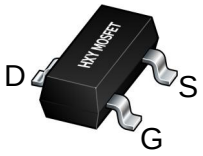
Description

The SI2308 uses advanced trench technology

to provide excellent $R_{DS(ON)}$, This device is suitable

for use as a load switch or in PWM applications.



SOT-23

General Features

V_{DS} = 60V,I_D = 2.5A

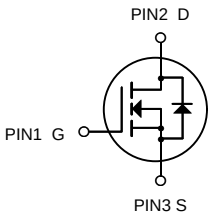
$R_{DS(ON)}$ < 85mΩ @ V_{GS}= 10V

Application

Battery protection

Load switch

Uninterruptible power supply



N-Channel MOSFET

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
SI2308	SOT-23	MS08/6003	3000

Absolute Maximum Ratings (TA=25℃unless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current-Continuous	2.5	A
I_{DM}	Drain Current-Pulsed (Note 1)	10	A
P_D	Maximum Power Dissipation	1.25	W
T_J,T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	℃
$R_{\theta JA}$	Thermal Resistance,Junction-to-Ambient (Note 2)	62.5	℃/W

Electrical Characteristics (T_A=25℃unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Parameters						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	60			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	1.0		2	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±12V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=44V, V_{GS}=0			1	uA
		V_{DS}=44V, V_{GS}=0 T_J=85℃			5	
$I_{D(ON)}$	On=State Drain Current	V_{DS}≧5V, V_{GS}=4.5V	10			A
$R_{DS(ON)}$	Drain-Source On-Resistance	V_{GS} =10V,I_D=1.8A		72	85	mΩ
		V_{GS}=4.5V, I_D=1.5A		85	103	
G_{fs}	Forward Transconductance	V_{DS}=5V, I_D=2.1A		10		S
Source-Drain Diode						
V_{SD}	Diode Forward Voltage	I_S=1.0A, V_{GS}=0V		0.8	1.0	V
Dynamic Parameters						
Q_g	Total Gate Charge	V_{DS}=27V V_{GS}=4.5V I_D=2.1A		2.1	3.9	nC
Q_{gs}	Gate-Source Charge			0.6		
Q_{gd}	Gate-Drain Charge			0.8		
C_{iss}	Input Capacitance	V_{DS}=25V V_{GS}=0V f=1MHz		295		pF
C_{oss}	Output Capacitance			40		
C_{rss}	Reverse Transfer Capacitance			15		
$T_{d(on)}$	Turn-On Time	V_{DS}=27V R_L=10Ω I_D=1A V_{GEN}=4.5V R_G=6Ω		3.6		nS
T_r				3.5		
$T_{d(off)}$	Turn-Off Time			32		
T_f				3		

Note: 1. Pulse test: pulse width<=300uS, duty cycle<=2%

2.Static parameters are based on package level with recommended wire bonding

Typical Characteristics

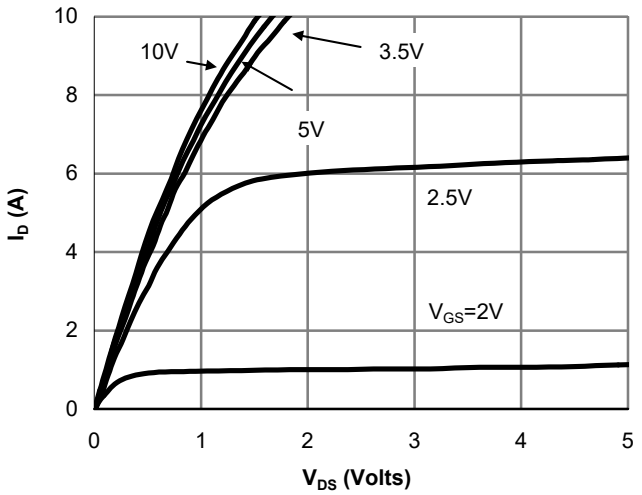


Fig 1: On-Region characteristics

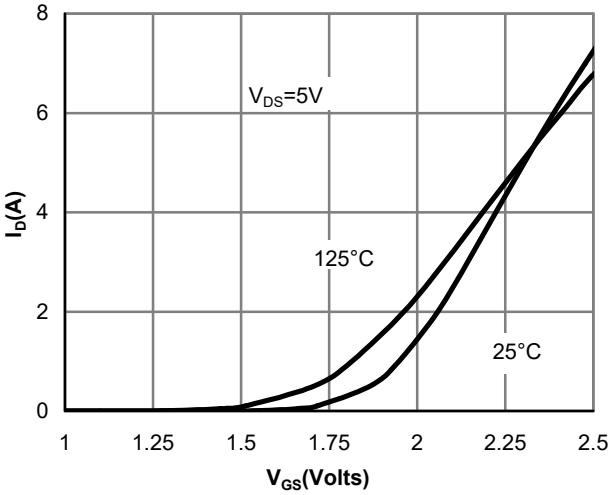


Figure 2: Transfer Characteristics

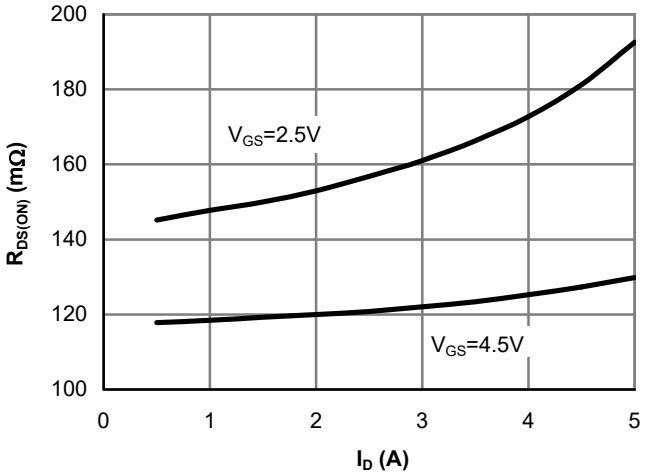


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

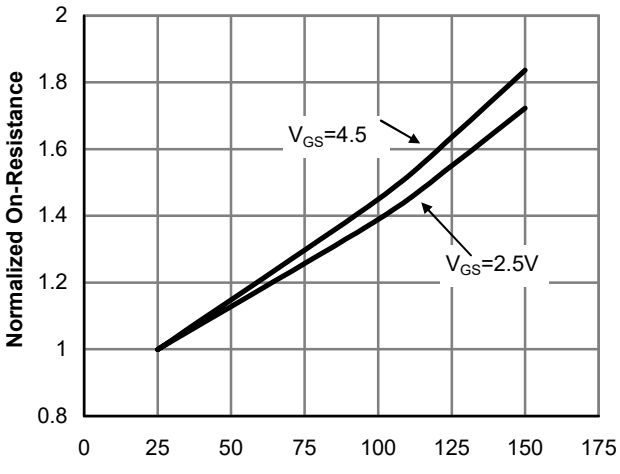


Figure 4: On-Resistance vs. Junction Temperature

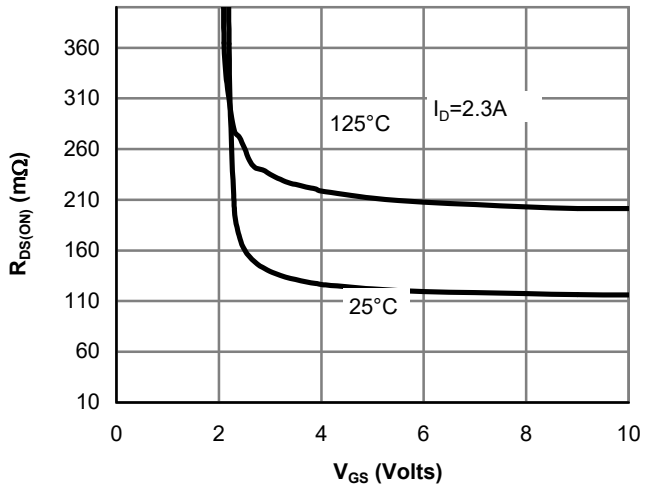


Figure 5: On-Resistance vs. Gate-Source Voltage

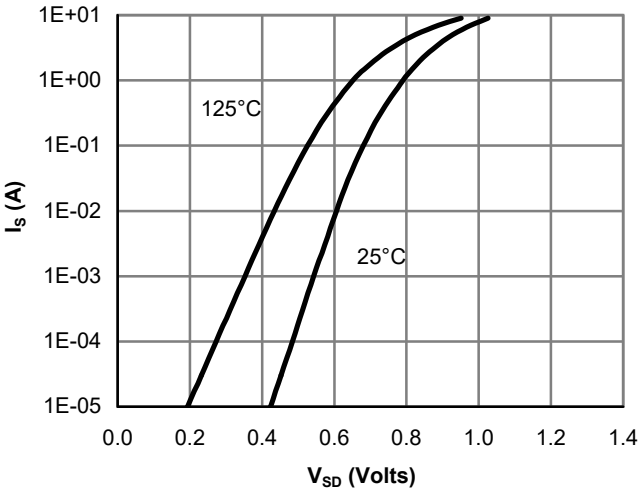


Figure 6: Body-Diode Characteristics

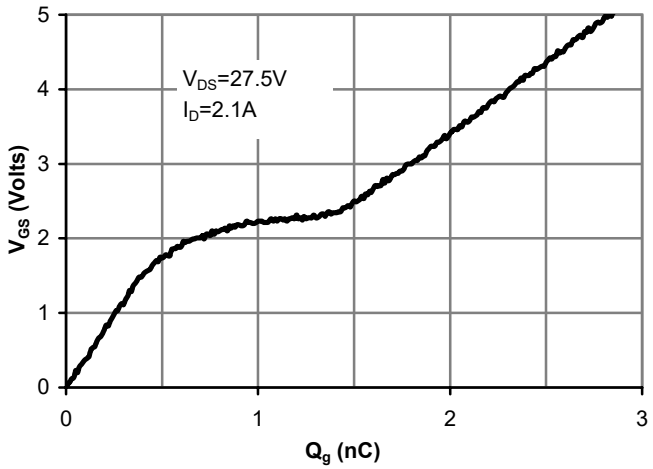


Figure 7: Gate-Charge Characteristics

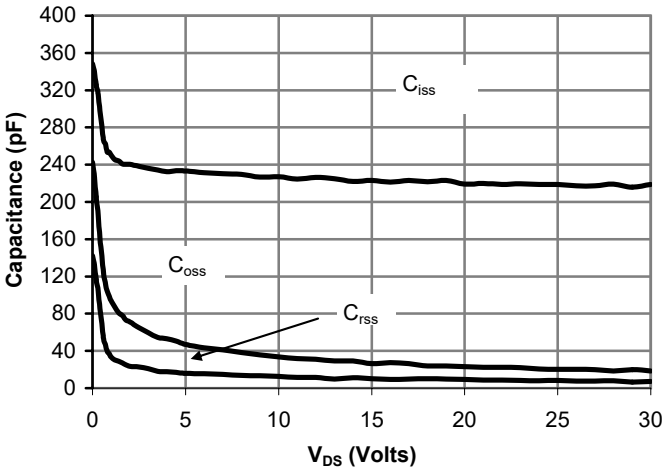


Figure 8: Capacitance Characteristics

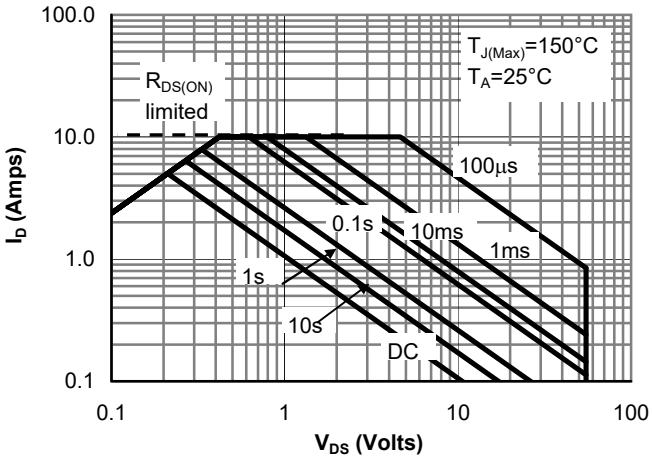


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

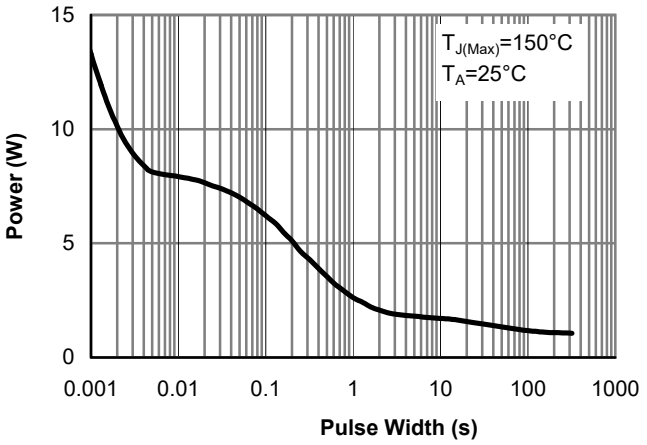


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

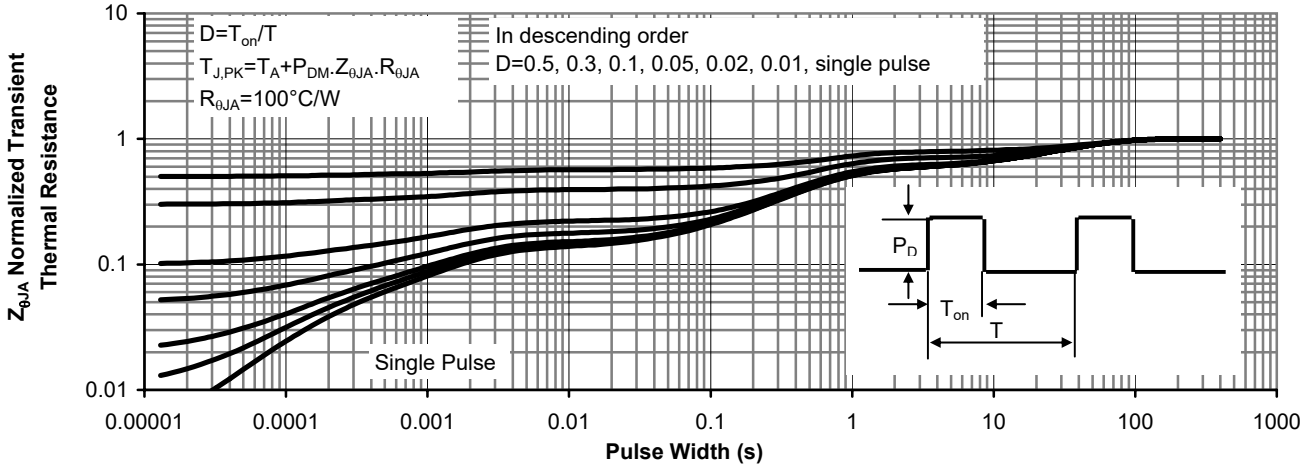
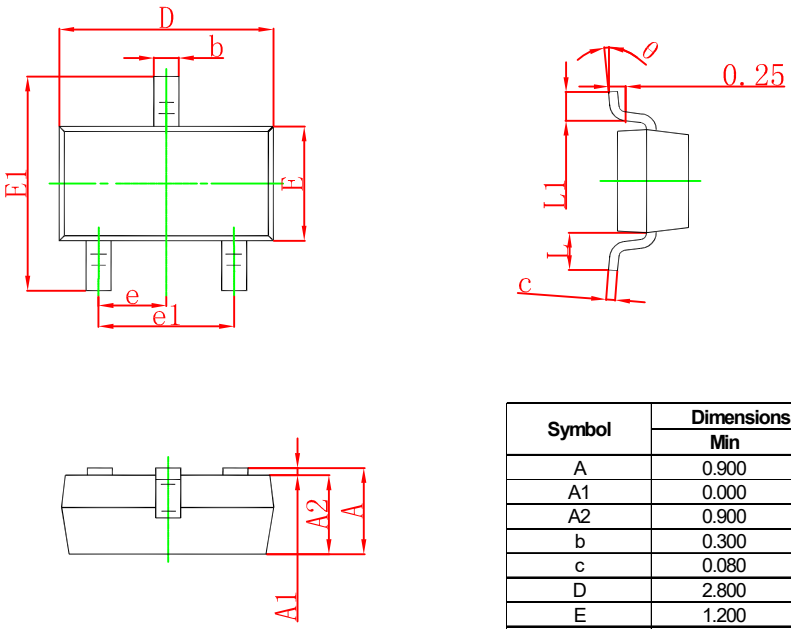


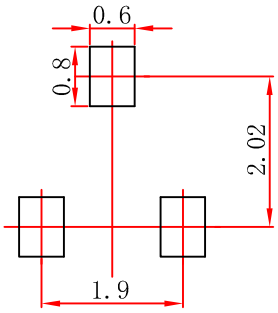
Figure 11: Normalized Maximum Transient Thermal Impedance

SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
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 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

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