瀚海微
HAN HAI WEI

SD NAND SPECIFICATION

杭州瀚海微科技有限公司
www.hanhai-tech.com

1. Overview 2
1.1 Product Description 3
1.2 Features Summary 3
2. Pin Assignment 3
Table 1: Pin Assignment 4
3. Product List 5
Table 2: Product List 5
4. Current Consumption 5
5. Operational Environment 5
Table 3: Operational Environment 5
6. Physical Dimension 6
Figure: Bottom View .....
Table 4: T-Flash Package: Dimension .....
7. Recommended Schematic 7
8.Command 7
9.Write Performance 100
10.Read Performance 11
11.Spi mode 12
12.SD mode 14
13.DC Characteristics 14
14.Bus Timing (High-Speed Mode) 14
15.Power-up 16

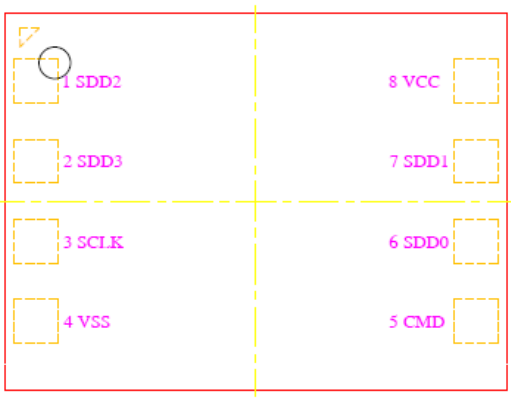
杭州瀚海微科技有限公司
www.hanhai-tech.com

1. Overview

1.1 Product Description

1.2 Features Summary

杭州瀚海微科技有限公司
www.hanhai-tech.com



Name	

杭州瀚海微
www.hanhai-tc

3. Product List

Product model	Capacity	Actual Size	Sequential R / W	Package
HHW64GS90I-D1				
HHW128GS90I-D1				

Table 2: Product List

4. Current Consumption

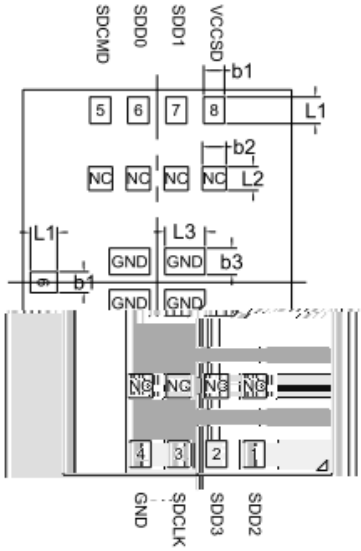
广州翰海微科技有限公司
hanhai-tech.com

5. Operational Environment

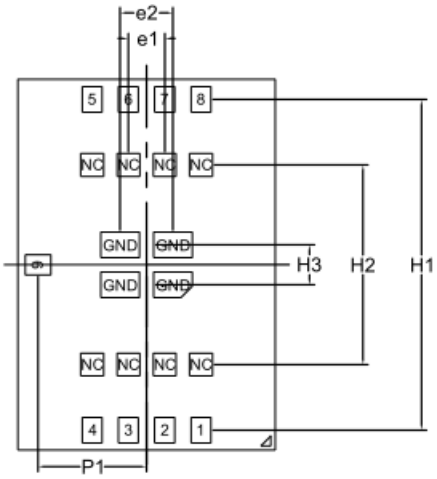
Parameter	Range	

Table 3: Operational Environment

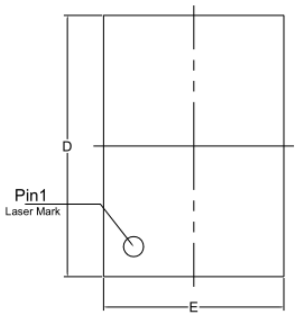
6. Physical Dimension



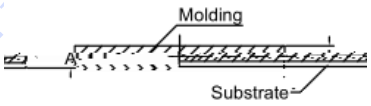
Bottom View



Bottom View



TOP View



Side View

SYMBOL	DIMENSION IN MM			DIMENSION IN MIL			
	Min.	Nor.	Max.	Min.	Nor.	Max.	
D	12.90	13.00	13.10	507.87	511.81	515.75	
E	8.90	9.00	9.10	350.39	354.33	358.27	
0.65	0.70	0.75	25.59	27.56	29.53		b1
0.75	0.80	0.85	29.53	31.50	33.46		b2
0.85	0.90	0.95	33.46	35.43	37.40		b3
0.85	0.90	0.95	33.46	35.43	37.40		L1
0.75	0.80	0.85	29.53	31.50	33.46		L2
		1.85 Typ.			72.84 Typ.		e2
	149.61 Typ.			P1		3.80 Typ.	
	6.85 Typ.			269.68 Typ.			H2
	1.40 Typ.			55.12 Typ.			H3
75	0.80	0.85	29.53	31.50	33.46		A

7. Recommended Schematic

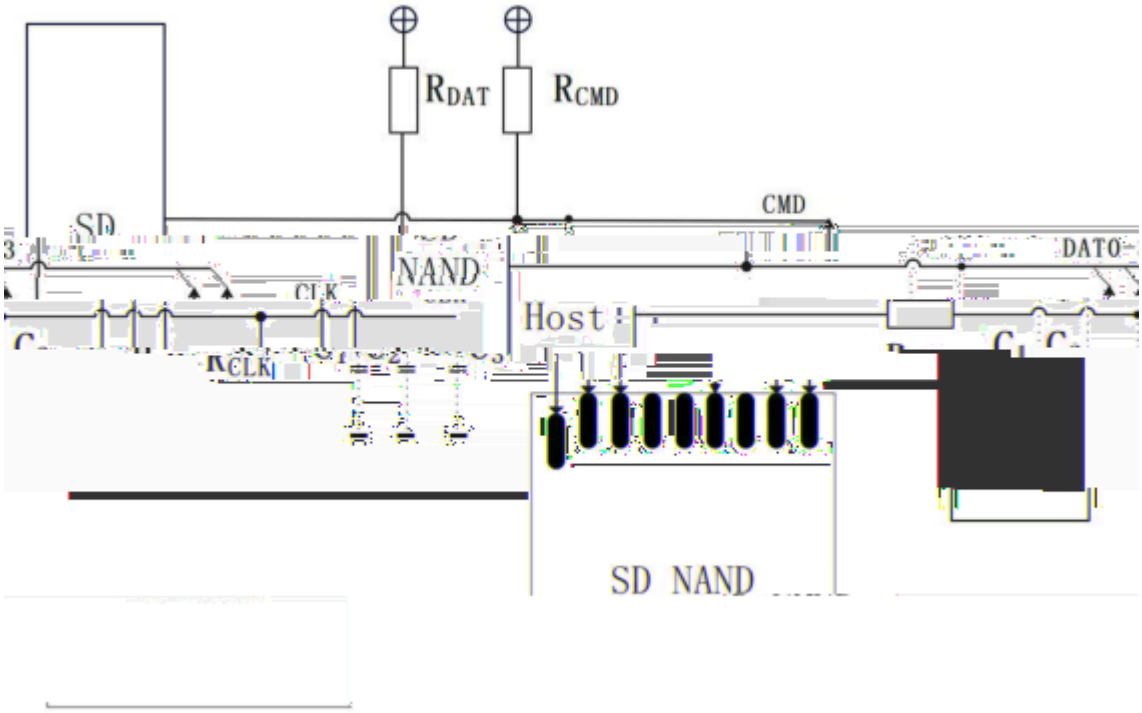


Figure 4: Recommended Schemati

Note:

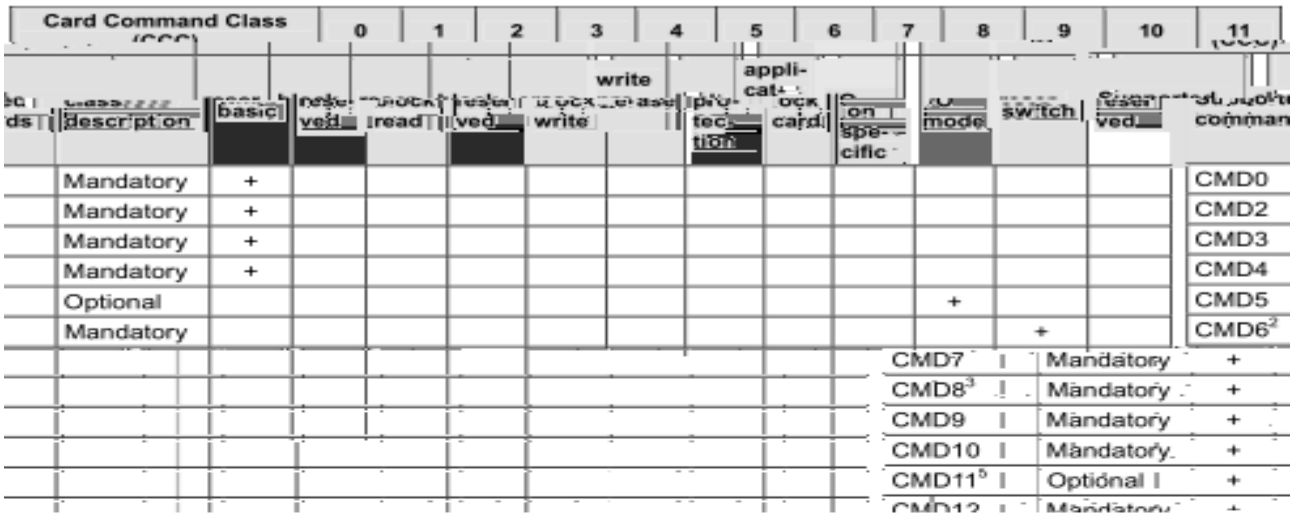
杭州瀚海微科技
www.hanhai-tech.

8. Commands

Command Types

,

,



Card Command Class	0	1	2	3	4	5	6	7	8	9	10	11
description	basic	read	write									
Mandatory	+											CMD0
Mandatory	+											CMD2
Mandatory	+											CMD3
Mandatory	+											CMD4
Optional									+			CMD5
Mandatory										+		CMD6[2]
												CMD7
												CMD8[3]
												CMD9
												CMD10
												CMD11[5]

CMD56	Mandatory									+			
CMD57[2]	Optional											+	
ACMD6	Mandatory									+			
ACMD13	Mandatory									+			

9. Write Performance

杭州瀚海微科技有限公司
www.hanhai-tech.com

10. Read Performance

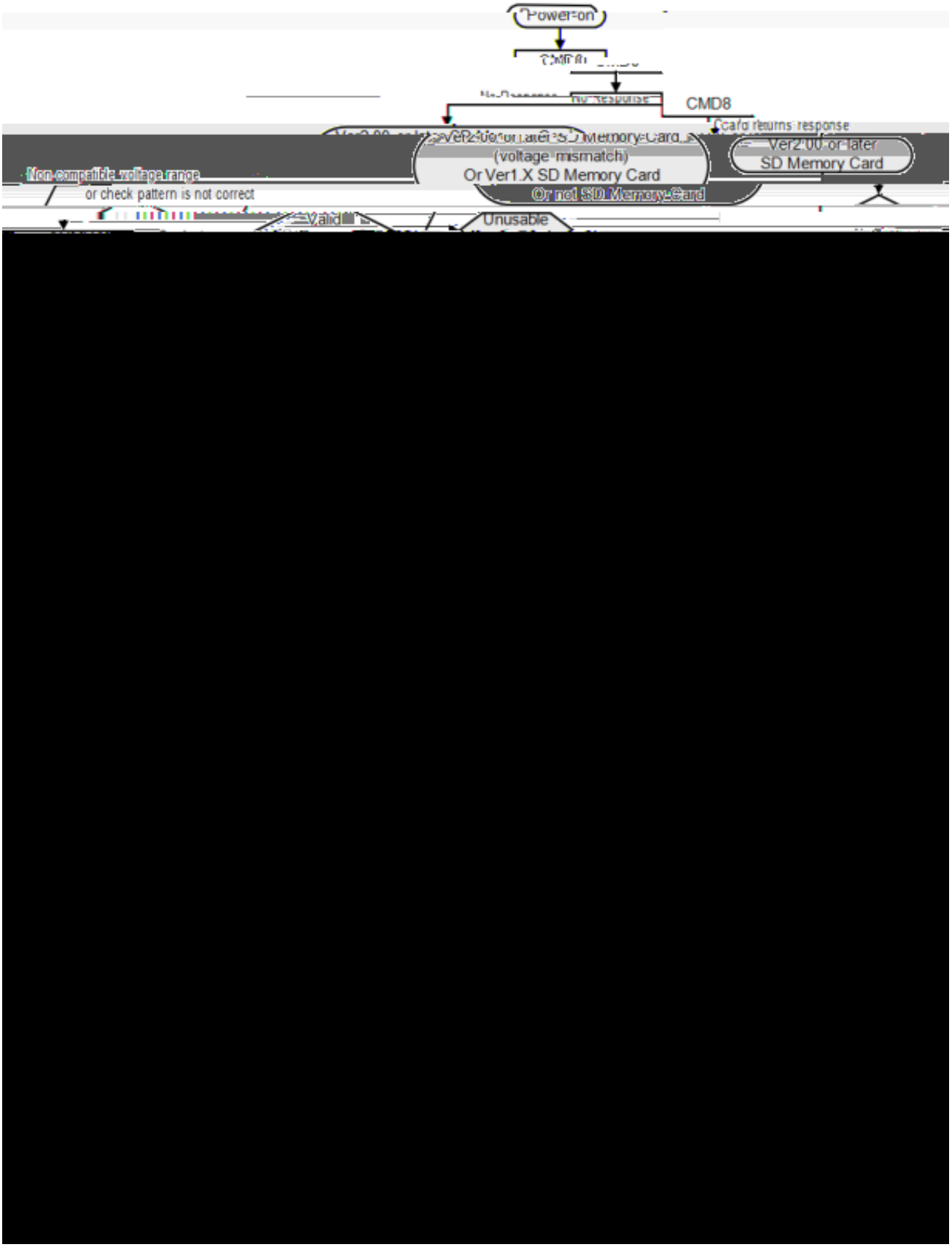
(1) Read Performance of Stream Data

11. SPI Mode

杭州瀚海微科技有限
www.hanhai-tech.com

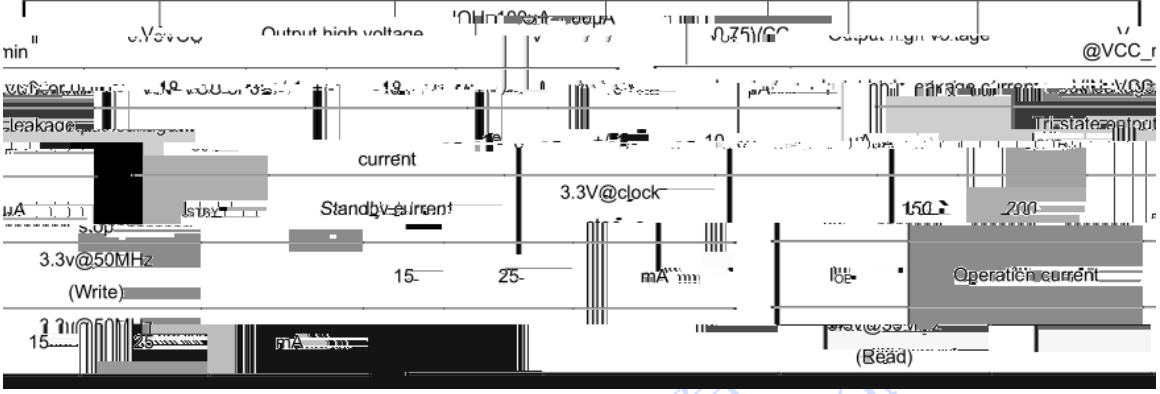
杭州瀚海微科技有限公司
www.hanhai-tech.com

12. SD Mode

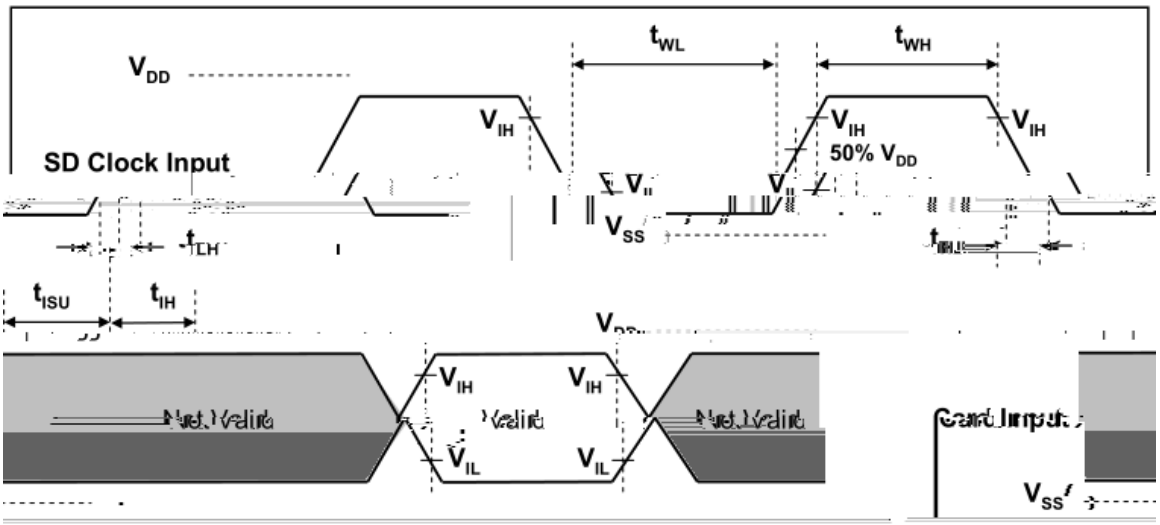

Power on
CMD8
Ver2.00 or later SD Memory Card
(voltage mismatch)
Or Ver1.X SD Memory Card
Or not SD Memory Card
Ver2.00 or later
SD Memory Card
Non compatible voltage range
or check pattern is not correct
Valid
Unusable

13. DC Characteristics

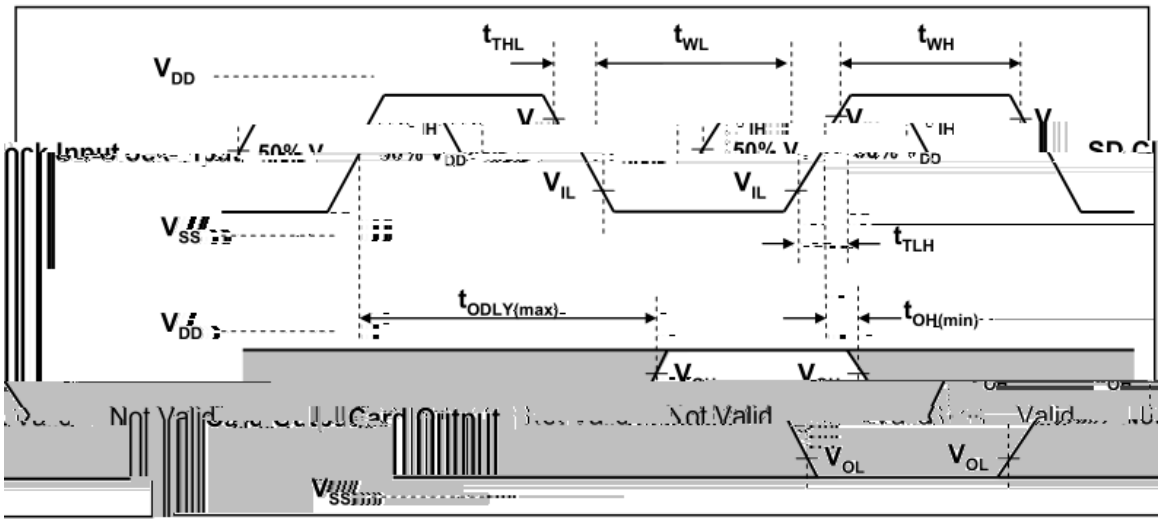
Symbol	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V_{IL}	Input low voltage		VSS-0.3		0.25VCC	V
V_{IH}	Input high voltage		0.625VCC		VCC+0.3	V
V_{OL}	Output low voltage	IOL=100μA @VCC_min			0.125VCC	V



14. Bus Timing (High-Speed Mode)

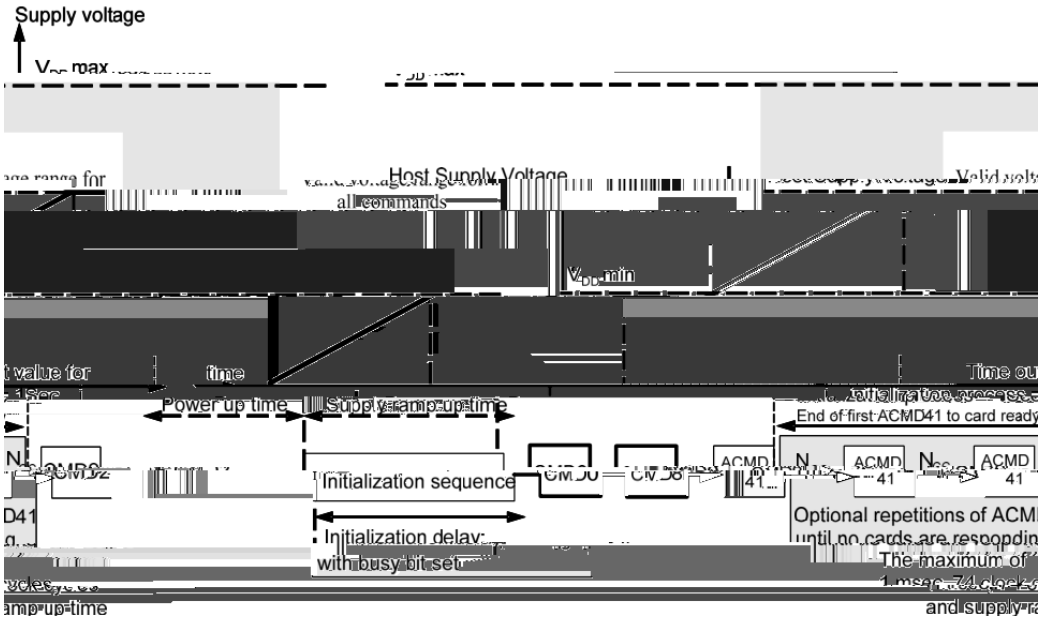


Card Input Timing (High Speed Card)



Card Output Timing (High Speed Mode)

15. Power Up



Power-up Diagram

杭州瀚海微科技有限公司
www.hanhai-tech.com