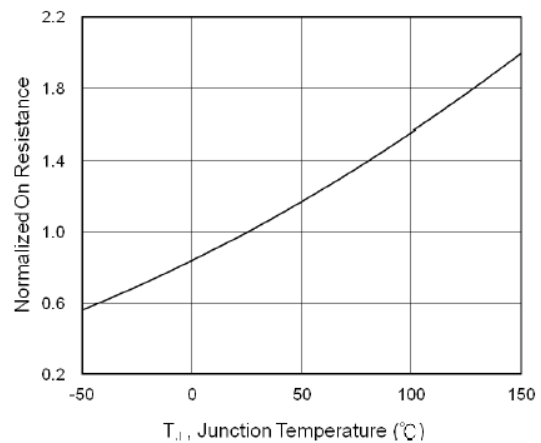


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

❖ TYPICAL CHARACTERISTICS (COUNTINOUS)

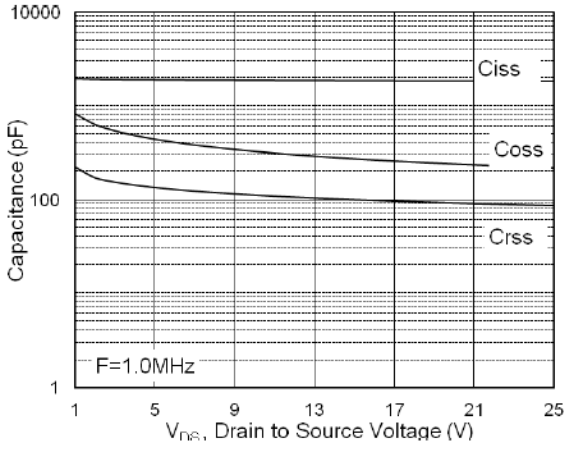


Fig.7 Capacitance

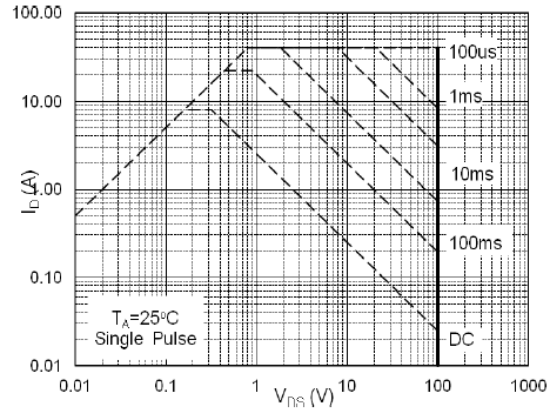


Fig.8 Safe Operating Area

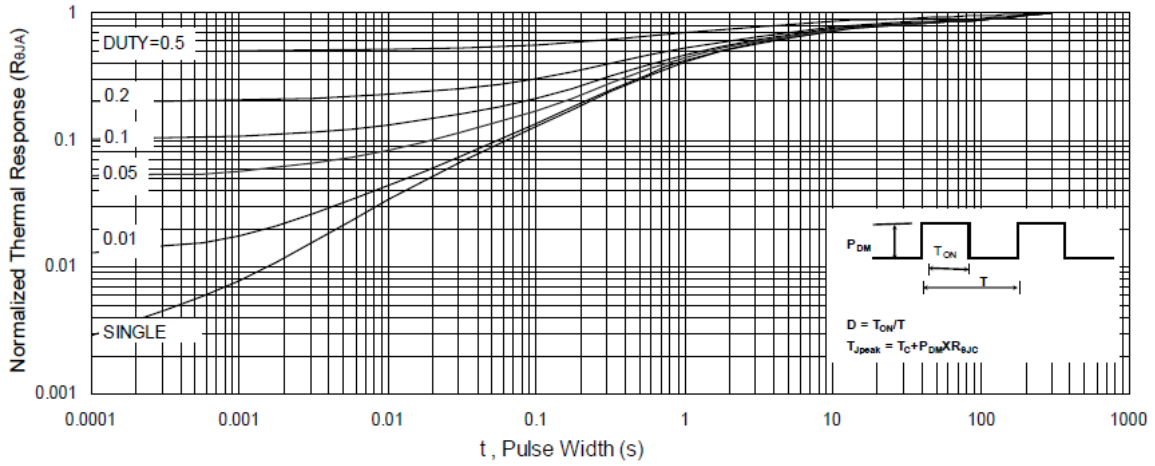


Fig.9 Normalized Maximum Transient Thermal Impedance

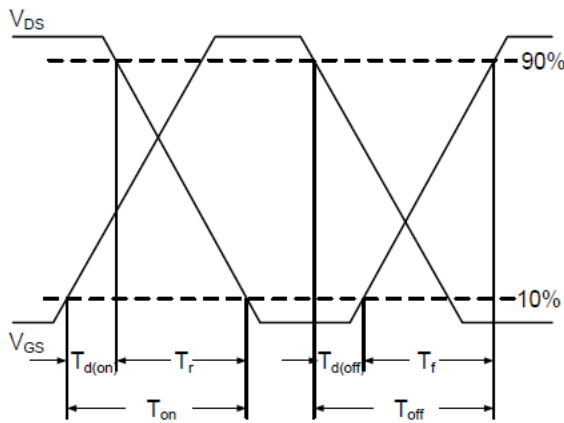


Fig.10 Switching Time Waveform

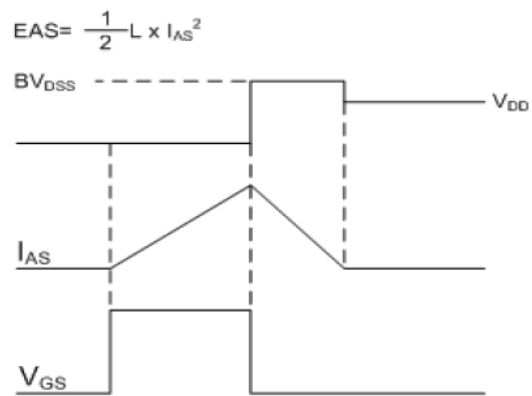


Fig.11 Unclamped Inductive Switching Waveform