

Dual Direction Blocking Load Switch for Battery Charger

■ Description

The XT5853 is a dual direction blocking switch for battery charge. The forward blocking voltage is 20V and reverse blocking voltage is 7V, under the rated voltage, the leakage current is very low even at high temperature.

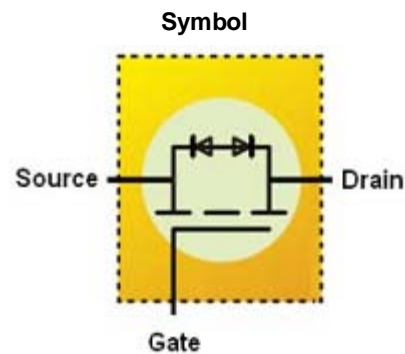
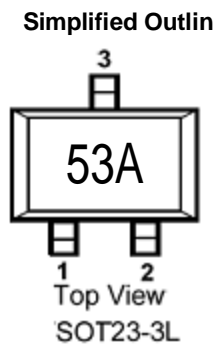
This device is in a very small package (SOT23-3L), the continuous turn-on current can up to 1.5A, it is suitable in USB3.0 charger.

■ Features

- Integrated reverse blocking diode
- Ultra low voltage drop
- Extreme low leakage current on dual
- Direction blocking

■ Package

- SOT-23-3L



■ Pin Assignment

Pin Number	Description
1	Gate(G)
2	Source(S)
3	Drain (D)

■ Absolute Maximum Ratings

(TA=25°C unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Source to Drain Blocking Voltage	V _{SD}	20	V
Drain to Source Blocking Voltage	V _{DS}	7	V
Source to Drain Current	I _{SD}	1.5	A
Gate to Source Voltage	V _{GS}	±8	V

■ Thermal Data

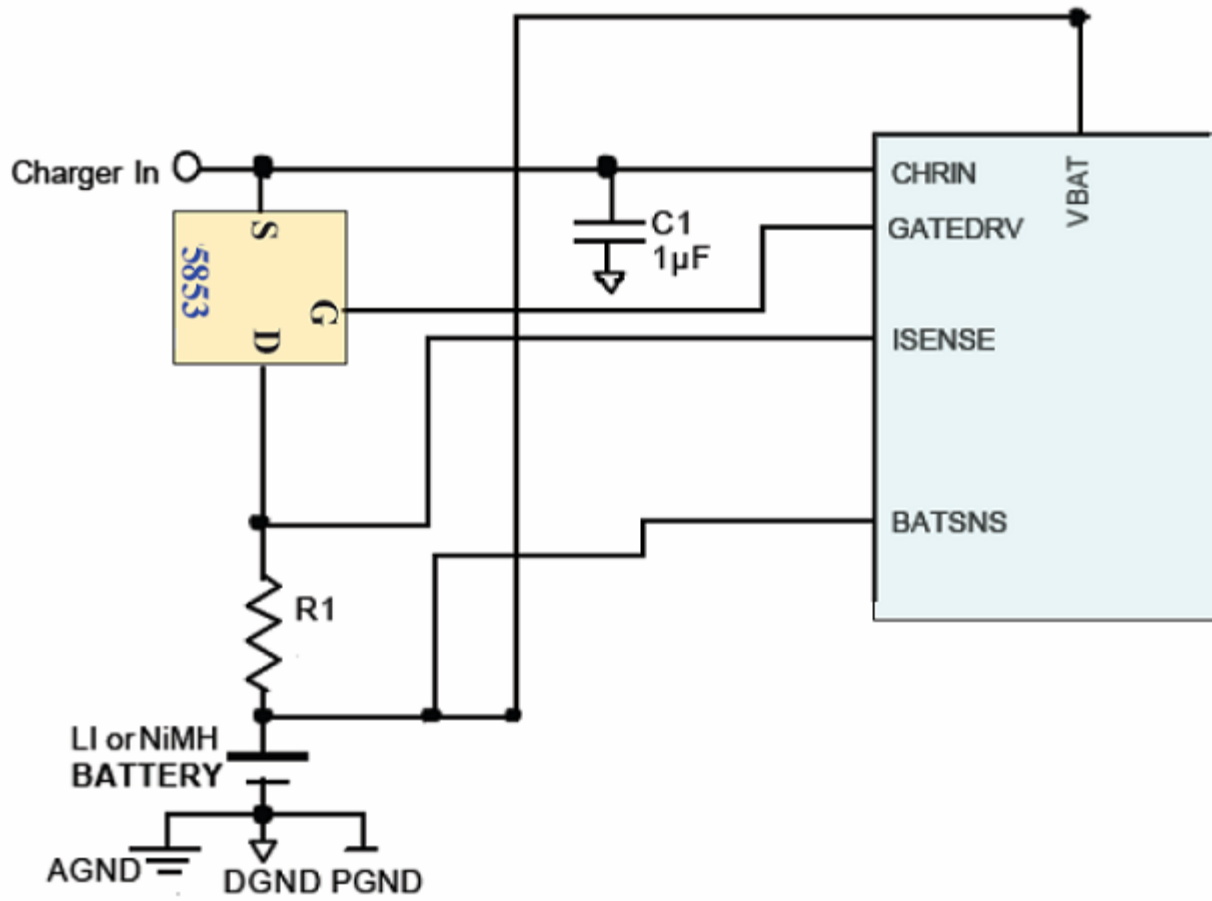
Parameter	Symbol	Ratings	Unit
Maximum junction temperature	T _{JMAX}	150	°C
Operating junction temperature	T _J	-40~150	°C
Storage temperature	T _{STG}	-50~150	°C
Max. Thermal Resistance, Junction to ambient	R _{THJA}	125	°C/W
Power Dissipation	P _{TOT}	0.8	W

■ Electrical Characteristics

(TA=25°C unless otherwise noted)

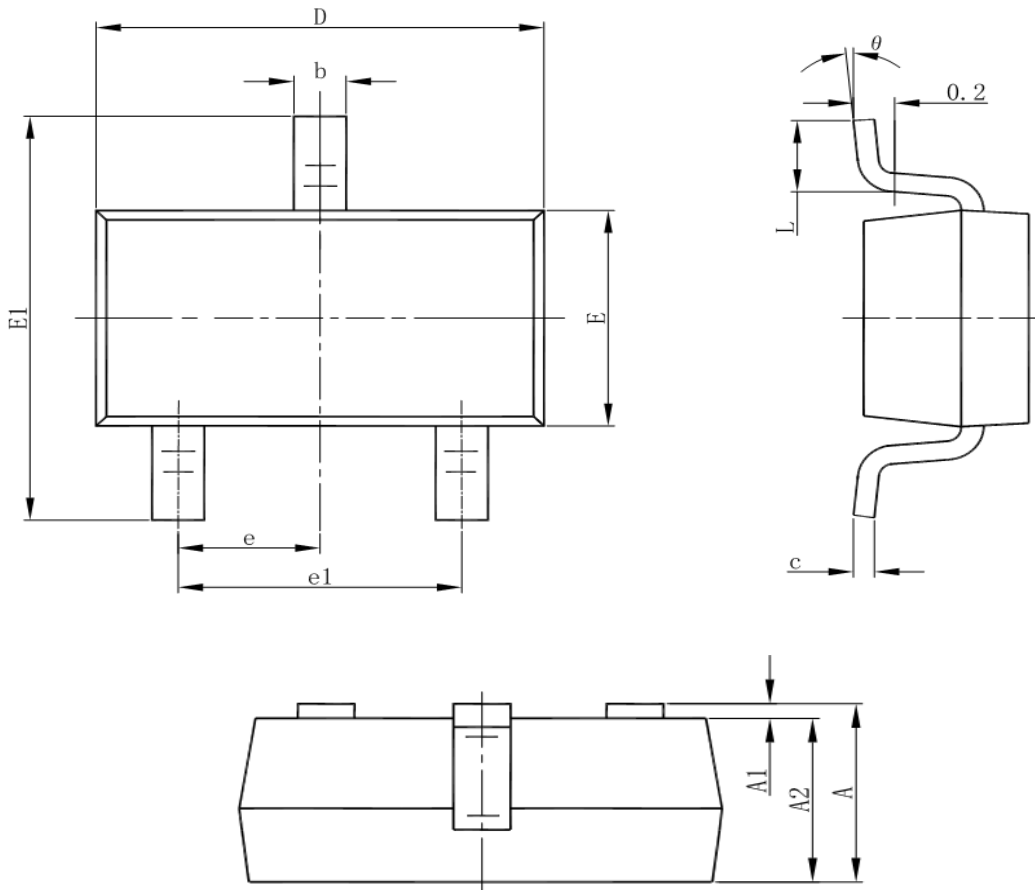
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
OFF Characteristics						
Source to Drain BV	BV _{SD}	V _{GS} =0V, I _{SD} =50μA	20	—	—	V
Drain to Source BV	BV _{DS}	V _{GD} =0V, I _{DS} =50μA	7	—	—	V
Drain-Source On-State Resistance	R _{DSON}	V _{GS} =-4.5V, I _D =-2A	—	—	180	mΩ
		V _{GS} =-3V, I _D =-1A	—	—	500	mΩ
Source to Drain Leakage	I _{LSD}	V _{GS} =0V, V _{SD} =16V	—	—	1	μA
Drain to Source Leakage	I _{LDS}	V _{GD} =0V, V _{DS} =5V	—	—	1	μA
		@ 125°C	—	0.1	—	μA
Gate Leakage	I _{GSS}	V _{GS} =±8V	—	—	±100	nA
ON Characteristics						
Gate threshold voltage	V _{GS(th)}	V _{SG} =V _{SD} , I _S =250μA	-0.6	-1	-1.5	V
Voltage Drop	V _{DROP}	V _{GS} =-4.5V, I _S =0.5A		80	100	mV
Voltage Drop	V _{DROP}	V _{GS} =-3V, I _S =0.5A		160	200	mV

■ Application circuit and function description



■ Package Information

- SOT23-3L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°