



**Modify Record:**

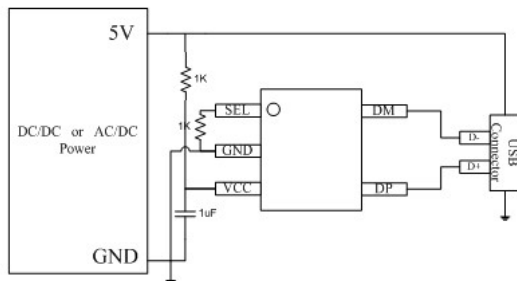
版次	新版本	旧版本	修改单位	修改内容
2015-05-29	1.0	NA	研发部	新文件制成（因工程产品，故 RD 开头）
2015-12-29	1.1	1.0	市场部	增加 2.4A 版本，取消 SE2514，增加 SE2515
2020-05-25	1.2	1.1	研发部	典型应用电路增加 1K 电阻

## General Description

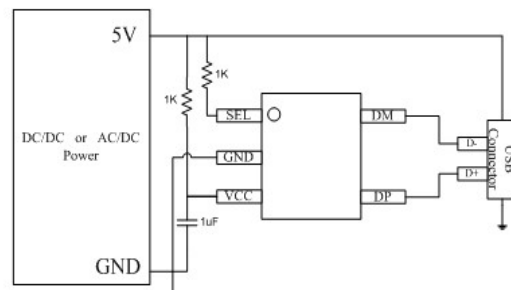
SE2515 is specifically designed to handle the interface requirements of different cellphones, per the different specifications. This allows the same chargers (such as wall chargers, car chargers, and portable batteries) to provide the maximum allowable charging current to the connected cellphones.

1. Voltage Divider DCP. D+/D- will need to be independently provide 2V/2.7V or 2.7V/2.7V.
2. Divider 2 DCP, D+/D- are required to provide 2.7V/2.0V;
3. BC1.2 DCP needs to short D+/D-;
4. YD/T 1591\_2009: Shorting D+ and D-.
5. D+ and D- are all 1.2V.

## Typical Applications



Apple 1A Application (SE2515)



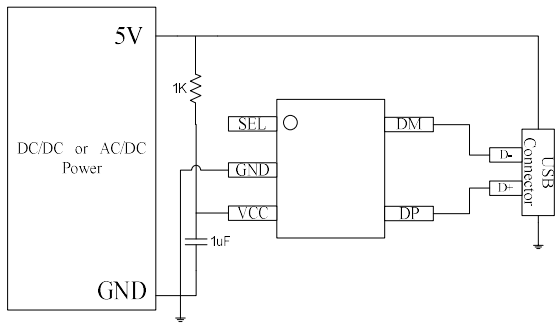
Apple 2A Application(SE2515)

## Features

- ◆ Comply with BC1.2 USB charging specification, Support shorting D+ and D- of USB DCP
- ◆ Comply with China YD/T 1591\_2009 Shorting D+ and D- specification.
- ◆ Support voltage divider DCP ½ specifications.
- ◆ Automatically switch among the supported standards.
- ◆ Operating Voltage range: 4.5V~5.5V
- ◆ Packages: SOT23-5

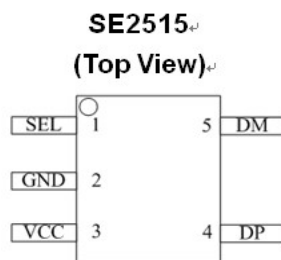
## Applications

- ◆ Car USB Chargers
- ◆ Wall Adaptors with USB Interface
- ◆ Portable USB Battery Chargers



Apple 2.4A Application(SE2515)

### Pin Configuration



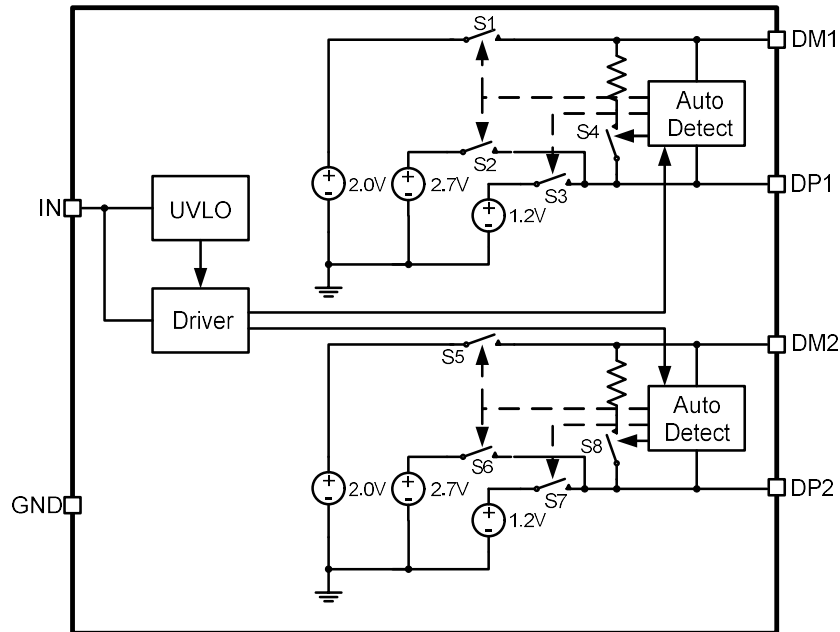
### Pin Description

NO.	Pin Name	Pin Function Description
1	SEL	Selection Options SEL=1K connect to IN: DP=2.7V,DM=2V (Default) SEL=1K connect to GND: DP=2V,DM=2.7V SEL open: DP=2.7V,DM=2.7V
2	GND	Ground
3	VCC	Power input
4	DP	USB Data line D+
6	DM	USB Data line D-

DEVICES	Number of controller	CHARGING SCHEMES			1.2V MODE	D+D-short mode
		Divider1 (D+/D-=2V 2.7V)	Divider2 (D+/D-=2.7V 2V)	Divider3 (D+/D-=2.7V 2.7V)		
SE2515	Single	YES	YES	YES	YES	YES



### Functional Block Diagram



### Absolute Maximum Ratings

Symbol	Parameter	Maximum	Units
$V_{DP}$	DP to GND	0.3~7V	V
$V_{DM}$	DM to GND	0.3~7V	V
$V_{IN}$	IN to GND	0.3~7V	V
$V_{HBM}$	ESD (human body model)	2	KV
$V_{MM}$	ESD (machine model)	200	V
$T_A$	Operating Temperature	-40~120	°C
$T_S$	Storage Temperature	-55~150	°C

**Note:** The IC could be damaged if the Absolute Maximum Ratings are exceeded.



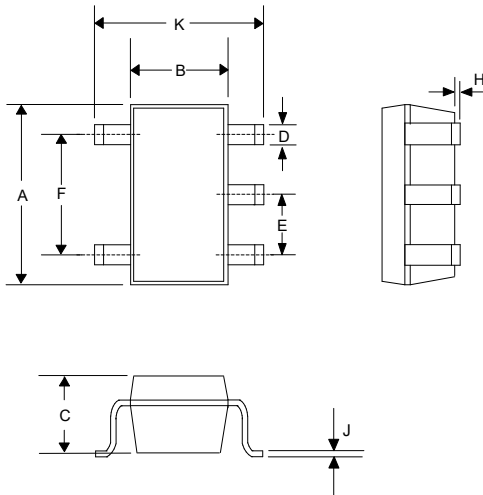
## Electrical Characteristics

( $V_{IN}=5V$ ,  $T_A = -35$  to  $85^{\circ}C$ , unless otherwise specified. Typical values are at  $T_A=25^{\circ}C$ )

Symbol	Test Conditions	Min	Typ	Max	Unit
$I_{IN}$	$V_{IN}=5V$		155	200	$\mu A$
<b>UVLO</b>					
$V_{UVLO}$		3.9	4.1	4.3	V
$V_{UVLO}$			100		mV
<b>BC 1.2 DCP Mode (Short Mode)</b>					
$R_{DPM\_SHORT1}$	$V_{DP}=0.8V$ , $I_{DM}=1mA$		157	200	$\Omega$
$R_{DCHG\_SHORT1}$	$V_{DP}=0.8V$	350	656	1150	$K\Omega$
$V_{DPL\_TH\_DETACH1}$		0.31	0.33	0.35	V
$V_{hyst}$			50		mV
<b>Divider Mode</b>					
$V_{DP\_2.7V}$	$V_{IN}=5V$	2.57	2.7	2.84	V
$V_{DM\_2V}$	$V_{IN}=5V$	1.9	2.0	2.1	V
$R_{DP\_PAD1}$	$I_{DP}=-5\mu A$	24	30	36	$K\Omega$
$R_{DM\_PAD1}$	$I_{DP}=-5\mu A$	24	30	36	$K\Omega$
<b>1.2V / 1.2V Mode</b>					
$V_{DP\_1.2V}$	$V_{IN}=5V$	1.12	1.2	1.28	V
$V_{DM\_1.2V}$	$V_{IN}=5V$	1.12	1.2	1.28	V
$R_{DP\_PAD2}$	$I_{DP}=-5\mu A$	80	102	130	$K\Omega$
$R_{DM\_PAD2}$	$I_{DP}=-5\mu A$	80	102	130	$K\Omega$



**OUTLINE DRAWING SOT-23-5L**



DIMENSIONS				
DIM <sup>N</sup>	INCHES		MM	
	MN	MAX	MN	MAX
A	0.110	0.120	2.80	3.05
B	0.059	0.070	1.50	1.75
C	0.036	0.051	0.90	1.30
D	0.014	0.020	0.35	0.50
E	-	0.037	-	0.95
F	-	0.075	-	1.90
H	-	0.006	-	0.15
J	0.0035	0.008	0.090	0.20
K	0.102	0.118	2.60	3.00

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