FS612BH

EMarker chip for USB Type-C PD3.2 100W/140W cable

Product Features

- Compliant with PD 3.2: Supports SOP communication, integrated transceiver (BMC PHY), and also supports structured VDM version
- VIN has a wide operating voltage range of 2.9V to 42V
- After connecting a 1K resistor and a 0.1uF capacitor in series with VIN, it supports up to 50V VBUS
- After connecting a 2K resistor and a 0.1uF capacitor in series with VIN, it supports up to 60V VBUS
- CC withstand voltage up to 36V
- Support FUNC settings to meet different wire requirements
- Package: SOT143

Product Overview

FS612CH is an eMarker with USB Type-C interface. It complies with the USB PD 3.2 protocol.

FS612CH can be directly powered by a 1K resistor connected in series with VBUS, supporting 60V VBUS, and is used in 5-core solutions.

Use SOT143 minimalist packaging.

FS612CH is suitable for wires with a power of 240W 48V/5A.

Application field

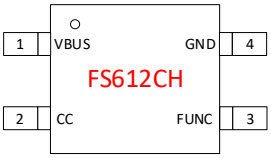
- USB Type-C cable

Order information

Part No	Package	Pcs/Reel
FS612CH	SOT143	3000

V1.5(202507)

Chip packaging and pin definition



SOT143

Pic 1. Pin definition

Table 1. FS612CH Pin function description

FS612CH	Name of the pin	Description
1	VBUS/VCONN	Power supply, can be connected to VBUS or VCONN
2	CC	Connect to USB Type-C CC
3	FUNC	External resistor, choose different cable configurations
4	GND	Chip ground

Extreme operating range

Table 2. Maximum operating range

Parameter	Value
VBUS	-0.5V~42V <55V(Connect 1K resistors in series) <65V (Connected in series with 2K resistor)
CC	-0.5V~36V
Storage temperature	-65℃~150℃
Working temperature (connector)	-40℃~125℃
Anti static ability	±2000 V

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
VBUS	2.9V~30V <50V(connected in series with 1K resistor and 0.1uF capacitor) <60V (connected in series with 2K resistor and 0.1uF capacitor)
CC	0~5V
Power consumption - working status（VBUS=5 V）	<5mW
Working temperature (connector)	-40℃~125℃
Environmental temperature	-40℃~85℃

Function Description

FS612CH is an Emarker chip. Used for low-cost TYPE-C cables. FS612CH supports a wide range of input voltages, so it can be directly powered by VBUS. FS612CH supports the latest USB PD 3.2 protocol. The ultra-high CC withstand voltage ensures that the chip will not be damaged.

FS612CH has FUNC selection and can choose different wire configurations. Used for 240W 48V/5A applications.

VBUS

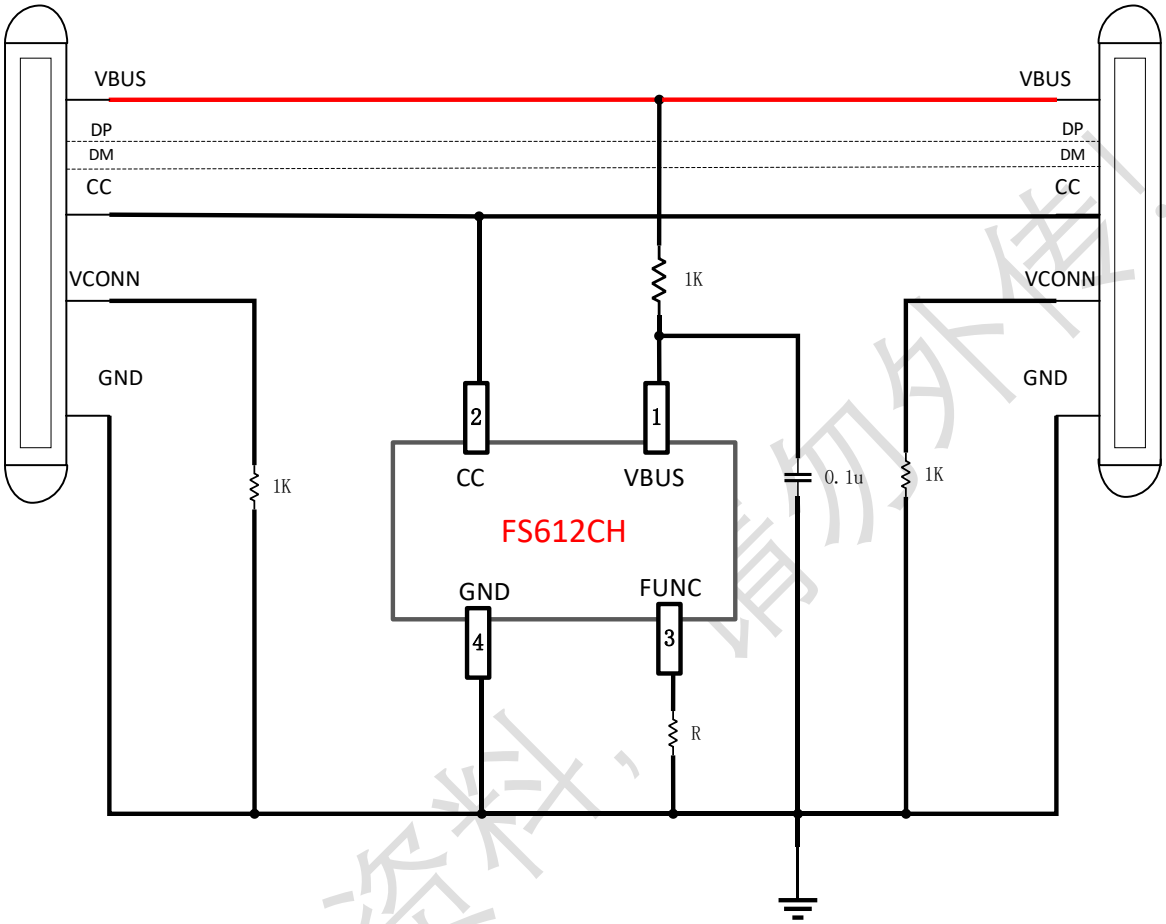
You can connect TYPEC VBUS through a 1K resistor, at which point a 0.1uF capacitor must be connected.
You can connect TYPEC VBUS through a 2K resistor, at which point a 0.1uF capacitor must be connected.

CC

Can support 36V withstand voltage.

Application example

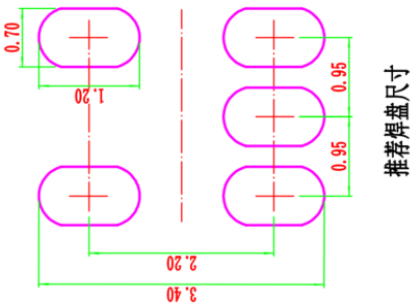
5-Core Single Chip Application (FS612CH)



FS612CH Application Diagram (5-Chip Single Chip)

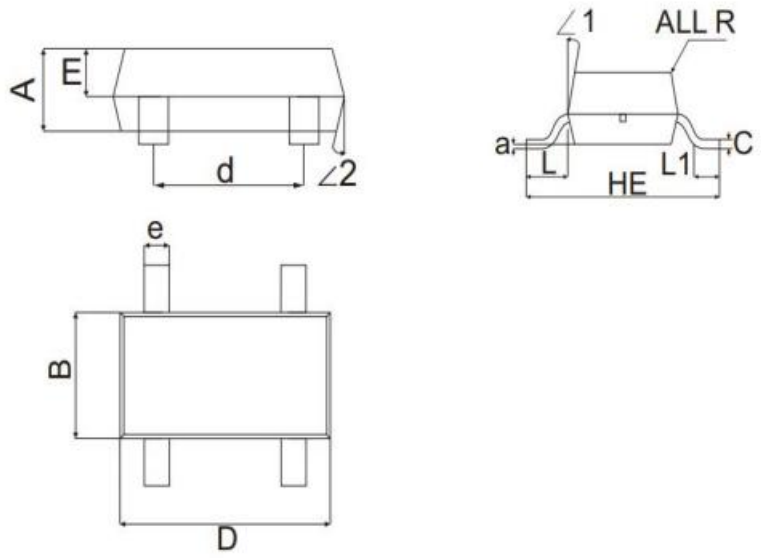
Layout suggestion

In order to be compatible with the FS612A/FS612B series (SOT23) packaging, it is recommended that customers follow the following size layout:



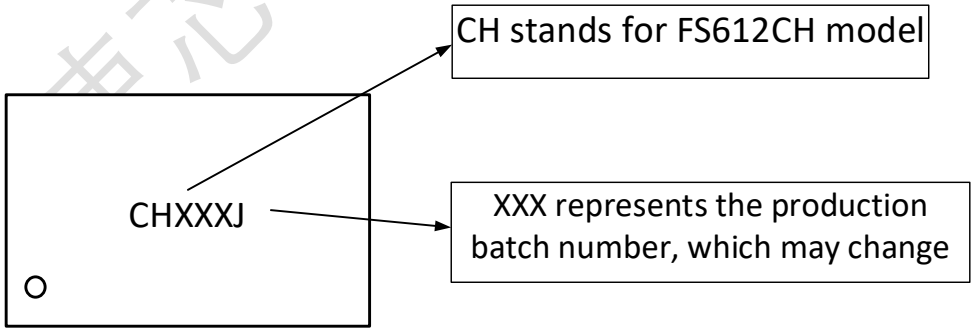
Package outline drawing

SOT143



Unit		A	B	C	HE	D	d	E	e	L	L1	a	R	∠1	∠2
mm	max	1.10	1.50	0.20	2.45	3.10	2.00	0.70	0.40	0.65	0.50	0.1 (ref)	R0.1 (ref)	9°	9°
	min	0.90	1.10	0.10	2.25	2.70	1.80	0.50	0.30	0.45	0.10				
mil	max	43	59	8	96	122	79	28	16	26	20	4 (ref)	R4 (ref)		
	min	35	43	4	89	106	71	20	12	18	4				

Chip silk screen information



1. FS612CH model information: CH, fixed and unchanged
2. 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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