DD3118
Card Reader Controller
Data Sheet

Revision 1.2

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Revision History

Date	Description	Notes
2025-04-15	1)Preliminary release.	-
2025-05-29	Update 产品型号	

1 Features

- System Clock:
  - System Without Crystal Oscillator.
  - Supports Low-speed and High-speed Clocks.

- USB Controller:
  - Complies with USB Specification Rev3.0/2.0/1.0.
  - Compliant with IF Certification.
  - Dual Interface Design, Support Both Type A and Type C.（DD3118S）

- SD Controller:
  - Complies with SD Specification Rev3.0.
  - Complies with eMMC Specification Rev4.5+.
  - Supports SDx4 and eMMCx8 Bus Widths.
  - Supports SD_VCC 3.3V/1.8V Power Supply.
  - Supports SDC 3.3V/1.8V Bus Power Supply.
  - Supports SDR25,SDR50,SDR104,DDR50.

- *I2C Controller:*
  - *Support Modifying USB Information Such as VID and PID.*

- Power Controller:
  - Supports V33 LDO Output of 3.3V/1.1V
  - Supports SD_VCC LDO Output of 3.3V/1.8V.
  - ESD Protection(MM):≥200V,＜400V.
  - ESD Protection(HBM):≥4000V,＜8000V.
  - ESD Protection(CDM):≥1000V.

- Working Condition:
  - 5V Voltage Input.
  - Working Temperature:-40℃~85℃.

- Package Type:
  - QFN-42 Pin.
  - QFN-24 Pin.

2 Overview

2.1 General Description

DD3118 is a high-performance and highly integrated card reader control chip manufactured using 40nm low-power technology, specifically designed for card readers. As the core functional module of the card reader, DD3118 supports USB 3.0, SD 3.0, and eMMC 4.5 standard protocols, enabling stable access to data stored in the memory card and achieving data transfer functionality.

2.2 Function Block Diagram

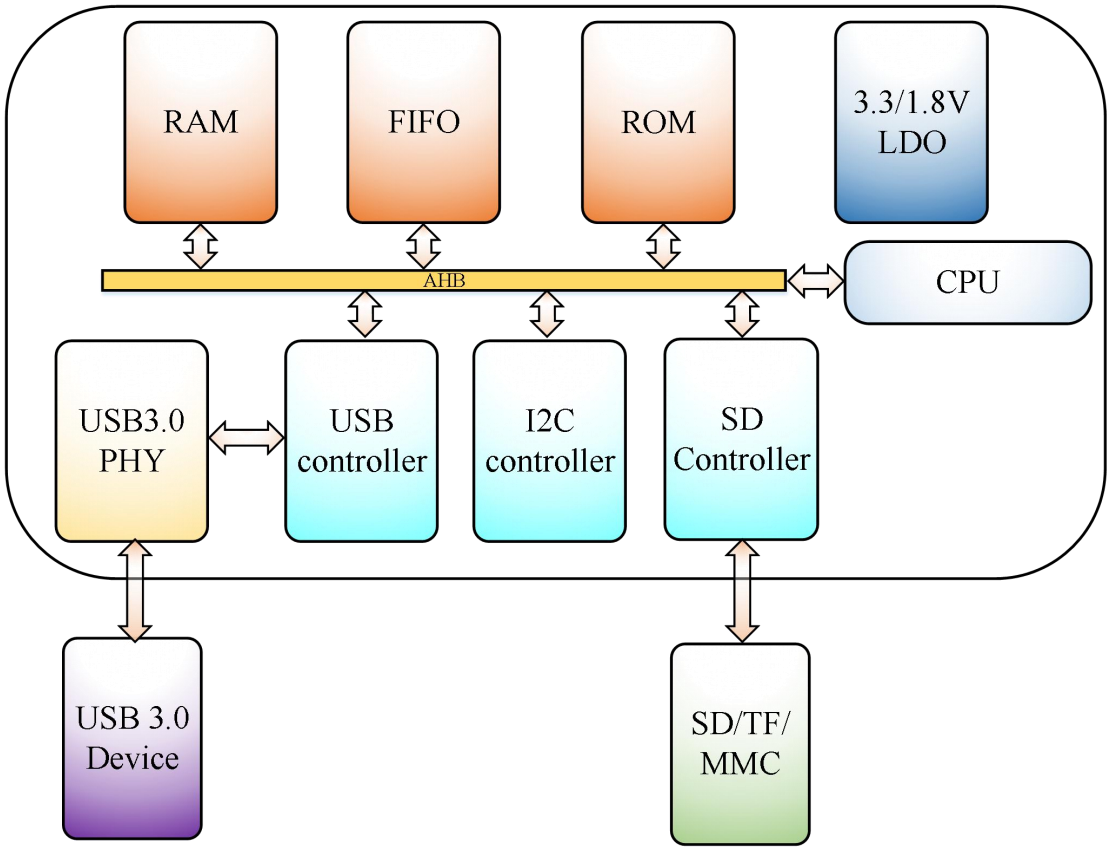


Figure 1:DD3118 Function Block Diagram

3 Pin Assignments

3.1 QFN-42 Diagram

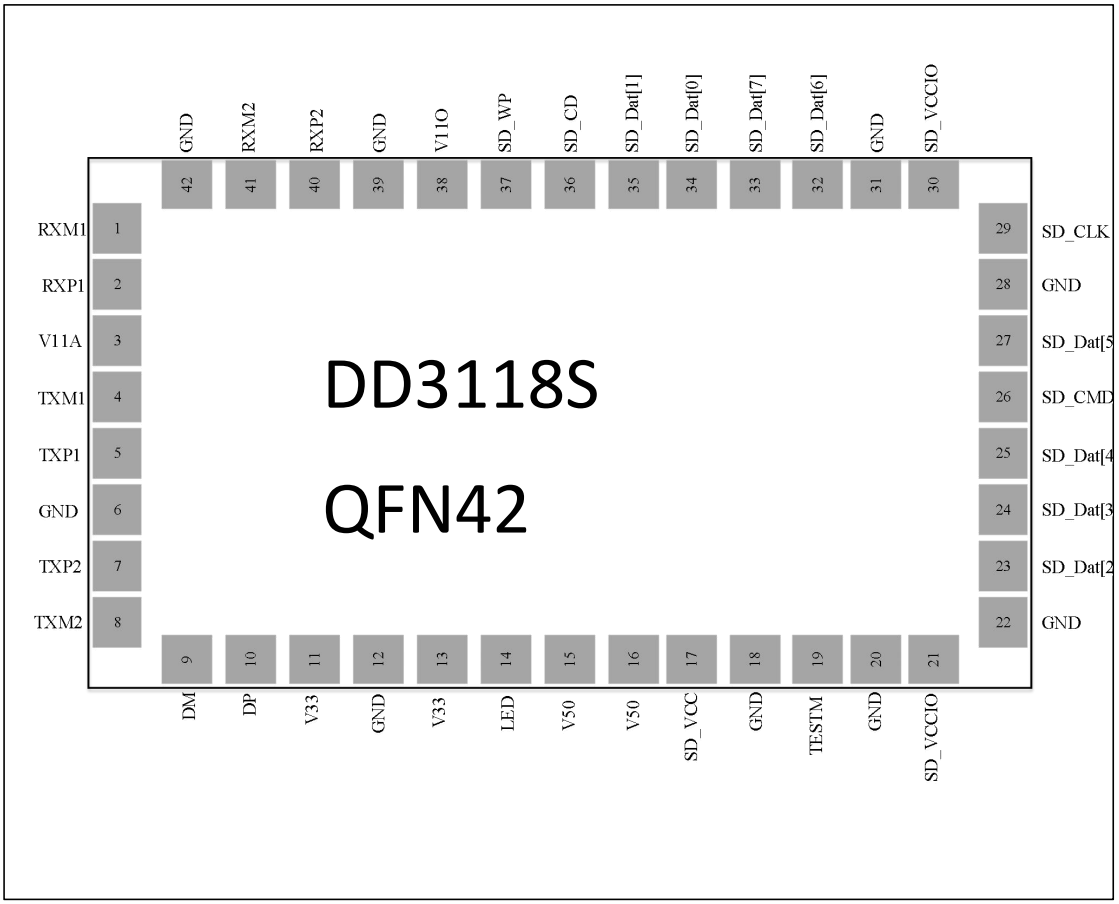


Figure 2:DD3118S Diagram(QFN-42,Top View)

3.2 QFN-24 Diagram

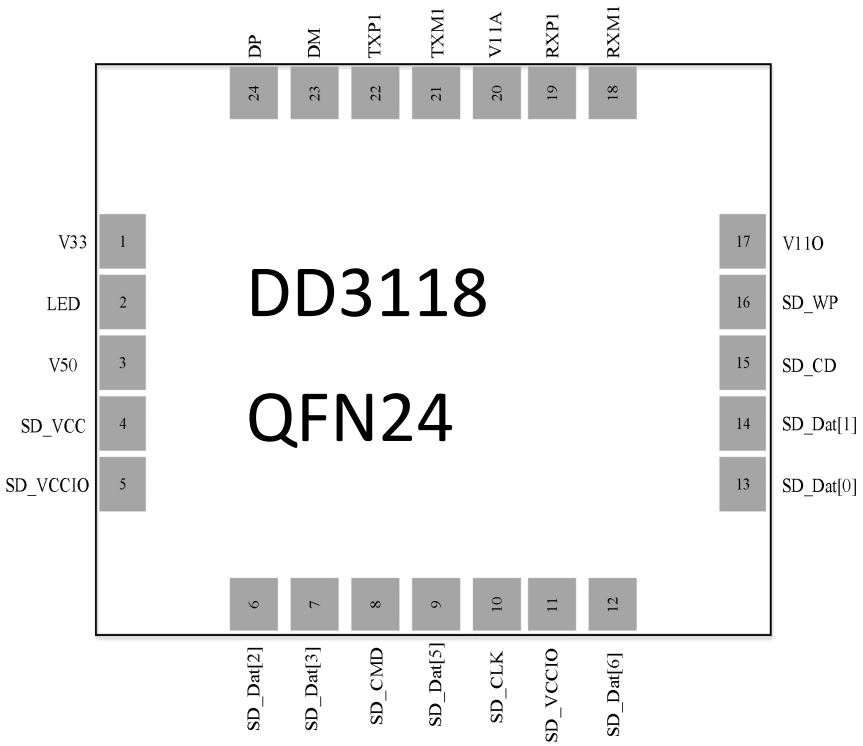


Figure 3:DD3118 Diagram(QFN-24,Top View)

3.3 Pin Description

Pin Name	QFN-42 Pin	QFN-24 Pin	Type	Description
RXM1	1	18	I/O	USB 3.2 RX Data Negative Pin
RXP1	2	19	I/O	USB 3.2 RX Data Positive Pin
V11A	3	20	I/O	1.1V Analog Supply Voltage for PHY
TXM1	4	21	I/O	USB 3.2 TX Data Negative Pin
TXP1	5	22	I/O	USB 3.2 TX Data Positive Pin
GND	6,12,18,20,22,	-	I/O	Ground

	28,31,39,42			
TXP2	7	-	I/O	USB 3.2 TX Data Positive Pin for Type C
TXM2	8	-	I/O	USB 3.2 TX Data Negative Pin for Type C
DM	9	23	I/O	USB 2.0 Data Negative Pin
DP	10	24	I/O	USB 2.0 Data Positive Pin
V33	11	1	I/O	3.3V Analog Supply Voltage for PHY
V33	13		I/O	LDO 3.3V Voltage Output
LED	14	2	I/O	LED Indicator
V50	15,16	3	I/O	5.0V Power Input
SD_VCC	17	4	I/O	Supply Voltage for SD
TESTM	19	-	I/O	Test Mode
SD_VCCIO	21,30	5,11	I/O	I/O Pad Voltage for SD
SD_Dat[2]	23	6	I/O	Data Line2 for SD
SD_Dat[3]	24	7		Data Line3 for SD
SD_Dat[4]	25	-		Data Line4 for SD
SD_CMD	26	8		Command Line for SD
SD_Dat[5]	27	9		Data Line5 for SD/SCL
SD_CLK	29	10		Clock Signal for SD
SD_Dat[6]	32	12		Data Line6 for SD/SDA
SD_Dat[7]	33	-		Data Line7 for SD
SD_Dat[0]	34	13		Data Line0 for SD
SD_Dat[1]	35	14		Data Line1 for SD
SD_CD	36	15		Card Detect for SD
SD_WP	37	16		Write Protection for SD
V11O	38	17		LDO 1.1V Voltage Output
RXP2	40	-		USB 3.2 RX Data Positive Pin for Type C
RXM2	41	-		USB 3.2 RX Data Negative Pin for Type C

Table 1:Pin Description

4 Electrical characteristics

4.1 Absolute Maximum Ratings

Symbol	Descriptions	Min	Max	Unit	Remark
V50	5.0V Power Input	4	5.5	V	-
V33	LDO 3.3V Voltage Output	2.7	3.6	V	-
V11O	LDO 1.1V Voltage Output	1.045	1.155	V	-
SD_VCCIO	I/O Pad Voltage for SD	2.7	3.6	V	-
T_{OPR}	Operating Temperature	-20	125	℃	-

Table 3:Absolute Maximum Ratings

4.2 Recommended Operating Conditions

Symbol	Description	Min	Typ	Max	Unit
V50	5.0V Power Input	4	5	5.5	V
V33	LDO 3.3V Voltage Output	2.7	3.3	3.6	V
V11O	LDO 1.1V Voltage Output	1.045	1.1	1.155	V
SD_VCCIO	I/O Pad Voltage for SD	2.7	3.3	3.6	V
T_{OPR}	Operating Temperature	-20	25	125	℃

Table 4: Recommended Operating Conditions

4.3 Timing Diagram

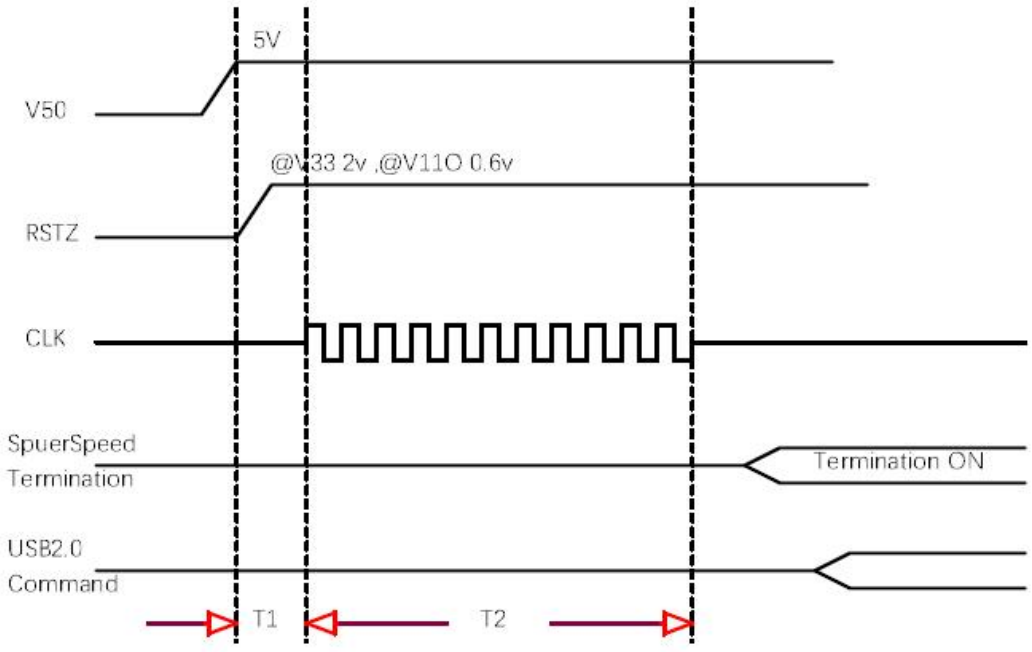


Figure 5: Timing Diagram of Power Good to USB Command Receive Ready

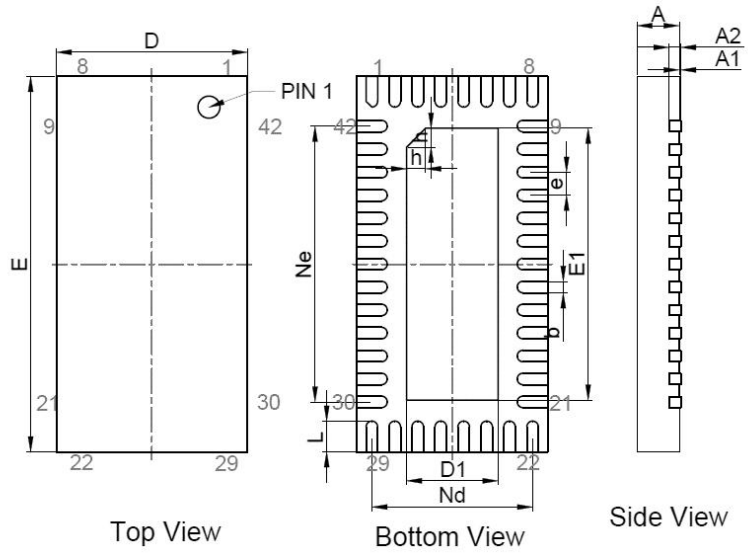
4.4 Timing Diagram Parameter

Parameter	Description	Value	Unit
T1	Power on Initialization	45	ms
T2	Firmware Loading Time	2	s

Table 5: Timing Diagram Parameter

5 Package Information

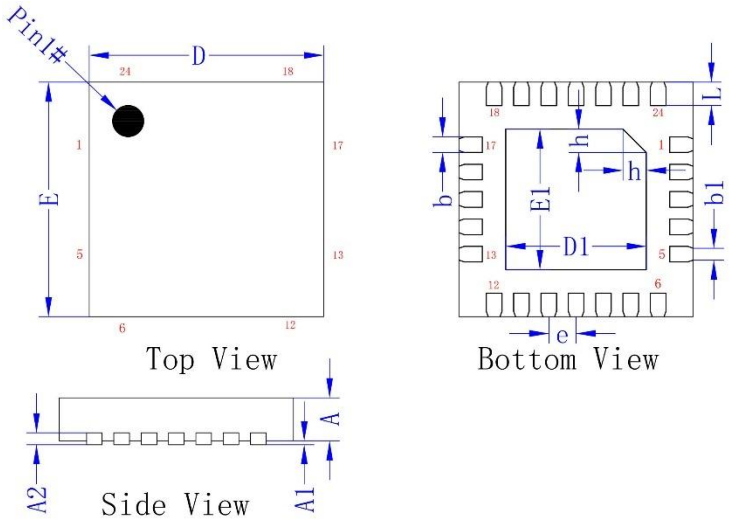
5.1 DD3118S QFN-42 Package Information



COMMON DIMENSIONS (UNITS OF MEASURE=MILLIMETERS)			
SYMBOL	MILLMETERS		
	MIN	MON	MAX
A	0.50	0.55	0.60
A1	0.00	0.02	0.05
A2	0.152REF		
b	0.12	0.15	0.18
D	2.40	2.50	2.60
D1	1.10	1.20	1.30
E	4.80	4.90	5.00
E1	3.45	3.55	3.65
e	0.30BSC		
L	0.30	0.40	0.50
h	0.20	0.25	0.30
Nd	2.10BSC		
Ne	3.60BSC		

Figure 6:DD3118S Package Dimensions (QFN-42)

5.2 DD3118 QFN-24 Package Information



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETERS)

SYMBOL	MILLMETERS		
	MIN	NOM	MAX
A	0.50	0.55	0.60
A1	0.00	0.02	0.05
A2	0.152 REF		
b	0.15	0.20	0.25
D	2.95	3.00	3.05
E	2.95	3.00	3.05
D1	1.75	1.80	1.85
E1	1.75	1.80	1.85
e	0.35 BSC		
L	0.20	0.30	0.35
h	0.25	0.30	0.35
b1	0.15 REF		

Figure 7:DD3118 Package Dimensions (QFN-24)

Notes：

(1) Dimensions in millimeters（Angles in degrees）.

(2) ALL dimensions do not include mold flash or protrusions.

(3) All dimensions meet JEDEC STANDARD MS-012F.

6 Product Ordering Information

6.1 Ordering Information

Odering Number	Operation Temperature	Package Type	Dimension(mm)
DD3118S	-40℃~85℃	QFN-42	4.9*2.5*0.55(mm)
DD3118	-40℃~85℃	QFN-24	4*2*0.55(mm)

Table 6: Ordering Information

Note: The suffix"A".denotes the IC revision.

6.2 Top Marking

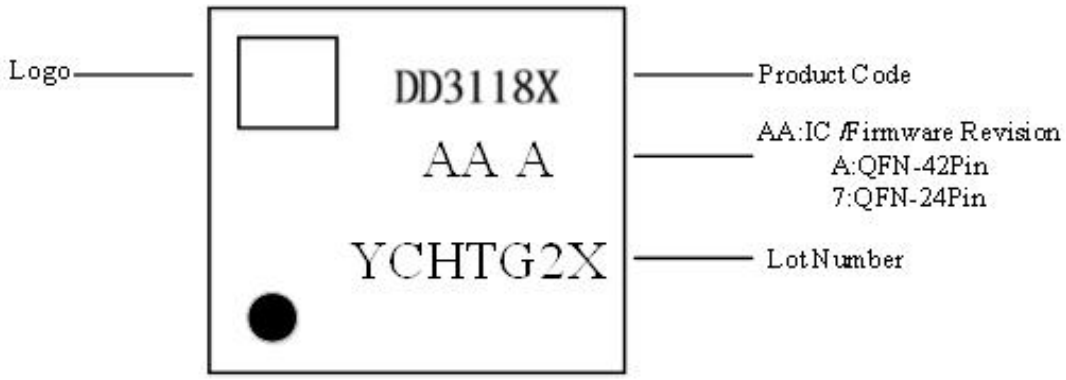


Figure 8:DD3118X Top Marking