Accelerometer

KX022ACR-Z Power-on Procedure

This technical note is intended to provide information about the proper power-on procedure of KX022ACR-Z accelerometers. Regarding detail specification, please refer to the datasheet. The values in this document are reference data and not guaranteed.

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1. Power On Procedure

Proper functioning of Power-On Reset is dependent on the specific sequence of VDD and IO_VDD. For detail information, please consult the datasheet.

2. Software Reset

Issuing the Software Reset command after the device power-up is recommended. This is effective against dynamic or non-liner behavior of a power supply or unexpected noise above normal on the power rail during a power-up.

In case of the I2C Interface

Following the power-up, access following registers using Target Address up to the connection of ADDR pin. If command was acknowledged (ACK received), proceed to the next step. If ACK was not received, the device should be done the Power Cycle.

(1) Write 00h to the Address 7Fh. If NACK received, the device should be done the Power Cycle.

Register Name	ADDR		Value	
	Hex	Binary	Hex	Binary
-	7Fh	0111 1111b	00h	0000 0000b

(2) Write 80h to Control Register 2 (CNTL2) to initiate the Software Reset, which performs the OTP re-load routine. If the NACK received, the device should be done the Power Cycle.

Register Name	ADDR		Value	
	Hex	Binary	Hex	Binary
CNTL2	19h	0001 1001b	BFh	1011 1111b

(3) Wait 2 msec for completion of the Software Reset.

(4) Read content of WHO AM I register (WHO_AM_I). If read value is same as below, proceed to the next step. If not, the Software Reset has failed and the device should be done the Power Cycle.

Register Name	ADDR		Value	
	Hex	Binary	Hex	Binary
WHO_AM_I	0Fh	0000 1111b	C8h	1100 1000b

In case of the 4-wire SPI Interface

Following the power-up, access following registers.

(1) Write 00h to the Address 7Fh.

Register Name	ADDR		Value	
	Hex	Binary	Hex	Binary
-	7Fh	0111 1111b	00h	0000 0000b

(2) Write 80h to Control Register 2 (CNTL2) to initiate the Software Reset, which performs the OTP re-load routine.

Register Name	ADDR		Value	
	Hex	Binary	Hex	Binary
CNTL2	19h	0001 1001b	BFh	1011 1111b

(3) Wait 2 msec for completion of the Software Reset.

(4) Read content of WHO AM I register (WHO_AM_I). If read value is same as below, proceed to the next step. If not, the Software Reset has failed and the device should be done the Power Cycle.

Register Name	ADDR		Value	
	Hex	Binary	Hex	Binary
WHO_AM_I	0Fh	0000 1111b	C8h	1100 1000b

In case of the 3-wire SPI Interface

Following the power-up, access following registers.

(1) Write 00h to the Address 7Fh.

Register Name	ADDR		Value	
	Hex	Binary	Hex	Binary
-	7Fh	0111 1111b	00h	0000 0000b

(2) Write 80h to Control Register 2 (CNTL2) to initiate the Software Reset, which performs the OTP re-load routine.

Register Name	ADDR		Value	
	Hex	Binary	Hex	Binary
CNTL2	19h	0001 1001b	BFh	1011 1111b

(3) Wait 2 msec for completion of the Software Reset.

(4) Write 11h to INC1 register to set the device into 3-wire SPI mode.

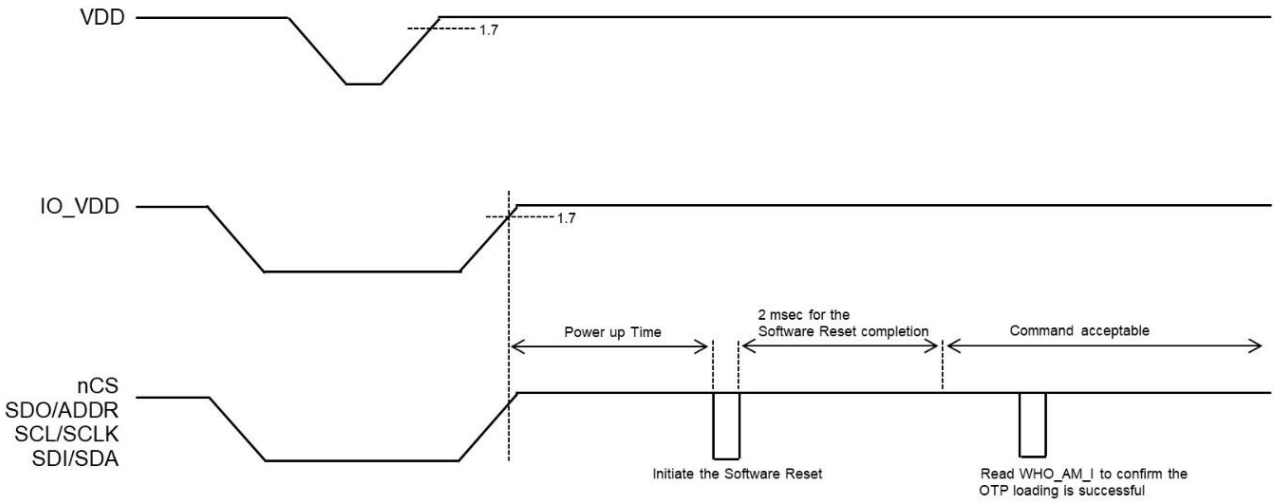
Register Name	ADDR		Value	
	Hex	Binary	Hex	Binary
INC1	1Ch	0001 1100b	11h	0001 0001b

(5) Read content of WHO AM I register (WHO_AM_I). If read value is same as below, proceed to the next step. If not, the Software Reset has failed and the device should be done the Power Cycle.

Register Name	ADDR		Value	
	Hex	Binary	Hex	Binary
WHO_AM_I	0Fh	0000 1111b	C8h	1100 1000b

Software Reset Sequence following Power Up

Following figure shows an example of executing the Software Reset sequence following a power-up. The 2 msec wait time is required for completion of the Software Reset before proceeding.



Revision History

Date	Revision	Changes
7.Sep.2023	001	New Release

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