



DESCRIPTION

$V_{DS}=60V$

$V_{GS}=\pm 20V$

$I_D(A)=3.3A$

$R_{DS(ON)}= 67m\Omega(Typ.) @ V_{GS}= 10V$

$R_{DS(ON)}= 76m\Omega(Typ.) @ V_{GS}= 4.5V$

AM2308 is available in a SOT-23S package.

ORDERING INFORMATION

Package Type	Part Number	
SOT-23S SPQ: 3,000pcs/Reel	E3S	AM2308E3SR
		AM2308E3SVR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

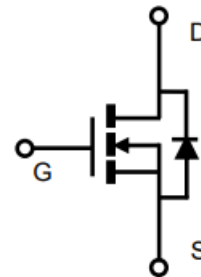
FEATURES

- Fast Switch
- Available in a SOT-23S package.

APPLICATION

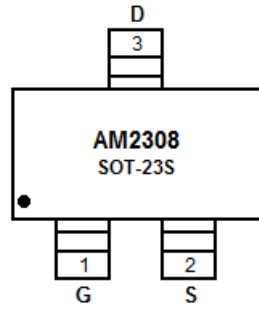
- Head-Held Instruments
- Power Management
- LED Lighting

N CHANNEL MOSFET





PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	G	Gate
2	S	Source
3	D	Drain



ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless otherwise noted

V _{DSS} , Drain-Source Voltage		60V
V _{GSS} , Gate-Source Voltage		±20V
I _D , Continuous Drain Current	T _A =25°C	3.3A
	T _A =70°C	3.0A
I _{DM} , Pulsed Drain Current ^{NOTE2}		13.4A
I _{AS} , Avalanche Current ^{NOTE2}		5A
E _{AS} , Single Pulse Avalanche Energy (L=0.3mH) ^{NOTE2}		3.75mJ
P _D , Power Dissipation ^{NOTE1}	T _A =25°C	1.6W
	T _A =70°C	1W
T _J , Operation Junction Temperature		-55°C~150°C
T _{STG} , Storage Temperature Range		-55°C~150°C

Stress beyond above listed "Absolute Maximum Ratings" may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

NOTE1: Surface mounted on FR4 board using 1 in² pad size

NOTE2: Pulsed width limited by maximum junction temperature, T_{J(MAX)}=150°C (initial temperature T_J=25°C).

NOTE3: Using ≤ 10s junction-to-ambient thermal resistance is base on T_{J(MAX)}=150°C.

THERMAL CHARACTERISTICS

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction to Ambient ^{NOTE1}	t ≤ 10s	R _{θJA}	-	80	°C/W
Thermal Resistance Junction to Ambient ^{NOTE1, 3}	Steady-State		-	130	



ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise noted

Parameter	Symbol	Conditions	Min	Typ.	Max	Units
Static Parameters						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _{DS} =250μA	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V, T _J =25°C	-	-	1	μA
		V _{DS} =48V, V _{GS} =0V, T _J =75°C	-	-	10	
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.2	1.9	2.5	V
Drain-Source On-state Resistance ^{NOTE4}	R _{DS(ON)}	V _{GS} =10V, I _D =3.3A	-	67	80	mΩ
		V _{GS} =4.5V, I _D =2.3A	-	76	90	
Forward Transconductance	G _{fs}	V _{DS} =10V, I _D =3.3A	-	6.2	-	S
Diode Characteristics						
Diode Forward Voltage ^{NOTE4}	V _{SD}	I _{SD} =1A, V _{GS} =0V	-	0.75	1	V
Diode Continuous Forward Current	I _S		-	-	1.7	A
Dynamic and Switching Parameter^{NOTE5}						
Total Gate Charge(10V)	Q _g	V _{DS} =30V, V _{GS} =10V, I _{DS} =3.3A	-	6.6	9.8	nC
Total Gate Charge(4.5V)	Q _g		-	3.2	4.8	
Gate-Source Charge	Q _{gs}		-	1.4	2.1	
Gate-Drain Charge	Q _{gd}		-	1.0	1.5	
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f=1.0MHz	-	426	-	pF
Output Capacitance	C _{oss}		-	35	-	
Reverse Transfer Capacitance	C _{rss}		-	14	-	
Turn-on Time	t _{d(on)}	V _{DD} =30V, V _{GEN} =10V, R _G =3.3Ω, I _D =1A,	-	4.5	8.0	ns
	t _r		-	8.0	15	
Turn-off Time	t _{d(off)}		-	14	25	
	t _f		-	5.0	9.0	

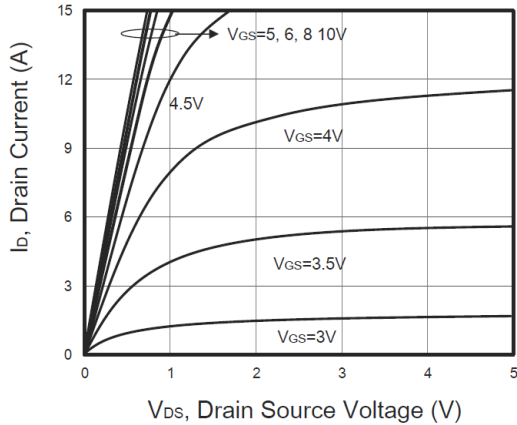
NOTE4: Pulse test width ≤300μs and duty cycle ≤ 2%.

NOTE5: Guaranteed by design, not subject to production testing.

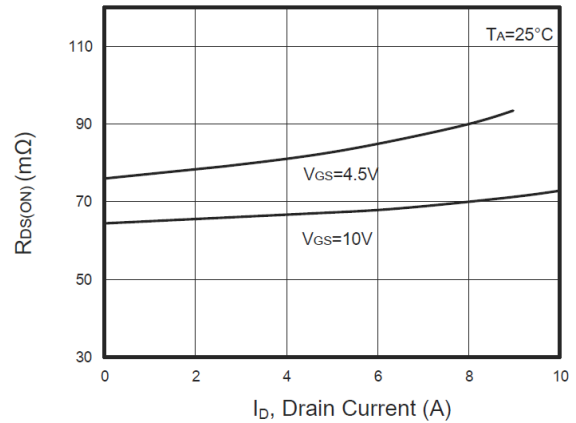


TYPICAL CHARACTERISTICS

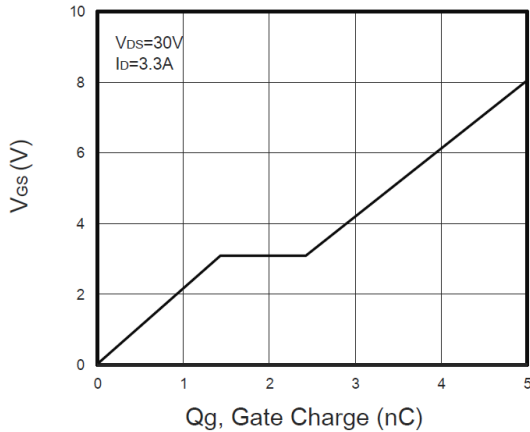
1. Output Characteristics



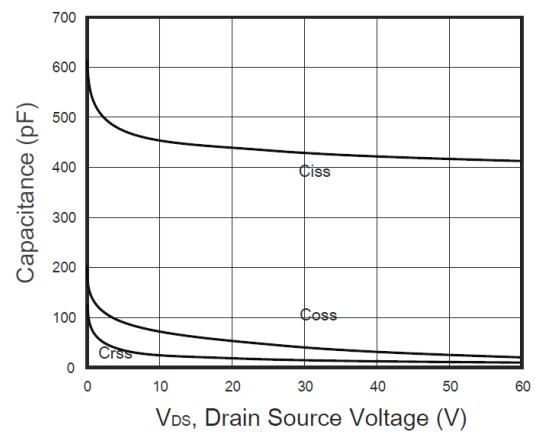
2. Drain-Source On Resistance



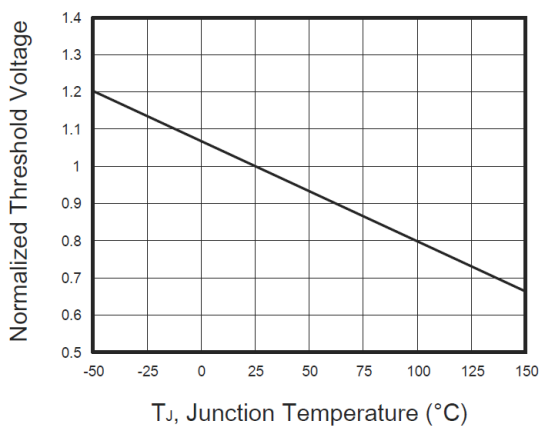
3. Gate Charge



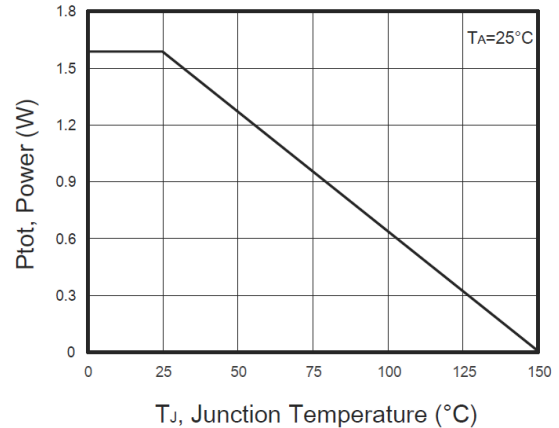
4. Capacitance



5. Gate Threshold Voltage

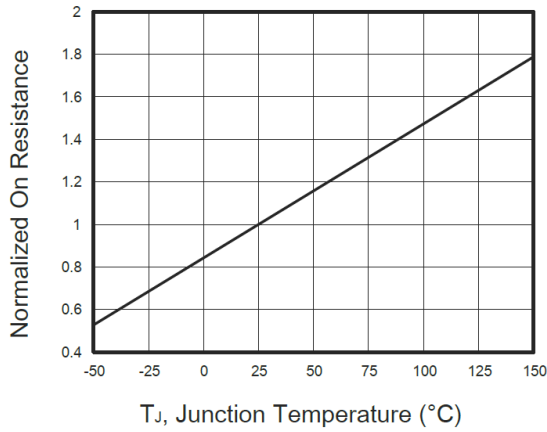


6. Power Dissipation

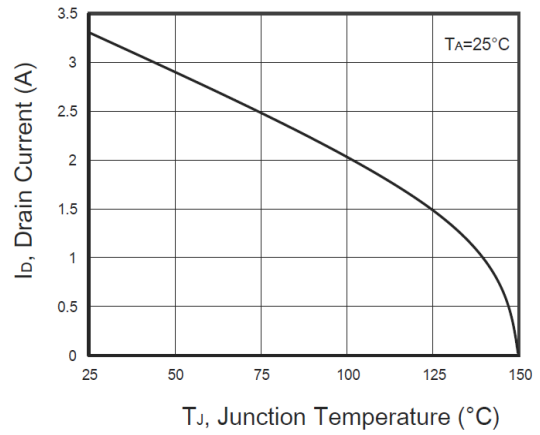




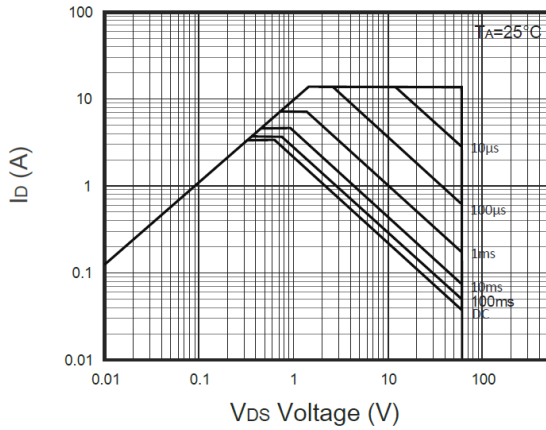
7. Drain-Source On Resistance



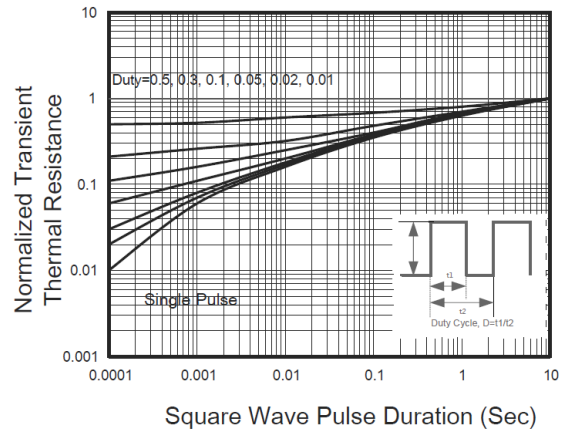
8. Drain Current vs T_J



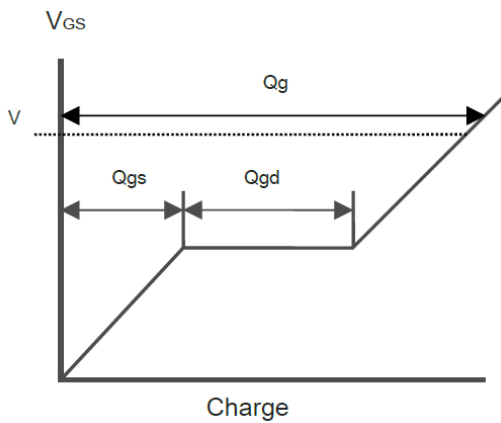
9. Maximum Safe Operation Area



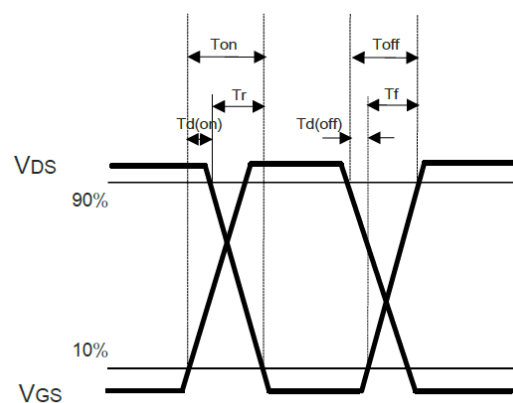
10. Thermal Transient Impedance



11. Gate Charge Waveform



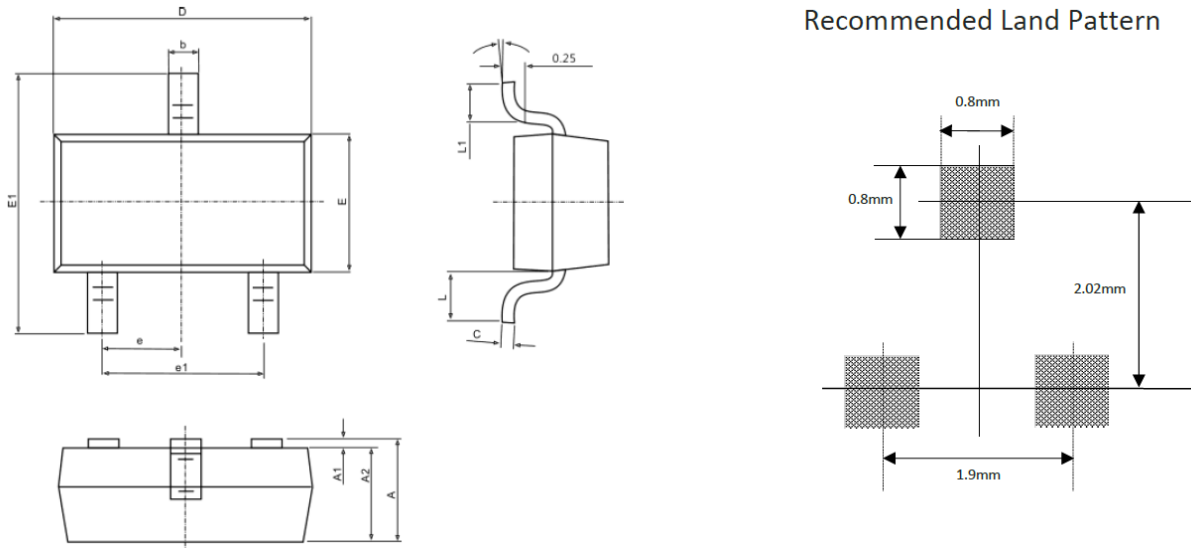
12. Switching Time Waveform





PACKAGE INFORMATION

Dimension in SOT-23S Package (Unit: mm)



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.940	1.120	0.037	0.044
A1	0.040	0.120	0.002	0.005
A2	0.900	1.000	0.035	0.039
b	0.300	0.500	0.012	0.020
c	0.090	0.110	0.004	0.004
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 BSC		0.037 BSC	
e1	1.800	2.000	0.071	0.079
L	0.500	0.600	0.020	0.024
L1	0.300	0.500	0.012	0.020
θ	1°	7°	1°	7°



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