USB Type-A fast charging protocol intelligent management chip

Product Features

- Compatible with common USB Type-A fast charging protocols, BC1.2 ， Apple 2.4A, QC2.0/QC3.0/QC3.0+, FCP, SCP, HISCP, Low voltage direct charging, etc.
- Support dynamic shutdown of fast charging output
- VIN withstand voltage 40V, D ± withstand voltage 22V
- Internal integration of LDO
- Integrated OPTO output, connected to optocoupler through resistor
- Package: SOT23-6

Product Overview

The FS118JP (abbreviated as FSFA series) chip is selectively compatible with mainstream charging protocols. The chip can intelligently recognize the type of phone inserted and select the most suitable protocol to meet the needs of the phone.

The D ± of the USB Type-A port is connected to the FSFA chip. After the phone is inserted into the USB Type-A port, according to the agreements of various protocols, the phone and FSFA will start to recognize each other. Once the recognition is successful, FSFA can respond to the phone's request.

The VIN withstand voltage of FS118JP is as high as 40V, and the D ± withstand voltage is as high as 22V, which improves the reliability of the system.

Internally integrated with LDO, low loss during high-voltage output, chip power supply can be directly connected to the power supply.

FS118JP uses SOT23-6 packaging.

Application field

- Travel Charge
- Wall filling
- Socket
- Other USB Type-A power output devices

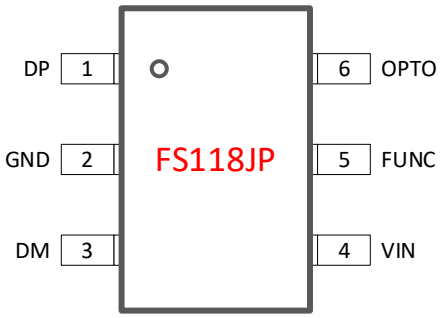
V1.0(202508)

Order information

Part No	Package	Pcs/Reel
FS118JPA	SOT23-6	3000
FS118JPC	SOT23-6	3000
FS118JPD	SOT23-6	3000
FS118JPE	SOT23-6	3000

Note: Please refer to the "Device Selection" section for details

Chip packaging and pin definition



SOT23-6

Pic 1. Pin definition

Table 1. FS118JP Pin function description

FS118JP	Name of the pin	Description
1	DP	USB DP， DP connected to USB Type-A port
2	GND	Chip ground, connected to system ground
3	DM	USB DP， DM connected to USB Type-A port
4	VIN	Chip power supply
5	FUNC	Enable fast charging Suspended: maximum 12.2V 180K: Maximum 13.2V 68K: Maximum 10.2V Grounding: Shielded fast charging
6	OPTO	OPTO feedback control, connected to the optocoupler through a resistor of 100R or less

Extreme operating range

Table 2. Maximum operating range

Parameter	Value
VIN	-0.3V~40V
D±	-0.3V~22V
FUNC	-0.3V~6V
ESD（HBM）	±2KV

The maximum operating range listed in the table above, if the limit is exceeded, the chip may be permanently damaged. Users should try to avoid it.

Normal operating range

Table 3. Normal operating range

Parameter	Value
VIN	2.9V~20V
D±	0V~3.3V
FUNC	0V~3.3V
Working temperature range	-40°~105°
Working current	<2mA

Device Configuration

The identification method for the FS118JP series is FS118JP-X.

X represents compatible protocols, commonly defined in the table below.

Table 4. Named X Values

X value	Agreement
A	BC1.2 APPLE2.4A,QC2.0/QC3.0/QC3.0+,AFC,FCP
C	BC1.2 APPLE2.4A,QC2.0/QC3.0/QC3.0+,AFC,FCP,HW,VOOC（5V）,VIVO(portion)
D	BC1.2 APPLE2.4A,QC2.0/QC3.0/QC3.0+,AFC,FCP,HW,SVOOC 120W,VIVO(portion)
E	BC1.2 APPLE2.4A,QC2.0/QC3.0/QC3.0+,AFC,FCP,HW、SVOOC 120W,VIVO(portion), TECNO180W

Pin definition and instructions

VIN

The voltage resistance of VIN can reach up to 40V and can be directly connected to the power system. At the same time, the VIN is externally connected to the ground with a capacitor. The capacitance size is 1uF.

DP and DM

DP/M is connected to the USB Type-A port, and both pins can withstand a voltage of 22V.

FUNC

Suspended: maximum 12.2V
180K: Maximum 13.2V
68K: Maximum 10.2V
Grounding: Shielded fast charging

OPTO

The resistance is selected according to the power system, such as 100RΩ.

The resistor of the string 100R is connected to the optocoupler.

Application example

The typical application of FS118JP is shown in the figure on the right.
The resistor of the string 100R is connected to the optocoupler.

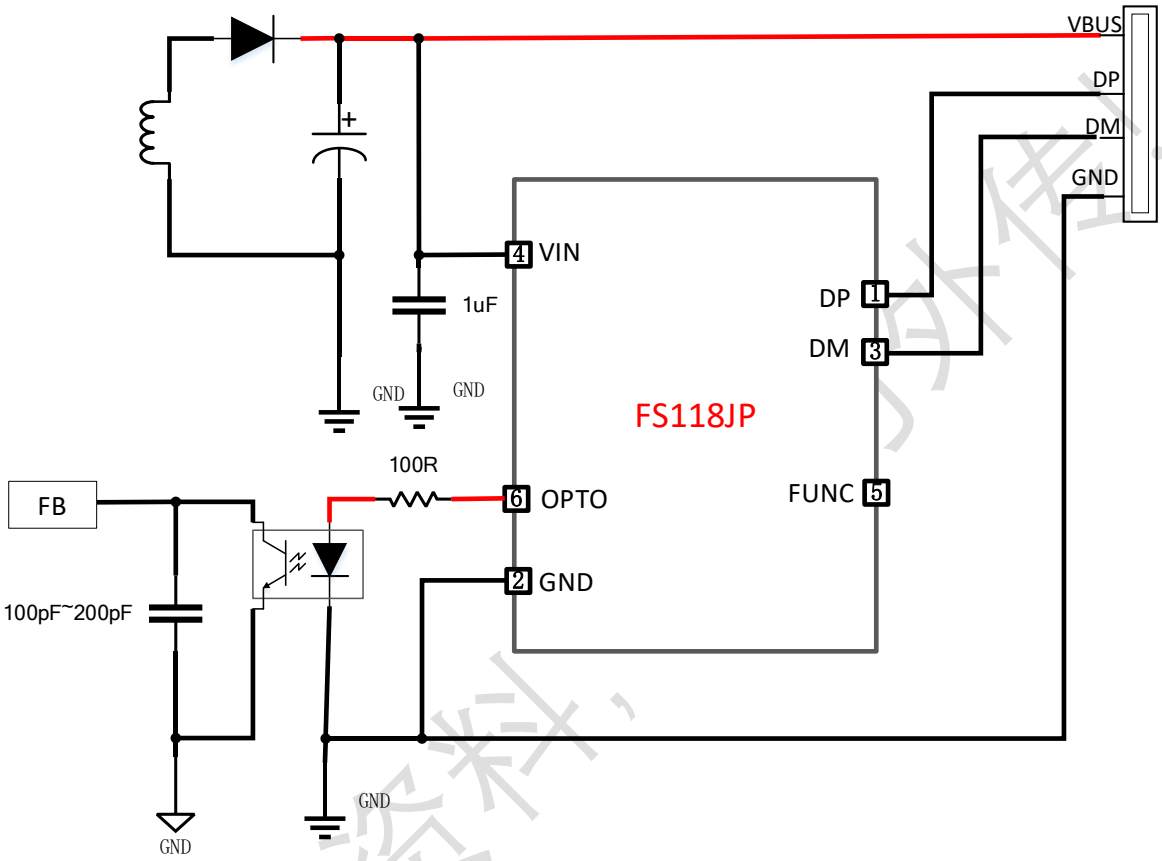
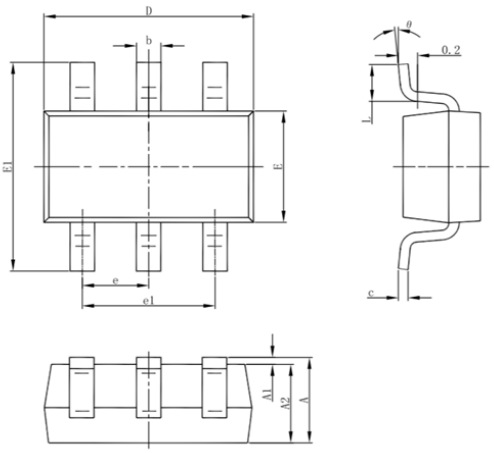


Figure 2. Application diagram

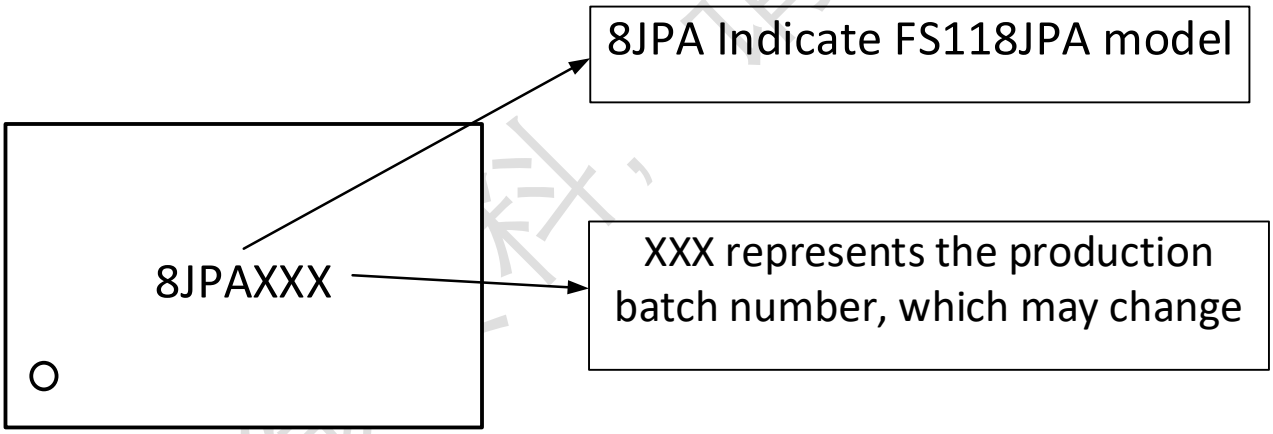
Package outline drawing

SOT23-6

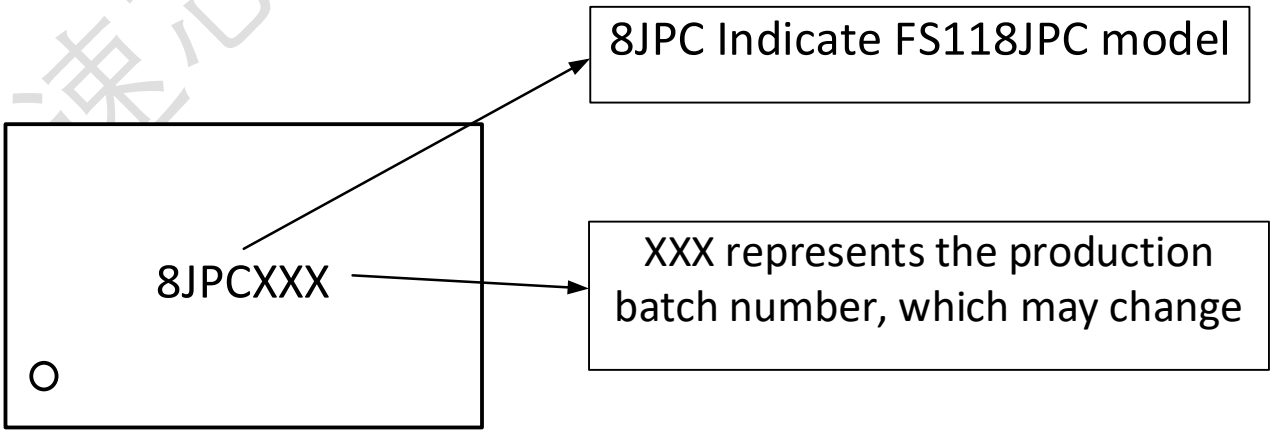


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)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

Chip silk screen information

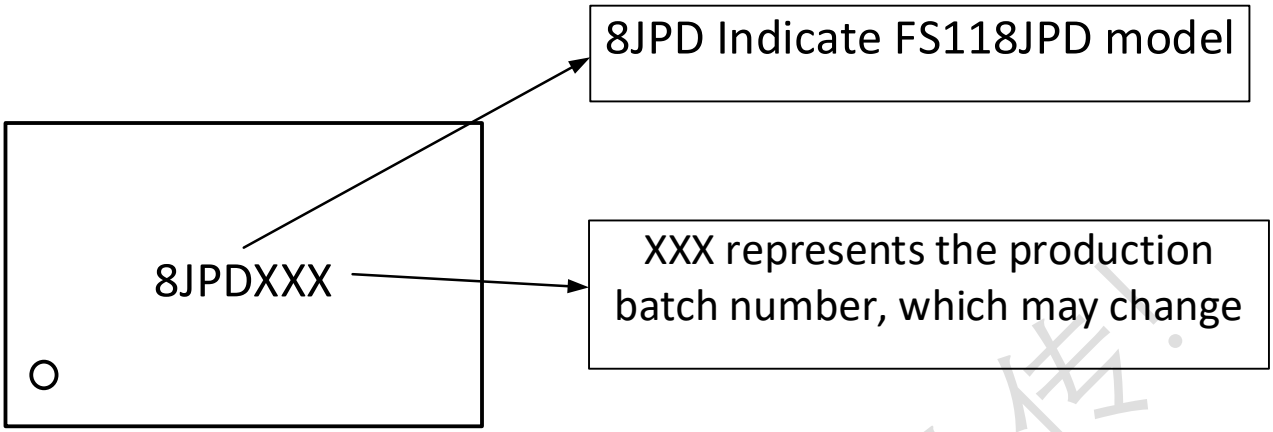


FS118JPA model information: 8JPA, fixed and unchanged; The production batch number code is used to distinguish the batch number information each time, based on changes in the production batch

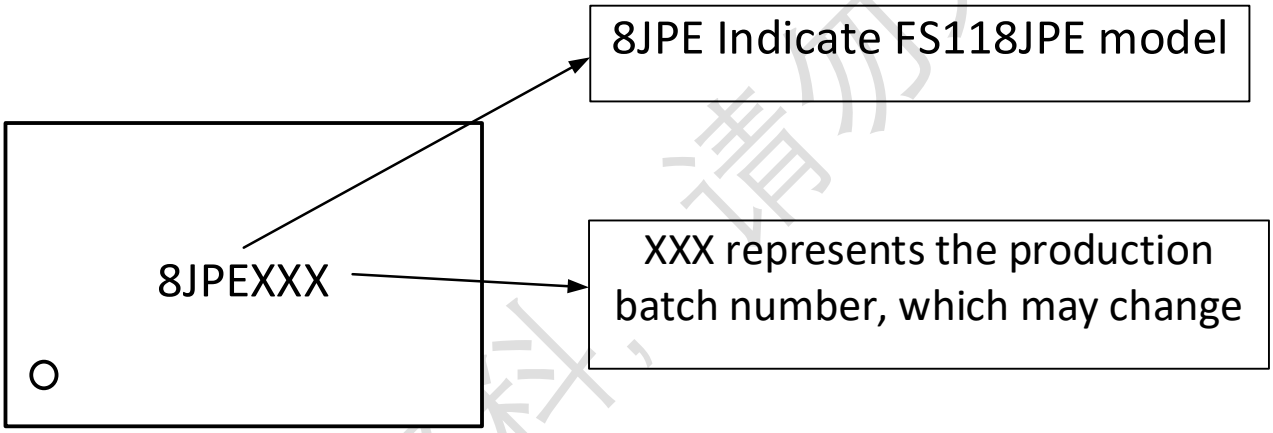


FS118JPC model information: 8JPC, fixed and unchanged; The production batch number code is used to

distinguish the batch number information each time, based on changes in the production batch



FS118JPD model information: 8JPD, fixed and unchanged; The production batch number code is used to distinguish the batch number information each time, based on changes in the production batch



FS118JPE model information: 8JPE, fixed and unchanged; The production batch number code is used to distinguish the batch number information each time, based on changes in the production batch

Company information and statement

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