

5

4

3

2

1

Revision History

| Revision | Date | Reason for redrawing | Page Update | Drawed | Checked | Approved |
|----------|---------|----------------------|-------------|-------------|------------|----------|
| 01A | 0308Y16 | Preliminary | -- | Eason Chang | Austin Lin | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Model: SM2258XT-G144_2P5_T48X16_DB

| | |
|-------|---------------------------|
| Page1 | Cover_Page |
| Page2 | Controller_BGA144_2.5INCH |
| Page3 | Power_Host_5V |
| Page4 | NF_TSOP48x16 (CH0, CH1) |
| Page5 | NF_TSOP48x16 (CH2, CH3) |
| Page6 | Flash Mounting Guide |

Silicon Motion, INC.

PageTitle

Cover Page

DOC.Number

<Doc>

Sch.FileName

SM2258XT-AB-G144_2p5_T48X16_D2_DB_V01

Rev

01A

Date:

Sunday, July 23, 2017

Sheet

1

of

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5

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2

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D

C

B

A

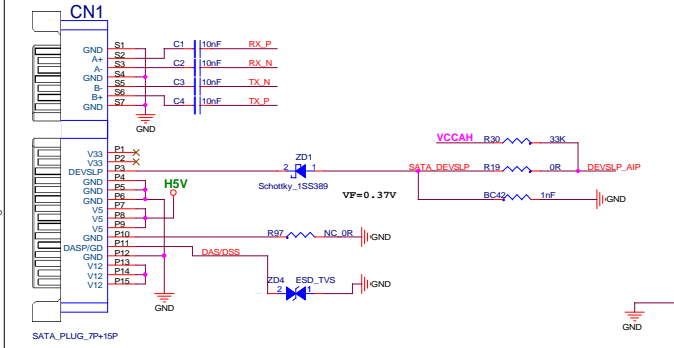
D

C

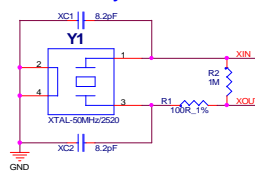
B

A

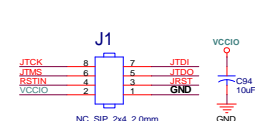
SATA PLUG 7P+15P CONNECTOR



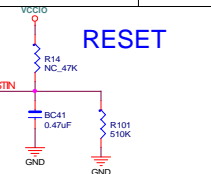
Crystal



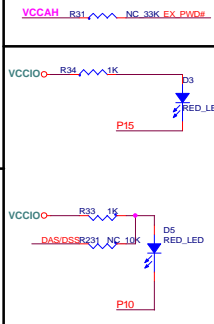
JTAG Port



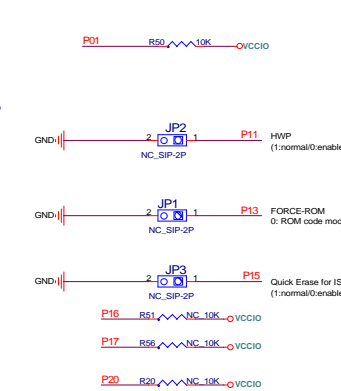
RESET



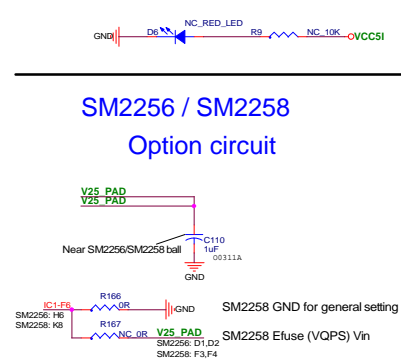
AIP



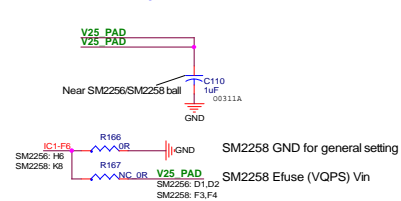
GPIO Definition



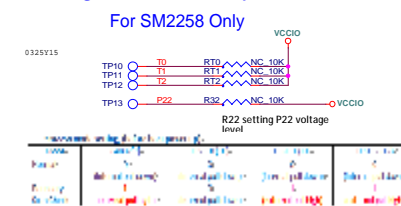
LED function



SM2256 / SM2258 Option circuit

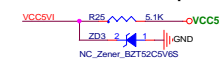


Setting For Boundary Scan Check



Voltage Detector

Internal VDT for Host power



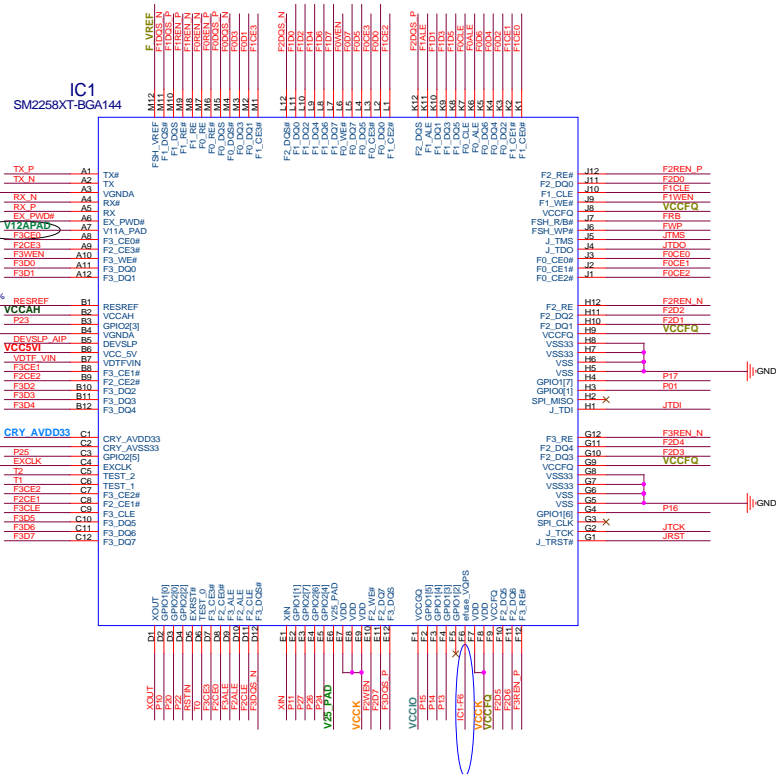
Internal VDT for Flash Core Power



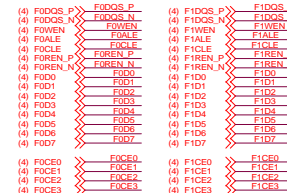
NAND Flash IO PG detect



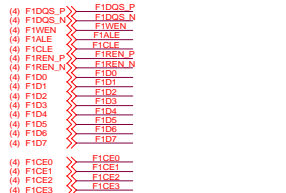
Controller SM2258XT-BGA144



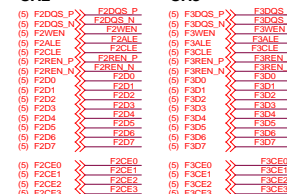
CH0



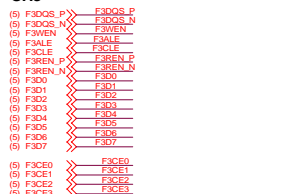
CH1



CH2



CH3



HSV



VCCSI



VCCFQ



VCCIO



A3V3



VCCCK



A1V2



SM2258 Bypass Capacitors

A3V3 = 3.0 / 3.3 / 3.6 (V) For AIP power
 A1V1=VDDTX_PHY=VDDRX_PHY= 1.1(V) For AIP power
 VCCK = 1.1 (V) For SM2258AA core power
 VCCIO = 3.3 / 1.8 (V) For General IO power
 VCCF = 3.3 (V) For NAND flash Core Power
 VCCF0 = 3.3 / 1.8 (V) For NAND flash IO Power

H5V
 V_{in}
 H5VI
 V_{out}
 VCCSI
 VCCIO
 R100
 NC_0R
 PVS_0K
 C58
 NC_10uF218V
 U15
 SY6BT54PBC
 1 IN
 2 IN
 3 IN
 4 EN
 5 U15_ILM
 6 U15_SST
 7 VCP
 8 OUT
 9 OUT
 10 OUT
 R108
 100K
 C300
 1nF
 ZD1
 5.1V
 R192
 100K
 R44
 51K
 R52
 100K
 C59
 100uF16V
 C60
 100uF16V
 C61
 100uF16V
 R52
 100uF16V
 R58
 100uF16V
 R131
 NC_33K
 VCCIO

R52=5.49K, I_{LM}=2A
 R52=4.42K, I_{LM}=2.5A
 R52=3.65K, I_{LM}=3A
 C30=47nF, T_{SS}=13.1 (ms)
 C30=10nF, T_{SS}=2.8 (ms)
 C30=NC, T_{SS}=1.4 (ms)

[illegible]

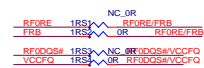
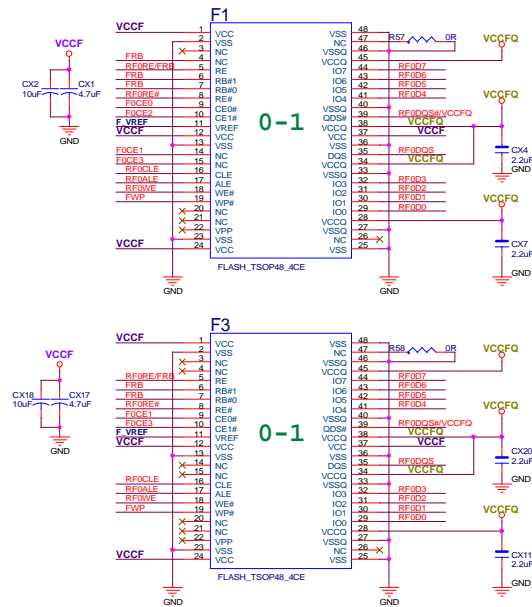
The diagram shows the internal circuit of the LDO_1 regulator. It consists of an input pin labeled 'LDO1-3V3', a resistor labeled 'R30 0R', and an output pin labeled 'VCCIO'. The input pin is connected to the resistor, which is then connected to the output pin.

Below the schematic, the pin connections for the LDO_1 are listed:

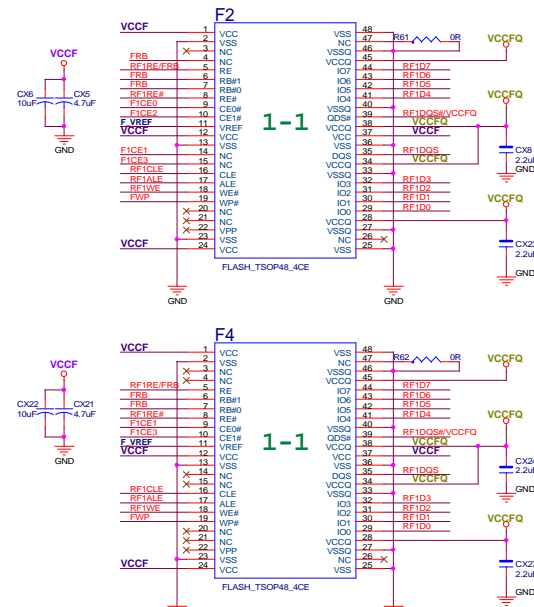
- (2) P14 >> P14
- (2) P26 >> P26
- (2) P27 >> P27
- (2) EX_PWD0 >> EX_PWD0
- HSV >> HSV
- VCCSI >> VCCSI
- VCCF >> VCCF
- VCCFQ >> VCCFQ
- VCCIO >> VCCIO
- A3V3 >> VCCA1
- CRY_AVDD33 >> CRY_AVDD33
- VCCO >> VCCO
- A1V2 >> V12APAD

NAND Flash

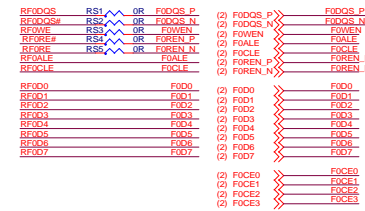
Channel 0



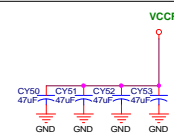
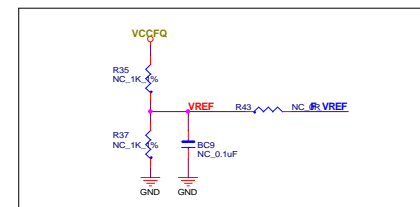
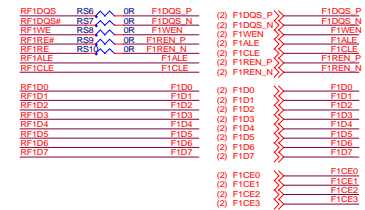
Channel 1



CH0

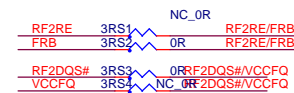
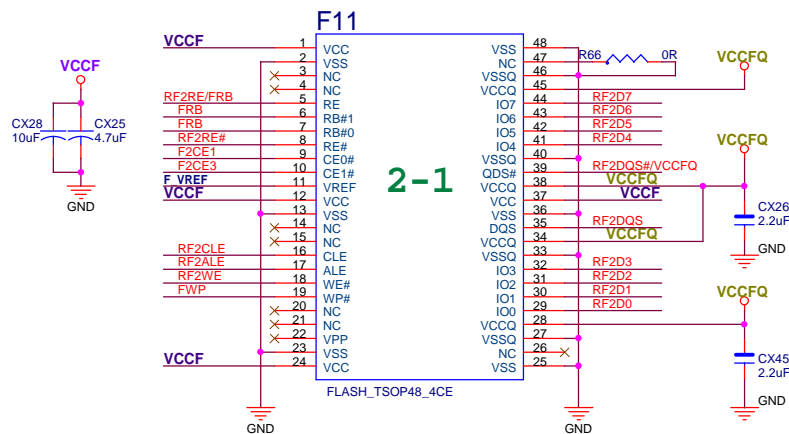
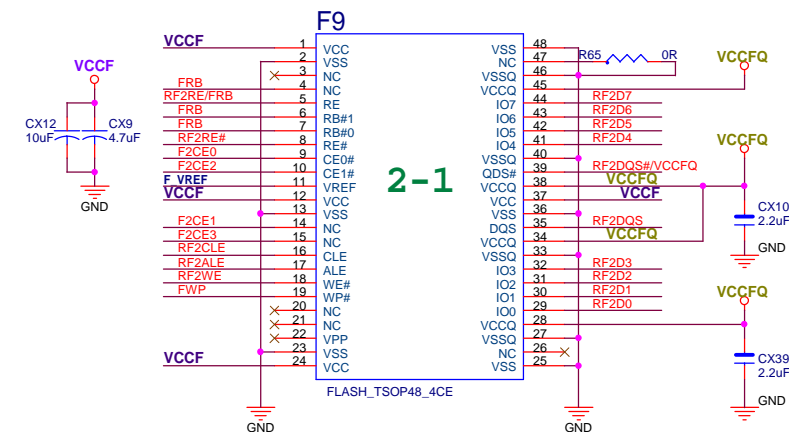


CH1

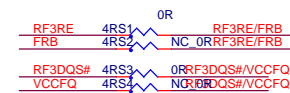
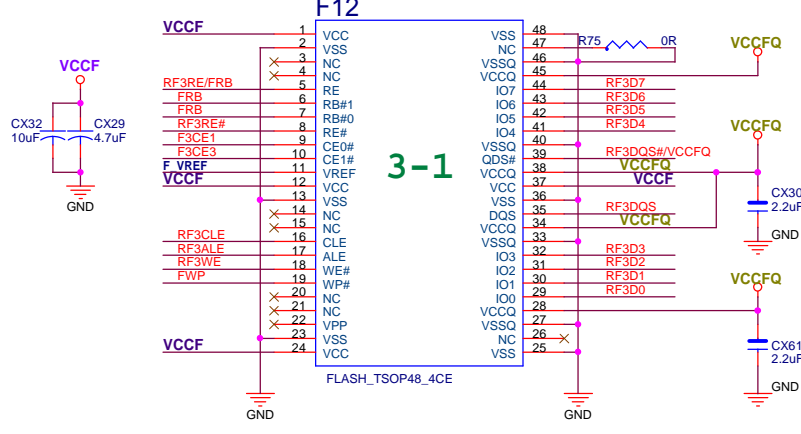
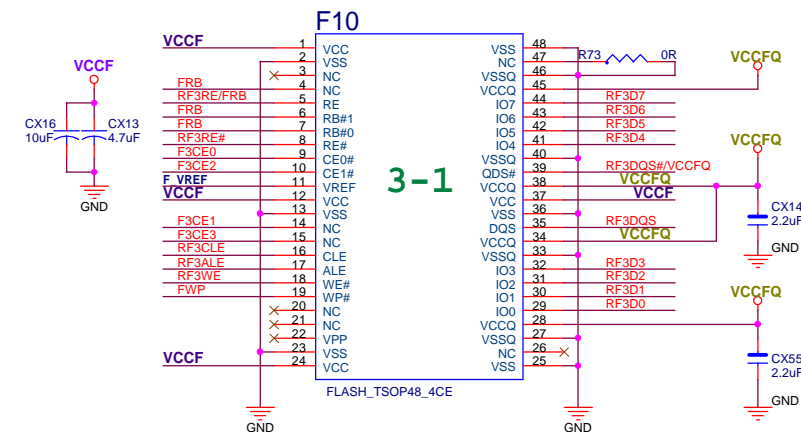
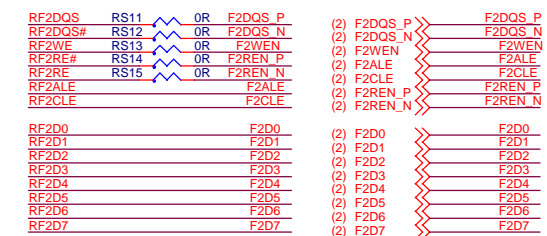


NAND Flash

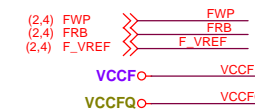
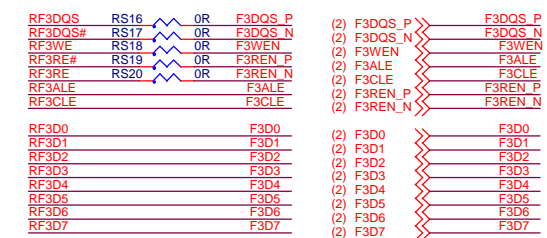
Channel 2



Channel 3

CH₂

CH3



NAND FLASH Mounting Guide

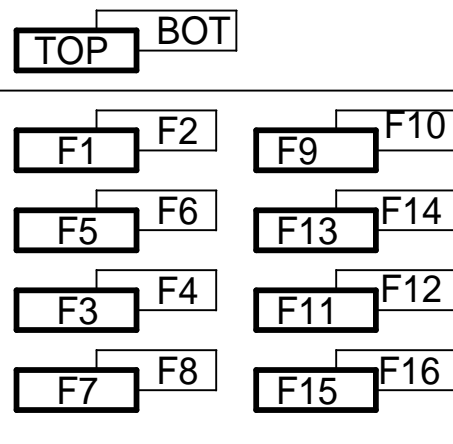
2.5INCH BGA152x16 NAND Flash Mounting Guide

| NAND Flash Type | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 | F12 | F13 | F14 | F15 | F16 | NF Config. | RCE1 | RCE2 | RCE3 | RCE4 | RCE5 | RCE6 | RCE7 | RCE8 | RCE9 | RCE10 | RCE11 | RCE12 | RCE13 | RCE14 | RCE15 | RCE16 | CE usage |
|---------------------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|------------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|------------------------------------|
| Single CE flash x1 | ⊗ | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 1CH/1CE | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | CE0 |
| Single CE flash x2 | ⊗ | ⊗ | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 2CH/1CE | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | CE0 |
| Single CE flash x3 | ⊗ | ⊗ | X | X | X | X | X | X | ⊗ | X | X | X | X | X | X | X | 3CH/1CE | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | CE0 |
| Single CE flash x4 | ⊗ | ⊗ | X | X | X | X | X | X | ⊗ | ⊗ | X | X | X | X | X | X | 4CH/1CE | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | CE0 |
| Single CE flash x8 | ⊗ | ⊗ | X | X | ⊗ | ⊗ | X | X | ⊗ | ⊗ | X | X | ⊗ | ⊗ | X | X | 4CH/2CE | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | CE0,CE4 |
| Single CE flash x16 | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | 4CH/4CE | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | CE0,CE2,CE4,CE6 |
| Dual CE flash x1 | ⊗ | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 2CH/1CE | X | ⊗ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | CE0 |
| Dual CE flash x2 | ⊗ | ⊗ | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 2CH/2CE | ⊗ | X | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | CE0,CE1 |
| Dual CE flash x2 | ⊗ | X | X | X | X | X | X | X | ⊗ | X | X | X | X | X | X | X | 4CH/1CE | X | ⊗ | X | ⊗ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | CE0 |
| Dual CE flash x4 | ⊗ | ⊗ | X | X | X | X | X | X | ⊗ | ⊗ | X | X | X | X | X | X | 4CH/2CE | ⊗ | X | ⊗ | X | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | CE0,CE1 |
| Dual CE flash x8 | ⊗ | ⊗ | X | X | ⊗ | ⊗ | X | X | ⊗ | ⊗ | X | X | ⊗ | ⊗ | X | X | 4CH/4CE | ⊗ | X | ⊗ | X | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | CE0,CE1,CE4,CE5 |
| Dual CE flash x16 | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | 4CH/8CE | ⊗ | X | ⊗ | X | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | CE0,CE1,CE2,CE3 CE4,CE5,CE6,CE7 |
| Quad CE flash x1 | ⊗ | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 2CH/2CE | X | ⊗ | △ | △ | X | ⊗ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | CE0,CE2 |
| Quad CE flash x2 | ⊗ | ⊗ | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 2CH/4CE | ⊗ | X | △ | △ | ⊗ | X | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | CE0,CE1,CE2,CE3 |
| Quad CE flash x2 | ⊗ | X | X | X | X | X | X | X | ⊗ | X | X | X | X | X | X | X | 4CH/2CE | X | ⊗ | X | ⊗ | X | ⊗ | X | ⊗ | △ | △ | △ | △ | △ | △ | △ | △ | CE0,CE2 |
| Quad CE flash x4 | ⊗ | ⊗ | X | X | X | X | X | X | ⊗ | ⊗ | X | X | X | X | X | X | 4CH/4CE | ⊗ | X | ⊗ | X | ⊗ | X | ⊗ | X | △ | △ | △ | △ | △ | △ | △ | △ | CE0,CE1,CE2,CE3 |
| Quad CE flash x8 | ⊗ | ⊗ | X | X | ⊗ | ⊗ | X | X | ⊗ | ⊗ | X | X | ⊗ | ⊗ | X | X | 4CH/8CE | ⊗ | X | ⊗ | X | ⊗ | X | ⊗ | X | △ | △ | △ | △ | △ | △ | △ | △ | CE0,CE1,CE2,CE3 CE4,CE5,CE6,CE7 |
| 8 CE flash x1 | ⊗ | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 2CH/4CE | X | ⊗ | X | ⊗ | X | ⊗ | X | ⊗ | △ | △ | △ | △ | △ | △ | △ | △ | CE0,CE2,CE4,CE6 |
| 8 CE flash x2 | ⊗ | X | X | X | X | X | X | X | ⊗ | X | X | X | X | X | X | X | 4CH/4CE | X | ⊗ | X | ⊗ | X | ⊗ | X | ⊗ | X | ⊗ | X | ⊗ | X | ⊗ | X | ⊗ | CE0,CE2,CE4,CE6 |
| 8 CE flash x4 | ⊗ | ⊗ | X | X | X | X | X | X | ⊗ | ⊗ | X | X | X | X | X | X | 4CH/8CE | ⊗ | X | ⊗ | X | ⊗ | X | ⊗ | X | ⊗ | X | ⊗ | X | ⊗ | X | ⊗ | X | CE0,CE1,CE2,CE3 CE4,CE5,CE6,CE7 |

M1023A

| | |
|---|---|
| ⊗ | Install |
| X | un-install |
| △ | Don't care (it is fine if resistor mouning or not.) |

TOP View For Flash PCB Placement



CH0 / CH1: F1 ~ F8

CH2 / CH3: F9 ~ F16



Silicon Motion, INC.

| | |
|--------------|---------------------------------------|
| PageTitle | NF_Mounting_Guide |
| DOC.Number | <Doc> |
| Sch.FileName | SM2258XT-AB-G144_2p5_T48X16_D2_DB_V01 |
| Date: | Sunday, July 23, 2017 |
| Sheet | 7 of 7 |
| Rev | 01A |