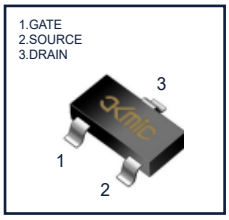
Description

The SI2308CDS-T1-GE3 uses advanced trench technology to provide excellent RDS(ON) , low gate charge and operation with gate voltage as low as 2.5V. This device is suitable for use as a battery protection or in other switching application.

General Features

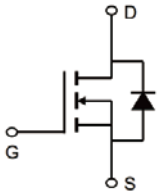
- High power and current handing capability
- Lead free product is acquired
- Surface mount package



SOT23

Applications

- Battery Switch
- DC/DC Converter



Equivalent Circuit

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current	3	A
I_{DM}	Pulsed Drain Current (note 1)	10	A
P_D	Power Dissipation	0.35	W
$R_{\theta JA}$	Thermal Resistance Junction-ambient	357	℃/W
T_J	Operating Junction Temperature Range	150	℃
T_{STG}	Storage Temperature Range	-55~+150	℃

Ordering information

Product ID	Pack	Marking	Qty(PCS)
SI2308CDS-T1-GE3	SOT23	S10	3000

Electrical Characteristics (T_A=25℃, unless otherwise noted)

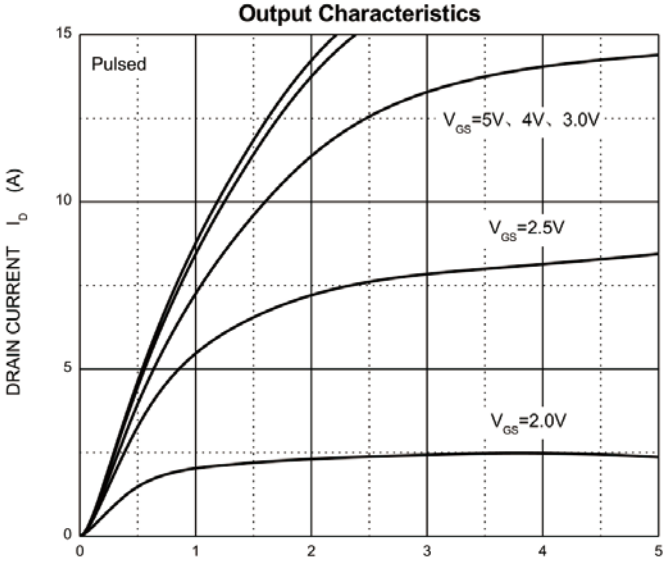
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
STATIC CHARACTERISTICS						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250μA	60	---	---	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=60V,V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250μA	0.5	---	2	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance2	V_{GS}=10V , I_D=3A	---	---	85	mΩ
		V_{GS}=4.5V , I_D=3A	---	---	125	
gfs	Forward Transconductance	V_{DS}=15V , I_D=2A	1.4	---	---	S
V_{SD}	Diode Forward Voltage[2]	I_S=3A,V_{GS}=0V	---	---	1.2	V
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=30V , V_{GS}=0V , f=1MHz	---	247	---	pF
C_{oss}	Output Capacitance		---	34	---	
C_{rss}	Reverse Transfer Capacitance		---	19.5	---	
Q_g	Total Gate Charge (4.5V)	V_{DS}=30V,V_{GS}=4.5V,I_D=3A	---	6	---	nC
Q_{gs}	Gate-Source Charge		---	1	---	
Q_{gd}	Gate-Drain Charge		---	1.3	---	
Switching Characteristics						
$T_{d(on)}$	Turn-On Delay Time	V_{GS}=10V,V_{DD}=30V, I_D=1.5A,R_{GEN}=1Ω	---	6	---	ns
T_r	Rise Time		---	15	---	
$T_{d(off)}$	Turn-Off Delay Time		---	15	---	
T_f	Fall Time		---	10	---	

Notes :

1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , t≤10s.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle≤0.5%.
4. Guaranteed by design, not subject to producting.

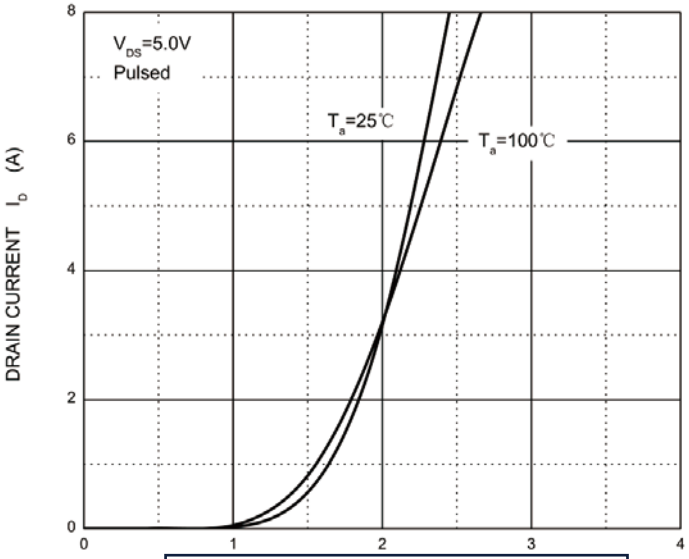
Typical Characteristics

Output Characteristics



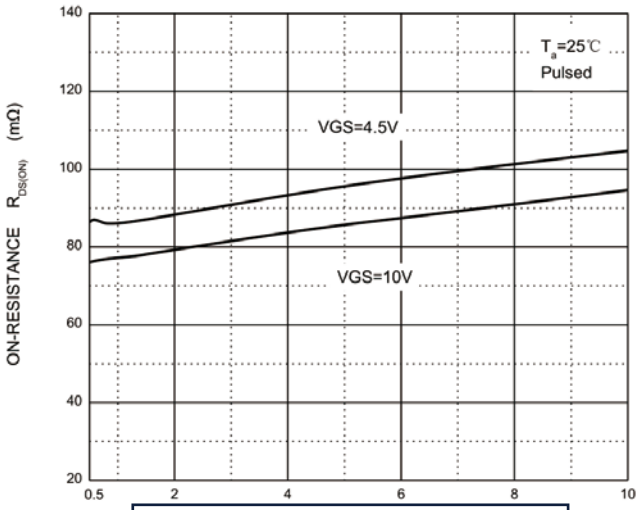
DRAIN TO SOURCE VOLTAGE VDS(V)

Transfer Characteristics



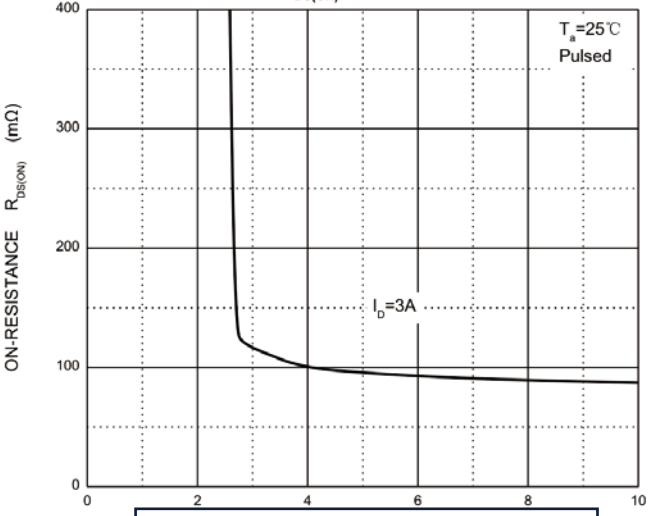
GATE TO SOURCE VOLTAGE VGS(V)

$R_{DS(ON)}$ —— I_D



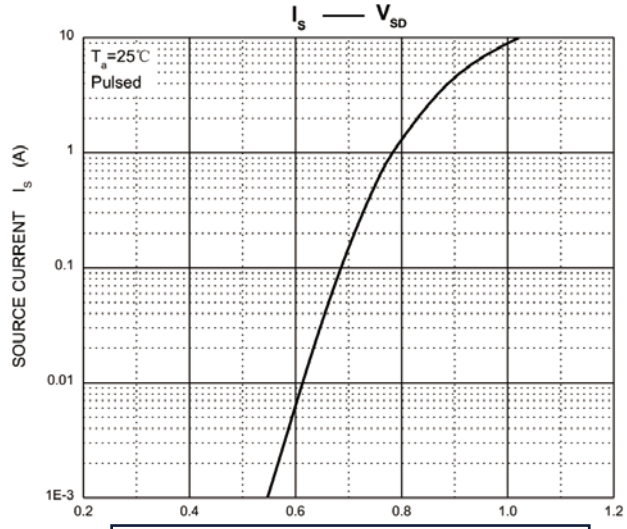
DRAIN CURRENT ID(A)

$R_{DS(ON)}$ —— V_{GS}



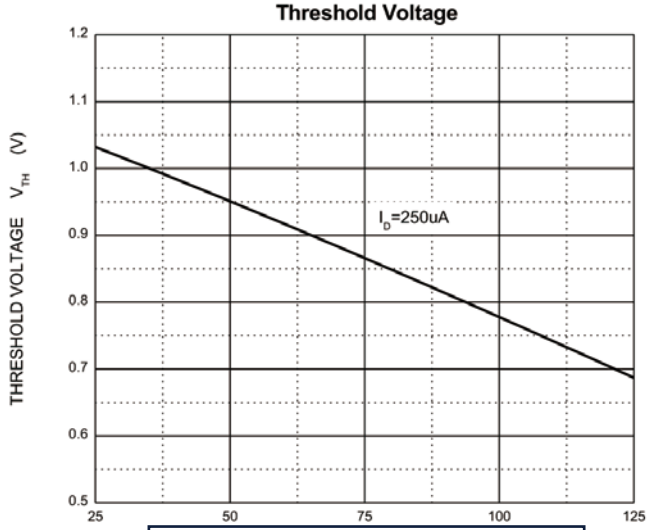
GATE TO SOURCE VOLTAGE VGS(V)

I_S —— V_{SD}



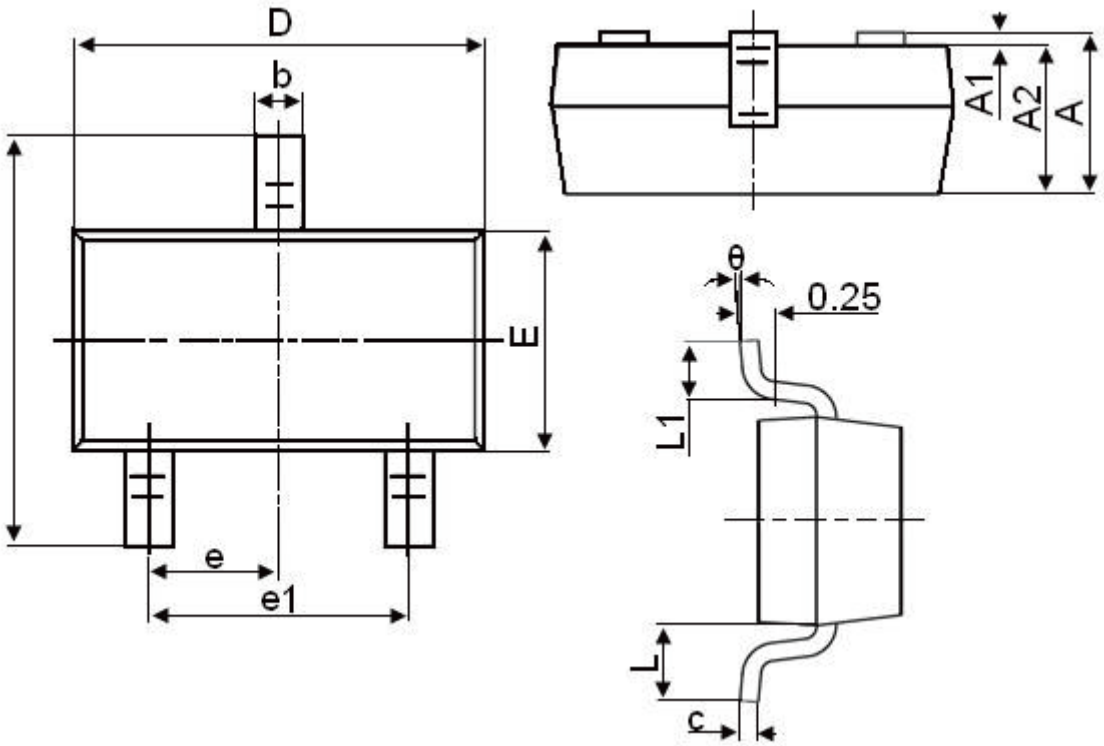
SOURCE TO DRAIN VOLTAGE VSD(V)

Threshold Voltage



JUNCTION TEMPERATURE TJ(℃)

SOT23 Package Outline Dimensions



Symbol	Dimensions in Millimeters	
	mm	
	Min	Max
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°