P-CH20V Fast Switching MOSFETs

❖ GENERAL DESCRIPTION

The AMN2607 is the high cell density trenched P-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications

The AMN2607 meet the RoHS and Green Product requirement with full function reliability approved.

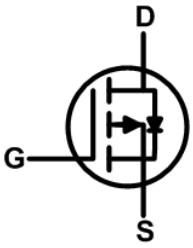
❖ FEATURES

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

Product Summery

BVDSS	RDSON	ID
-20V	32mΩ	-4.7A

SOT23 Pin configuration



❖ ORDER/MARKING INFORMATION

Order Information	Top Marking
AMN2607X X Package Type R: SOT23-3L Packing Blank : Bag A : Taping	A3YWX → ID code:internal WW:01~26 (A~Z) 27~52 (a~z) Year: 1=2011 2=2012 ⋮ 9=2019 AMN2607

❖ ABSOLUTE MAXIMUM RATINGS

Characteristics	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current, V_{GS} @ -4.5V (Note 1)	I_D@T_A=25°C	-4.7	A
Continuous Drain Current, V_{GS} @ -4.5V (Note 1)	I_D@T_A=70°C	-3.8	A
Pulsed Drain Current (Note 2)	I_{DM}	-18.8	A
Total Power Dissipation (Note 3)	P_D@T_A=25°C	1	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)	$R_{\theta JA}$	125	°C/W
Thermal Resistance Junction-Case (Note 1)	$R_{\theta JC}$	80	°C/W

Note 1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
Note 2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
Note 3.The power dissipation is limited by 150°C junction temperature
Note 4.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	-20	-	-	V
BVDSS Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	Reference to 25°C, I_D=-1mA	-	-0.01	-	V/°C
Static Drain-Source On-Resistance (Note 2)	$R_{DS(ON)}$	V_{GS}=-4.5V , I_D=-4A	-	25	32	mΩ
		V_{GS}=-2.5V , I_D=-2A	-	32	40	
		V_{GS}=-1.8V , I_D=-1.5A	-	42	52	
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS} , I_D =-250uA	-0.3	-0.5	-1.0	V
$V_{GS(th)}$ Temperature Coefficient	$\Delta V_{GS(th)}$		-	2.96	-	mV/°C
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-16V , V_{GS}=0V , T_J=25°C	-	-	-1	uA
		V_{DS}=-16V , V_{GS}=0V , T_J=55°C	-	-	-5	
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±8V , V_{DS}=0V	-	-	±100	nA
Forward Transconductance	gfs	V_{DS}=-5V , I_D=-4A	-	21	-	S
Total Gate Charge (-4.5V)	Q_g	V_{DS}=-15V , V_{GS}=-4.5V , I_D=-4A	-	27.3	38.2	nC
Gate-Source Charge	Q_{gs}		-	3.6	5.0	
Gate-Drain Charge	Q_{gd}		-	6.5	9.1	
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=-10V , V_{GS}=-4.5V , R_G=3.3Ω I_D=-4A	-	9.2	18.4	ns
Rise Time	T_r		-	59	106	
Turn-Off Delay Time	$T_{d(off)}$		-	99	198	
Fall Time	T_f		-	71	142	
Input Capacitance	C_{iss}	V_{DS}=-15V , V_{GS}=0V , f=1MHz	-	2280	3192	pF
Output Capacitance	C_{oss}		-	220	308	
Reverse Transfer Capacitance	C_{rss}		-	187	262	
Diode Characteristics						
Continuous Source Current (Note 1, 4)	I_S	V_G=V_D=0V , Force Current	-	-	-4.7	A
Pulsed Source Current (Note 2, 4)	I_{SM}		-	-	-18.8	A
Diode Forward Voltage (Note 2)	V_{SD}	V_{GS}=0V , I_S=-1A , T_J=25°C	-	-	-1	V
Reverse Recovery Time	t_{rr}	I_F=-4A , dI/dt=100A/μs , T_J=25°C	-	52	-	nS
Reverse Recovery Charge	Q_{rr}		-	28	-	nC

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

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

Note 3.The power dissipation is limited by 150°C junction temperature

Note 4.The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

❖ TYPICAL CHARACTERISTICS

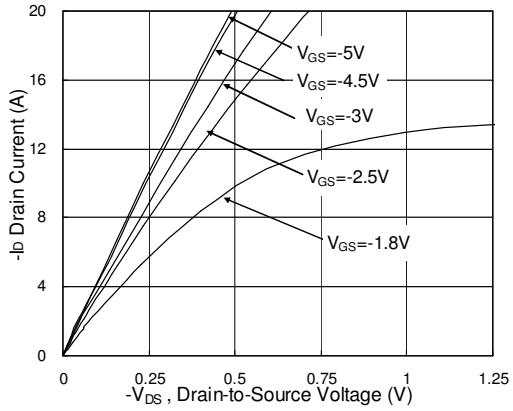


Fig.1 Typical Output Characteristics

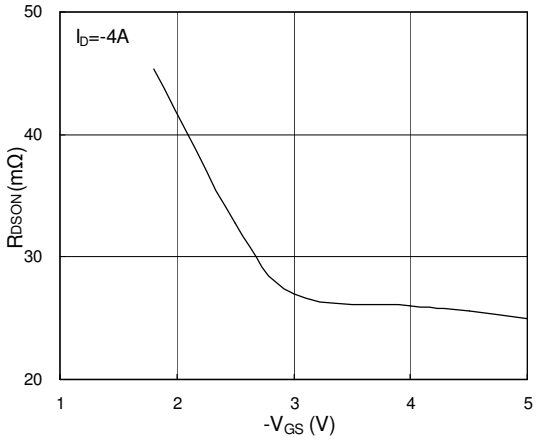


Fig.2 On-Resistance vs. Gate-Source

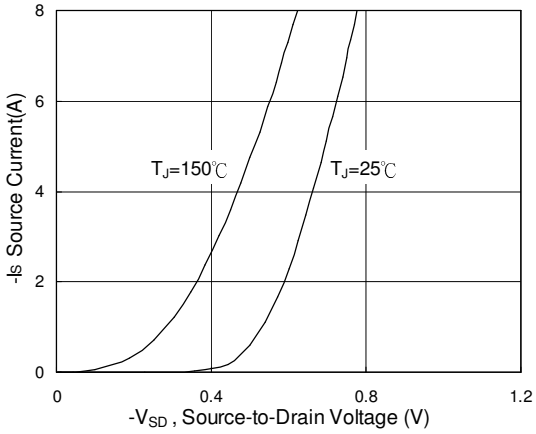


Fig.3 Forward Characteristics of Reverse

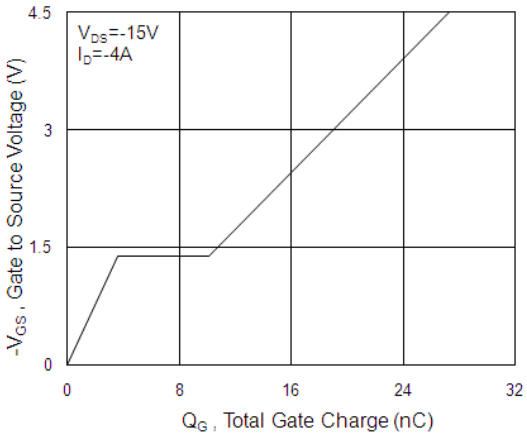


Fig.4 Gate-Charge Characteristics

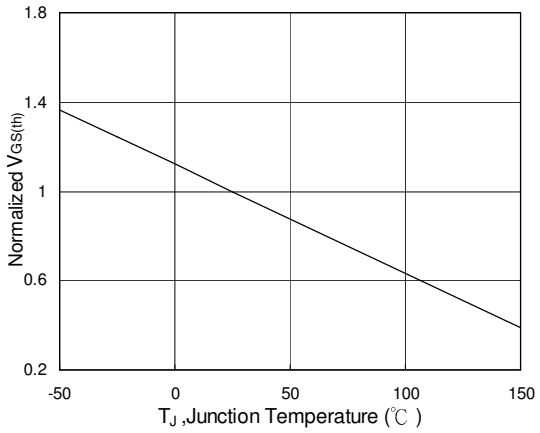


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

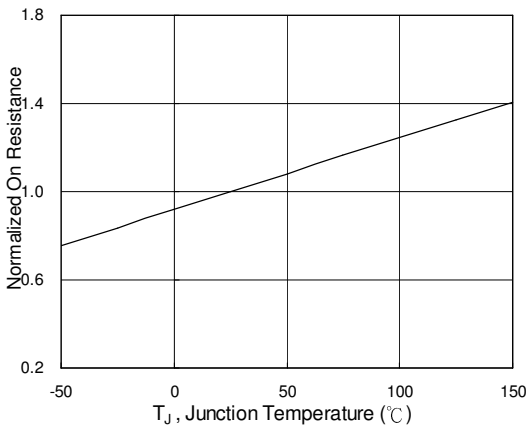


Fig.6 Normalized R_{DSON} vs. T_J

❖ TYPICAL CHARACTERISTICS (COUNTINOUS)

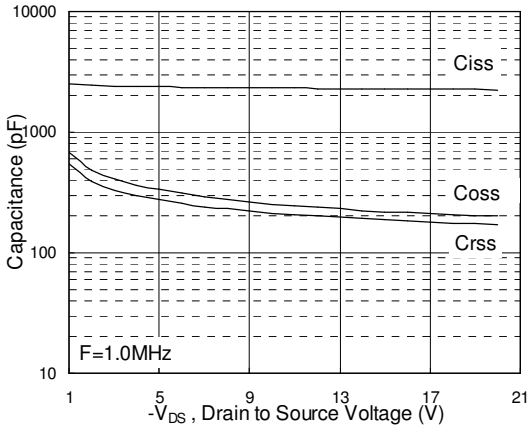


Fig.7 Capacitance

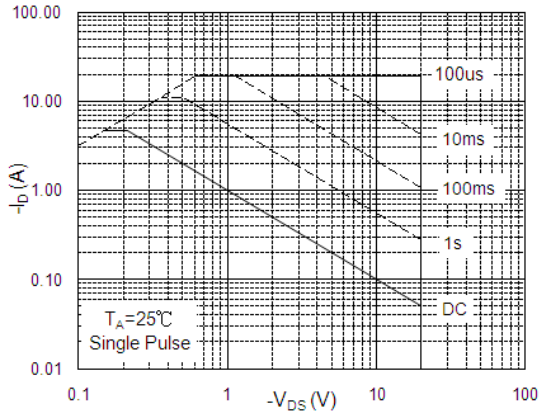


Fig.8 Safe Operating Area

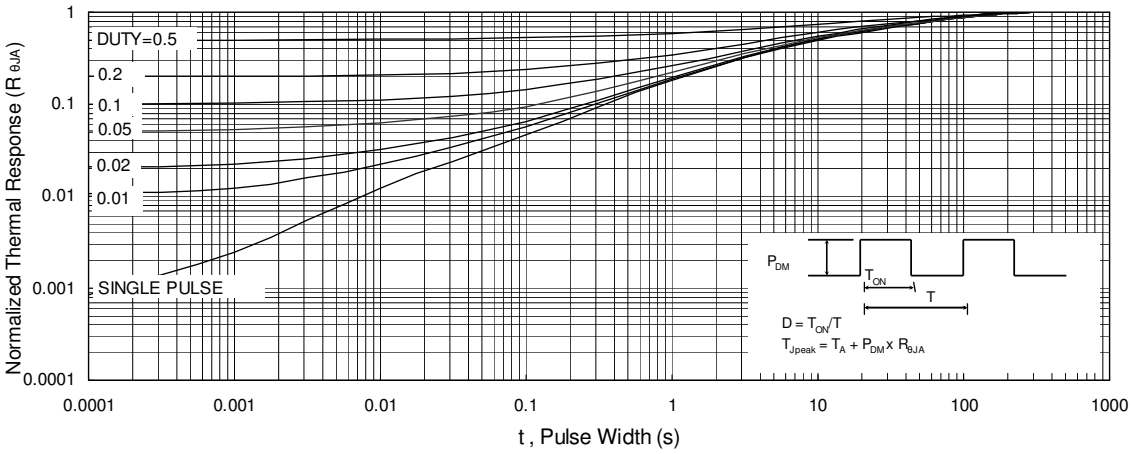


Fig.9 Normalized Maximum Transient Thermal Impedance

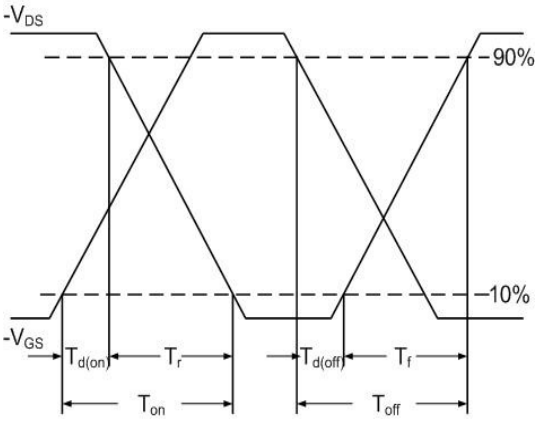


Fig.10 Switching Time Waveform

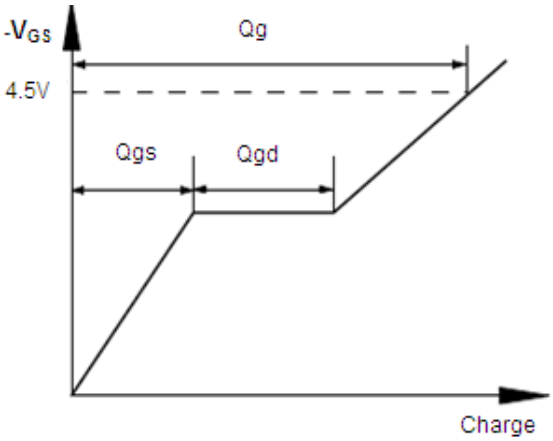


Fig.11 Gate Charge Waveform