

Application note

DA9212 Standard Variants Overview

AN-PM-051

Abstract

This application note describes all the register default settings of the DA9212 standard variants.

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1 Variant table and ordering information

Table 1: Variant Table

Part Number	Package	Shipment Form	Pack Quantity	Comments
DA9212-AKUU2	42 WL-CSP	Tape and Reel	5000	

2 DA9212-AKUU2 detailed description

Key settings:

- Default output voltage set to 1.00V
- Maximum allowed output voltage set to 1.31V
- Bucks operate in PWM mode with phase shedding. An automatic transition to low power mode on both Buck A and Buck B must be configured by register write
- GPIO0, GPIO1, GPI4 configuration prepared for input mode
- Buck A enabled by GPIO0 and Buck B enabled by GPI1
- GPIO2 configuration is output push-pull as Buck A power good signal
- GPIO3 configuration is output push-pull as Buck B power good signal
- nIRQ pin configured as open drain
- 2-wire control interface, standard speed

Table 2: Register Settings DA9212-AKUU2 variant

Register Address	Function	Default Value	Description
0x054	MASK_A	0x5F	nIRQ interrupt at GPIO0 to GPI4 and UVLO_IO caused nIRQ are masked
0x055	MASK_B	0x3F	PWRGOOD Buck A & Buck B, TEMP_WARN, TEMP_CRIT, OV_CURR Buck A & OV_CURR Buck B caused event are masked
0x056	CONTROL_A	0x53	GPIO denounce time = 10ms DVC slew rate A = 10mV/us DVC slew rate B = 10mV/us V_LOCK = 0: Allows host writes into registers 0xD0 to 0x14F
0x058	GPIO0-1	0x44	GPIO0: input, active high, denouncing off GPIO1: input, active high, denouncing off
0x059	GPIO2-3	0x77	GPIO2: output, push-pull, active high, sets output passive level GPIO3: output, push-pull, active high, sets output passive level
0x05A	GPI4	0x04	GPI4: input, active high, denouncing off
0x05D	BUCKA_CONT	0x02	Buck A enabled by GPIO0 Enable pull down resistor of Buck A when the buck is disabled Buck output voltage is selected from VBUCKA_A
0x05E	BUCKB_CONT	0x04	Buck B enabled by GPI1 Enable pull down resistor of Buck B when the buck is disabled Buck output voltage is selected from VBUCKB_A
0x0D0	BUCK_ILIM	0x5C	Buck A current limit per phase BUCKA_ILIM=4400mA Buck B current limit per phase BUCKA_ILIM=3000mA (peak current on the inductor)

Register Address	Function	Default Value	Description
0x0D1	BUCKA_CONF	0x92	Buck A always operates in PWM mode Start up control: 20mV/us Down control: 20mV/us
0x0D2	BUCKB_CONF	0x92	Buck A always operates in PWM mode Start up control: 20mV/us Down control: 20mV/us
0x0D3	VBUCK_CONF	0x1F	Buck A in PWM mode, 2 phases are selected and current dependant phase shedding in PWM is enabled Buck B in PWM mode, 2 phases are selected and current dependant phase shedding in PWM is enabled
0x0D5	VBUCKA_MAX	0x65	Buck A max output voltage VBUCKA_MAX = 1.31V
0x0D6	VBUCKB_MAX	0x65	Buck B max output voltage VBUCKB_MAX = 1.31V
0x0D7	VBUCKA_A	0x46	Output voltage VBUCKA_A = 1.00V
0x0D8	VBUCKA_B	0x46	Output voltage VBUCKA_B = 1.00V
0x0D9	VBUCKB_A	0x46	Output voltage VBUCKB_A = 1.00V
0x0DA	VBUCKB_B	0x46	Output voltage VBUCKB_B = 1.00V
0x105	INTERFACE	0xD9	2-wire control interface slave address = 0xD0
0x106	INTERFACE2	0x80	Power management interface is 2-wire, standard speed
0x143	CONFIG_A	0x12	Enabled automatic reset of 2-WIRE interface in case of clock stays low for >35ms nIRQ output port is open drain, active low GPIs are supplied from VDDCORE
0x144	CONFIG_B	0x60	Buck A Power good signal masked during DVC transitions (keep previous status) Buck A Power good signal masked during DVC transitions (keep previous status)
0x145	CONFIG_C	0x00	GPI0, GPI1 and GPI4 : GPI pull down resistors disabled GPIO2 and GPIO3 GPI pull down resistor disabled, GPO pull up resistor disabled
0x146	CONFIG_D	0x90	Select GPIO2 is Buck A PG (POWER GOOD) signal Select GPIO3 is Buck B PG (POWER GOOD) signal
0x147	CONFIG_E	0xC0	DA9212 is stand-alone device (not together with DA9063) No tune of oscillator frequency
0x148	CONFIG_F	0xD0	0xD0 write address of PM 2-WIRE interface (page 0 and 1)

3 DA9212 standard variants comparison

Table 3: Standard variants overview

Register Address	Function	Standard Variant DA9212-					
		AKUU2					
0x054	MASK_A	0x5F					
0x055	MASK_B	0x3F					
0x056	CONTROL_A	0x53					
0x058	GPI0-1	0x44					
0x059	GPI02-3	0x77					
0x05A	GPI4	0x04					
0x05D	BUCKA_CONT	0x02					
0x05E	BUCKB_CONT	0x04					
0x0D0	BUCK_ILIM	0x5C					
0x0D1	BUCKA_CONF	0x92					
0x0D2	BUCKB_CONF	0x92					
0x0D3	BUCK_CONF	0x1F					
0x0D5	VBUCKA_MAX	0x65					
0x0D6	VBUCKB_MAX	0x65					
0x0D7	VBUCKA_A	0x46					
0x0D8	VBUCKA_B	0x46					
0x0D9	VBUCKB_A	0x46					
0x0DA	VBUCKB_B	0x46					
0x105	INTERFACE	0xD9					
0x106	INTERFACE2	0x80					
0x143	CONFIG_A	0x12					
0x144	CONFIG_B	0x60					
0x145	CONFIG_C	0x00					
0x146	CONFIG_D	0x90					
0x147	CONFIG_E	0xC0					
0x148	CONFIG_F	0xD0					

4 Revision history

Revision	Date	Description
1.0	17-Dec-2014	Initial version
1.1	25-Feb-2022	Document rebranded to Renesas.

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