SI2101

P-Channel Enhancement Mode MOSFET

V_{DSS}	-20 V
I_D	-1.4 A
$R_{DS(ON)}$	82mΩ

FEATURES

Leading Trench Technology for Low RDS(on)

Extending Battery Life

APPLICATIONS

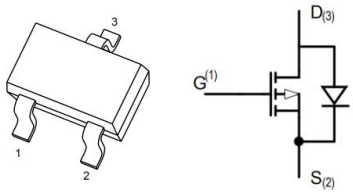
High Side Load Switch

Charging Circuit

Single Cell Battery Applications such as Cell Phones, Digital Cameras ,PDAs, etc

T1S

Schematic & Pin configuration



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Maximum ratings (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D	Drain Current-Continuous	-1.4	A
I_{DM}	Pulsed Drain Current (tp=10μs)	-3.0	A
P_D	Power Dissipation	0.29	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	431	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃

Electrical characteristics (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISSTICS						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250μA	-20	---	---	V
I_{GSS}	Gate-Source Leakage Current	V_{DS} =0V, V_{GS} =±8V	---	---	±100	nA
I_{DSS}	Drain-Source Leakage Current	V_{DS} =-20V, V_{GS} =0V	---	---	-1	μA
OFF CHARACTERISSTICS (note 1)						
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250μA	-0.45	-0.7	---	V
$R_{DS(ON)}$	Drain-source on-resistance	V_{GS}=-4.5V, I_D=-1.0A	---	82	100	mΩ
		V_{GS}=-2.5V,I_D=-0.5A	---	102	140	
		V_{GS}=-1.8V , I_D=-0.3A	---	143	210	
CHARGES AND CAPACITANCES (note 3)						
C_{iss}	Input Capacitance	V_{DS}=-8.0V , V_{GS}=0V , f=1MHz	---	640	---	pF
C_{oss}	Output Capacitance		---	120	---	
C_{rss}	Reverse Transfer Capacitance		---	82	---	
SWITCHING CHARACTERISSTICS (note 2,3)						
$T_{d(on)}$	Turn-On Delay Time	V_{GS}=-4.5V,V_{DD}=-4.0V, I_D=-1.0A,R_G=6.2Ω	---	6.2	---	ns
T_r	Rise Time		---	15	---	
$T_{d(off)}$	Turn-Off Delay Time		---	26	---	
T_f	Fall Time		---	18	---	
Q_g	Total Gate Charge	V_{DS}=-10V,V_{GS}=-4.5V, I_D=-3.0A	---	5.5	10	nC
		V_{DS}=-10V,V_{GS}=-2.5V, I_D=-3.0A	---	3.3	6	
Q_{gs}	Gate-Source Charge		---	0.7	---	
Q_{gd}	Gate-Drain Charge		---	1.3	---	
Drain-source Body diode characteristics						
V_{SD}	Diode Forward Voltage	I_S=-0.3A, V_{GS}= 0V	---	-0.62	-1.2	V

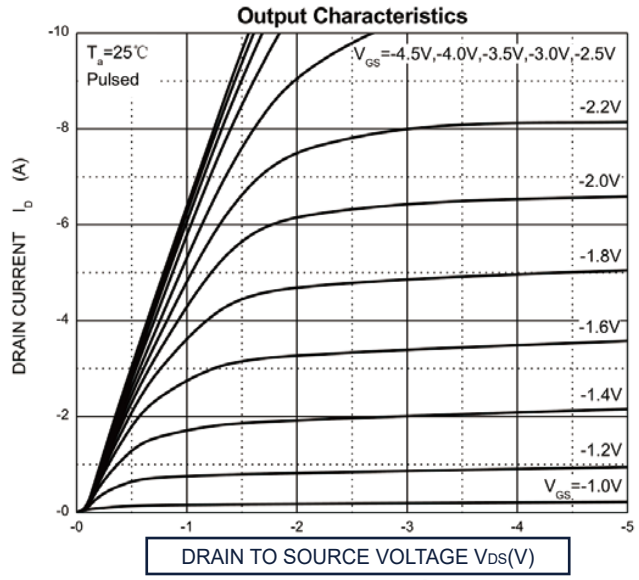
Notes :

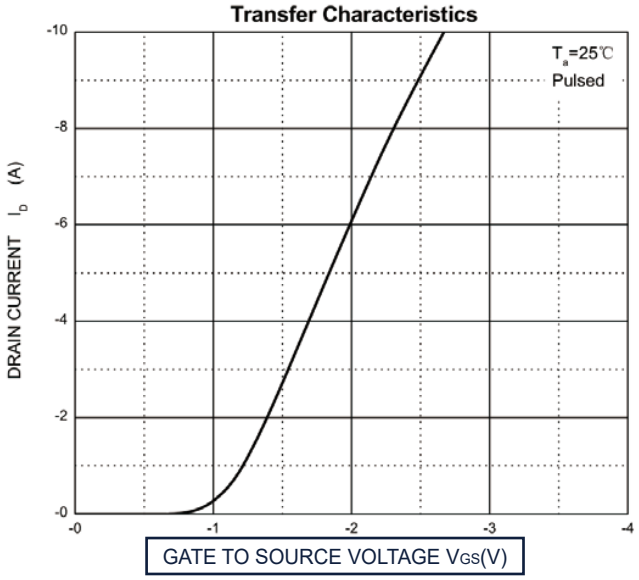
1.Pulse Test : pulse width ≤300μs, duty cycle ≤2%.

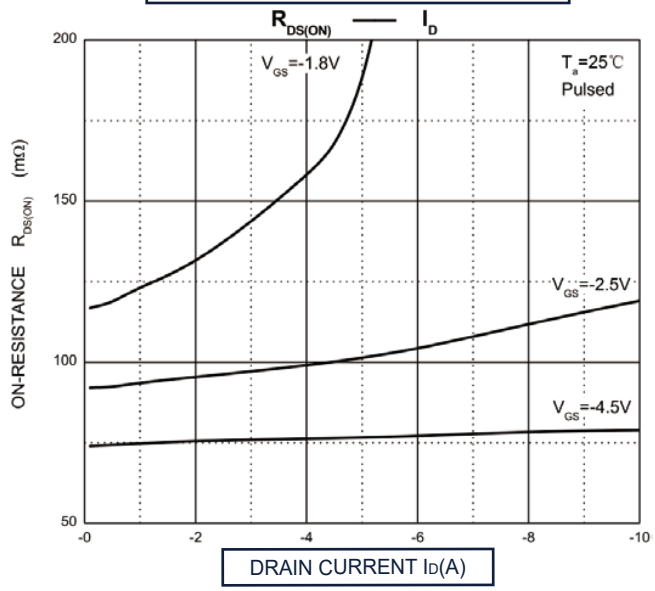
2.Switching characteristics are independent of operating junction temperatures.

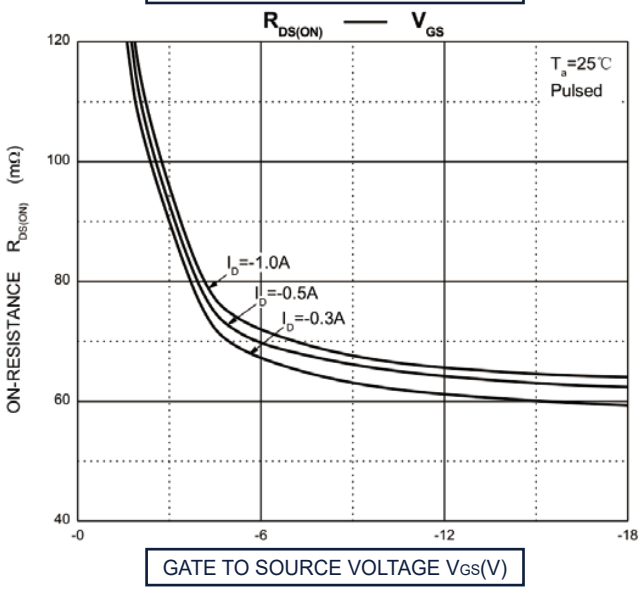
3.These parameters have no way to verify.

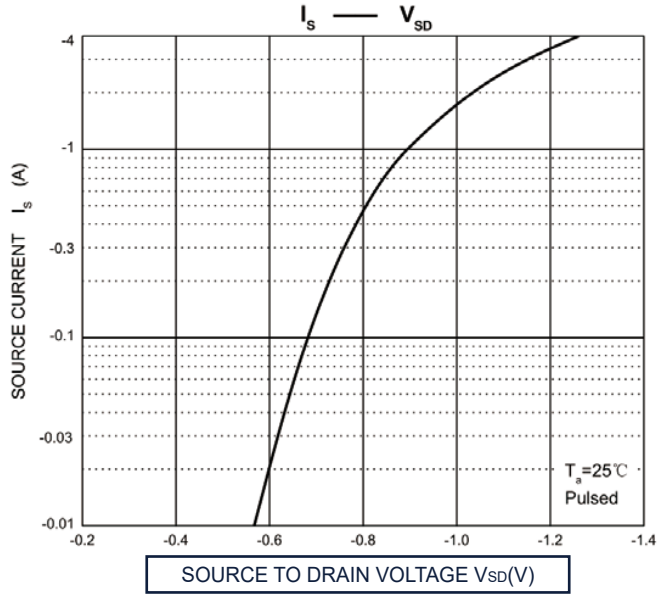
RATING AND CHARACTERISTIC CURVES







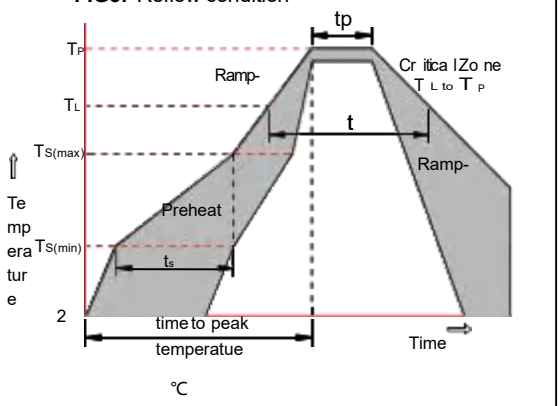




Soldering parameters

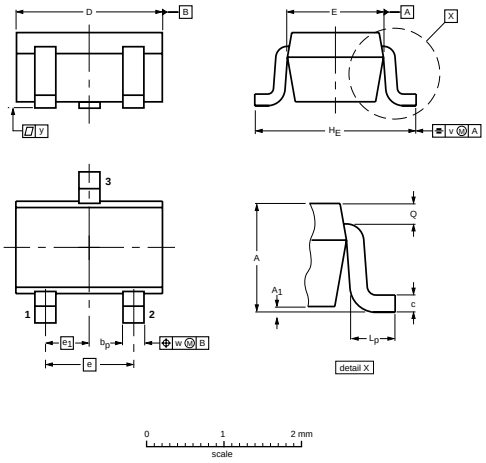
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

FIG5: Reflow condition



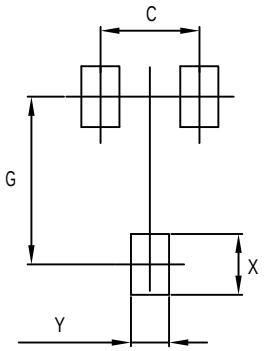
Package Dimensions & Suggested Pad Layout

SOT-323



DIMENSIONS (mm are the original dimensions)

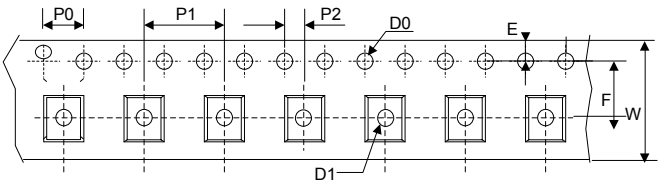
UNIT	A	A_1 max	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

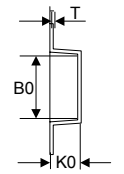


Dimensions	Value (in mm)
C	1.30
G	2.00
X	0.90
Y	0.65

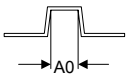
Tape & rell specification

Tape





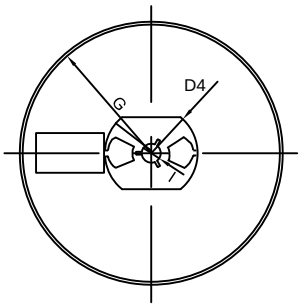
SECTION : B-B

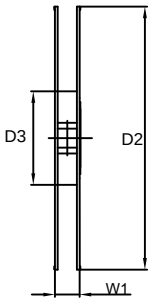


SECTION : A-A

Symbol	Dimension (mm)
P0	4.00±0.20
P1	4.00±0.20
P2	2.00±0.20
D0	1.55±0.20
D1	1.00±0.20
E	1.55±0.25
F	3.60±0.20
W	8.00±0.20
A0	2.50±0.20
B0	2.60±0.20
K0	1.40±0.20
T	0.20±0.20

7” Reel





D2	177.0±5.0
D3	55Min.
D4	R24.6±2.0
G	R82.0±2.0
I	13.0±2.0
W1	10.20±3.0

Quantity: 3000PCS