

Design Change Notification

October 28th, 2022

To: Sanyo Denki America Cooling Distributors

Product: BLDC FAN MOTOR _____

Model: San Ace 92 (9GA) 92mm sq. x 25mm thick
(Please refer Attached Sheet for a complete part number list.)

SANYO DENKI CO.,LTD.
Design Dept., Cooling Systems Div.

Approved	Checked	Designed
		

SANYO DENKI America, Inc.
Cooling Systems Division

No.	Contents	Before Change	After Change	Description
1	Motor drive IC, electronic parts, Motor Windings and PWB	Use motor drive IC manufactured by ON-Semiconductor.	Use motor drive IC manufactured by Rohm, Toshiba or Nisshinbo-Micro-Devices.	Change to the motor drive IC due to discontinuation of production by the semiconductor manufacturer. Also change to some electric parts except IC, Motor windings and PWB due to the change of the motor drive IC.
2	Specifications	See the Attached Sheet.	See the Attached Sheet.	
3	Implementation Date			Implementation Date: From March, 2023 production (Estimated). Please note that the changeover schedule to new IC may change according to the number of products in the inventory.

No. A0053343 - Attached Sheet 1 – 1/3

[MODEL LIST]

San Ace 92 (9GA) – 92mm x 25mm thick

MODEL	Change contents
9GA0912J401	Attached Sheet 2
9GA0912J4011	
9GA0912J402	
9GA0912J4021	
9GA0912J403	
9GA0912J404	
9GA0912J405	
9GA0912J407	
9GA0912J4D01	
9GA0912J4D011	
9GA0912G401	
9GA0912G4011	
9GA0912G402	
9GA0912G4021	
9GA0912G4D01	
9GA0912G4D03	
9GA0912G4D04	
9GA0912S401	
9GA0912S4011	
9GA0912S402	
9GA0912S4021	
9GA0912S4031	
9GA0912S405	
9GA0912S406	
9GA0912S4D01	
9GA0912S4D011	
9GA0912S4D03	
9GA0912H401	
9GA0912H4011	
9GA0912H402	
9GA0912H4021	
9GA0912H404	
9GA0912H405	
9GA0912H4D01	
9GA0912H4D011	
9GA0912J401-A01	
1022-116247	

MODEL	Change contents
9GA0912F401	Attached Sheet 3
9GA0912F4011	
9GA0912F402	
9GA0912F4021	
9GA0912F4D01	
9GA0912F4D011	
9GA0912M401	
9GA0912M4011	
9GA0912M402	
9GA0912M4021	
9GA0912M4D01	
9GA0912M4D011	
9GA0912L401	
9GA0912L4011	
9GA0912L402	
9GA0912L4021	
9GA0912L4D01	
9GA0912L4D011	
9GA0912P4J02	Attached Sheet 4
9GA0912P4J03	
9GA0912P4J03-1	
9GA0912P4J031	
9GA0912P4J04	
9GA0912P4J041	
9GA0912P4J05	
9GA0912P4J051	
9GA0912P4J06	
9GA0912P4J061	
9GA0912P4J091	
9GA0912P4J10	
9GA0912P4J11	
9GA0912P4J111	
9GA0912P4J12	
9GA0912P4J121	
9GA0912P4J15	
9GA0912P4J17	
9GA0912P4J18	
9GA0912P4J19	
9GA0912P4J20	
9GA0912P4J21	
9GA0912P4J22	
9GA0912P4J23	
9GA0912P4J03-A01	

No. A0053343 - Attached Sheet 1 – 2/3

[MODEL LIST]

San Ace 92 (9GA) – 92mm x 25mm thick

MODEL	Change contents
9GA0912P4J08 9GA0912P4J09 9GA0912P4J24	Attached Sheet 5
9GA0912P4J16	Attached Sheet 6
9GA0912P4G03 9GA0912P4G031 9GA0912P4G051 9GA0912P4G061 9GA0912P4G071 9GA0912P4G08 9GA0912P4G09 9GA0912P4G10 9GA0912P4GD05 9GA0912P4G03-A01 9GA0912P4G03-A02	Attached Sheet 7
9GA0912P4G04 9GA0912P4G07	Attached Sheet 8
9GA0912P4S03 9GA0912P4S031 9GA0912P4S06 9GA0912P4S09 9GA0912P4S10 9GA0912P4S11 9GA0912P4S12 9GA0912P4S14 9GA0912P4S15 9GA0912P4S17	Attached Sheet 9

MODEL	Change contents
9GA0924J401 9GA0924J4011 9GA0924J402 9GA0924J4021 9GA0924J403 9GA0924J405 9GA0924J4D01 9GA0924J4D03 9GA0924G401 9GA0924G4011 9GA0924G402 9GA0924G4021 9GA0924G4D01 9GA0924G4D03 9GA0924S401 9GA0924S4011 9GA0924S402 9GA0924S4021 9GA0924S403 9GA0924S4D01 9GA0924S4D03 9GA0924S4D04 9GA0924S4D05 9GA0924S4D06 9GA0924S4D07 9GA0924S4D08 9GA0924S4D09 9GA0924H401 9GA0924H4011 9GA0924H402 9GA0924H4021 9GA0924H403 9GA0924H404 9GA0924H405 9GA0924H406 9GA0924H4D01 9GA0924H4D011 9GA0924H4D01-C 9GA0924H4D03 9GA0924H4D04 9GA0924F401 9GA0924F4011 9GA0924F402 9GA0924F4021 9GA0924F4031 9GA0924F4D01 9GA0924F4D011	Attached Sheet 10

No. A0053343 - Attached Sheet 1 – 3/3

[MODEL LIST]

San Ace 92 (9GA) – 92mm x 25mm thick

MODEL	Change contents
9GA0924S4631	
9GA0924W401	
9GA0924W4011	
9GA0924W402	
9GA0924W4021	
9GA0924W4D01	
9GA0924W4D011	
9GA0924M401	
9GA0924M4011	
9GA0924M402	Attached Sheet 11
9GA0924M4021	
9GA0924M4D01	
9GA0924M4D011	
9GA0924L401	
9GA0924L4011	
9GA0924L402	
9GA0924L4021	
9GA0924L4D01	
9GA0924L4D011	

MODEL	Change contents
9GA0924P4J03	
9GA0924P4J031	
9GA0924P4J041	
9GA0924P4J05	
9GA0924P4J06	
9GA0924P4J07	
9GA0924P4J08	
9GA0924P4J13	
9GA0924P4J14	
9GA0924P4J15	
9GA0924P4J16	
9GA0924P4J17	
9GA0924P4J20	Attached Sheet 12
9GA0924P4J22	
9GA0924P4J23	
9GA0924P4G03	
9GA0924P4G031	
9GA0924P4G-3	
9GA0924P4S03	
9GA0924P4S031	
9GA0924P4S05	
9GA0924P4S06	
9GA0924P4J05-A01	
9GA0924P4S03-A02	

No. A0053343 - Attached Sheet 2 - 1/1

[MODEL]

9GA0912J401, 9GA0912J4011, 9GA0912J402, 9GA0912J4021, 9GA0912J403, 9GA0912J404, 9GA0912J405,
 9GA0912J407, 9GA0912J4D01, 9GA0912J4D011,
 9GA0912G401, 9GA0912G4011, 9GA0912G402, 9GA0912G4021, 9GA0912G4D01, 9GA0912G4D03,
 9GA0912G4D04,
 9GA0912S401, 9GA0912S4011, 9GA0912S402, 9GA0912S4021, 9GA0912S4031, 9GA0912S405,
 9GA0912S406, 9GA0912S4D01, 9GA0912S4D011, 9GA0912S4D03,
 9GA0912H401, 9GA0912H4011, 9GA0912H402, 9GA0912H4021, 9GA0912H404, 9GA0912H405
 9GA0912H4D01, 9GA0912H4D011,
 9GA0912J401-A01, 1022-116247

[Contents of change]

		Before change	After change
Motor drive IC	Pulse sensor Or sensor-less type	LB11967	BD6973
	Lock sensor type		BD6974
	Manufacture	On-semiconductor	Rohm
Operating voltage		No change	
Electrical current		No change	
Speed		No change	
Operating temp.		No change	
Sound pressure level		No change	
Control terminal		Non-applicable	
Air flow – static pressure character		No change	
PWM duty cycle - Speed characteristic		Non-applicable	
Sensor spec.		No change	
Life Expectancy		No change	

No. A0053343 - Attached Sheet 3 - 1/1

[MODEL]

9GA0912F401, 9GA0912F4011, 9GA0912F402, 9GA0912F4021, 9GA0912F4D01, 9GA0912F4D011,
 9GA0912M401, 9GA0912M4011, 9GA0912M402, 9GA0912M4021, 9GA0912M4D01, 9GA0912M4D011,
 9GA0912L401, 9GA0912L4011, 9GA0912L402, 9GA0912L4021, 9GA0912L4D01, 9GA0912L4D011

[Contents of change]

		Before Change	After Change
Motor drive IC	Type name	LB11967	TC78B002
	Manufacture	On-semiconductor	Toshiba
Operating voltage		No change	
Electrical current		No change	
Speed		No change	
Operating temp.		No change	
Sound pressure level		No change	
Control terminal		Non-applicable	
Air flow – static pressure character		No change	
PWM duty cycle - Speed characteristic		Non-applicable	
Sensor spec.		No change	
Life Expectancy		No change	

No. A0053343 - Attached Sheet 4 - 1/1

[MODEL]

9GA0912P4J02, 9GA0912P4J03, 9GA0912P4J03-1, 9GA0912P4J031, 9GA0912P4J04, 9GA0912P4J041,
 9GA0912P4J05, 9GA0912P4J051, 9GA0912P4J06, 9GA0912P4J061, 9GA0912P4J091, 9GA0912P4J10,
 9GA0912P4J11, 9GA0912P4J111, 9GA0912P4J12, 9GA0912P4J121, 9GA0912P4J15, 9GA0912P4J17,
 9GA0912P4J18, 9GA0912P4J19, 9GA0912P4J20, 9GA0912P4J21, 9GA0912P4J22, 9GA0912P4J23,
 9GA0912P4J03-A01

[Contents of change]

		Before Change	After Change
Motor drive IC	Type name	LB11967	BD6973
	Manufacture	On-semiconductor	Rohm
Operating voltage		No change	
Electrical current		No change	
Speed		No change	
Operating temp.		No change	
Sound pressure level		No change	
Control terminal		No change	
Air flow – static pressure character		No change	
PWM duty cycle - Speed characteristic		No change	
Sensor spec.		No change	
Life Expectancy		No change	

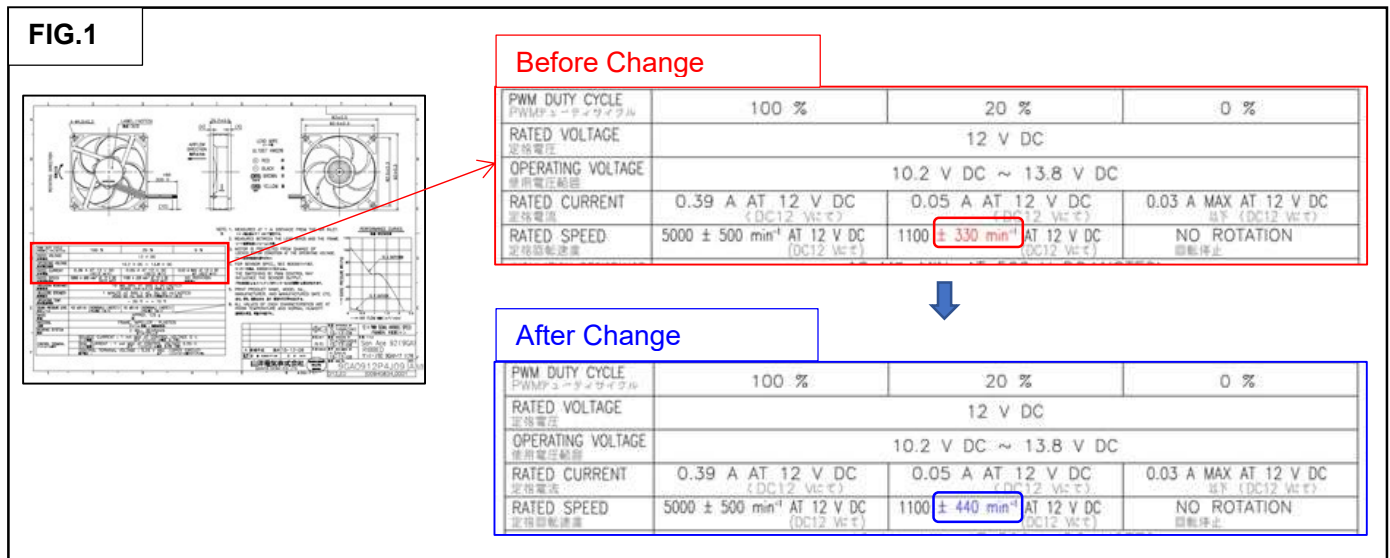
No. A0053343 - Attached Sheet 5 - 1/1

[MODEL]

9GA0912P4J08, 9GA0912P4J09, 9GA0912P4J24

[Contents of change]

		Before Change	After Change
Motor drive IC	Type name	LB11967	BD6973
	Manufacture	On-semiconductor	Rohm
Operating voltage		No change	
Electrical current		No change	
Speed		1100 +/- 330 [min ⁻¹] @ PWM20% Refer to Fig.1	1100 +/- 440 [min ⁻¹] @ PWM20% Refer to Fig.1
Operating temp.		No change	
Sound pressure level		No change	
Control terminal		No change	
Air flow – static pressure character		No change	
PWM duty cycle - Speed characteristic		No change	
Sensor spec.		No change	
Life Expectancy		No change	



No. A0053343 - Attached Sheet 6 - 1/2

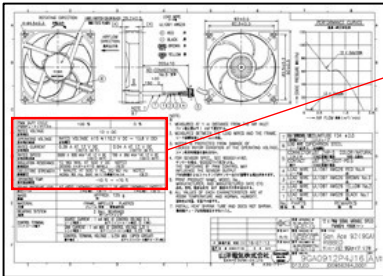
[MODEL]

9GA0912P4J16

[Contents of change]

		Before Change	After Change
Motor drive IC	Type name	LB11967	BD6973
	Manufacture	On-semiconductor	Rohm
Operating voltage		No change	
Electrical current		0.04[A] @ PWM 0% Refer to Fig.1	0.05[A] @ PWM 0% Refer to Fig.1
Speed		700 +/- 350 [min ⁻¹] @ PWM0% Refer to Fig.1	1100 +/- 440 [min ⁻¹] @ PWM0% Refer to Fig.1
Operating temp.		No change	
Sound pressure level		10[dBA(A)] @ PWM 0% Refer to Fig.1	12[dBA(A)] @ PWM 0% Refer to Fig.1
Control terminal		No change	
Air flow – static pressure character		Refer to Fig.2	
PWM duty cycle - Speed characteristic		Refer to Fig.3	
Sensor spec.		No change	
Life Expectancy		No change	

FIG.1



Before Change

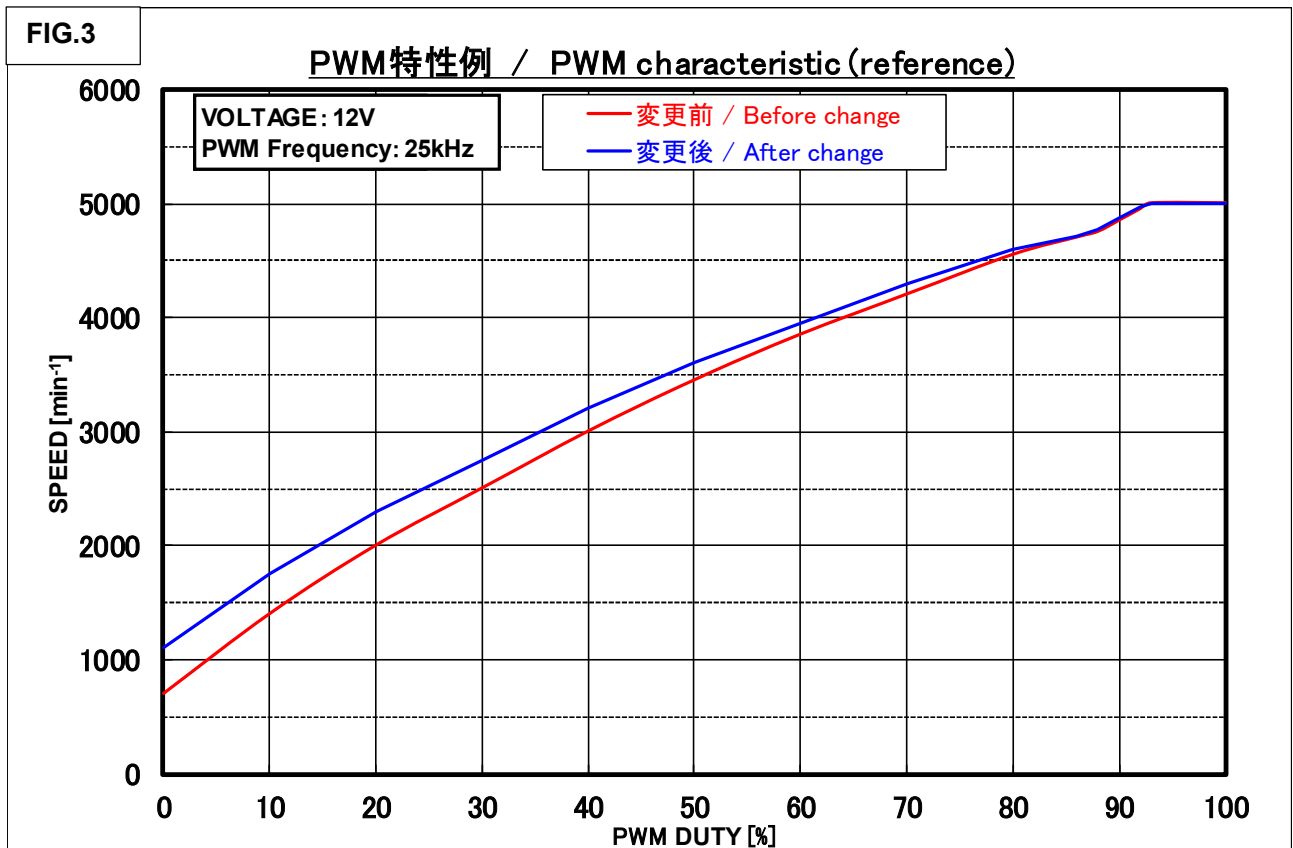
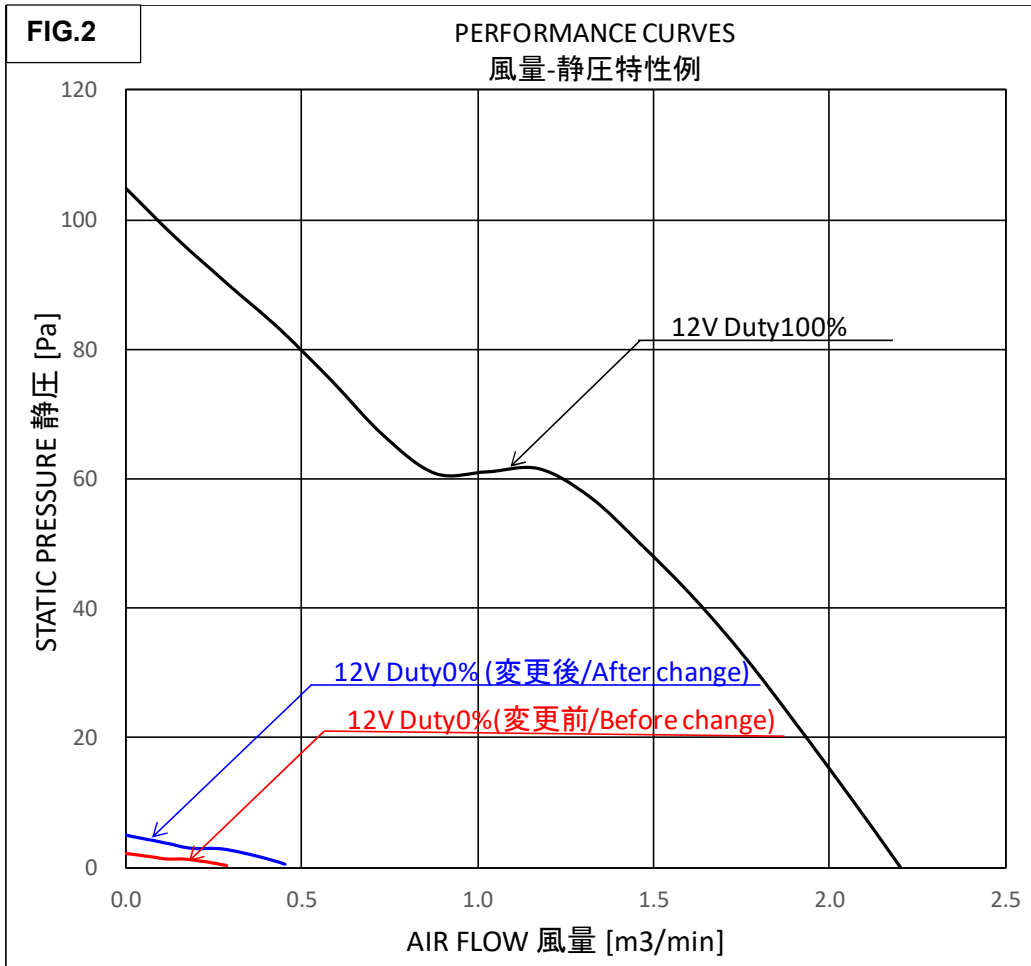
PWM DUTY CYCLE PWMフェーディングサイクル	100 %	0 %
RATED VOLTAGE 定格電圧	12 V DC	
OPERATING VOLTAGE 使用電圧範囲	RATED VOLTAGE ±15 % (10.2 V DC ~ 13.8 V DC)	
RATED CURRENT 定格電流	0.39 A AT 12 V DC (DC12 Vにて)	0.04 A AT 12 V DC (DC12 Vにて)
RATED SPEED 定格回転速度	5000 ± 500 min ⁻¹ AT 12 V DC (DC12 Vにて)	700 ± 350 min ⁻¹ AT 12 V DC (DC12 Vにて)
INSULATION RESISTANCE 絶縁抵抗	10 MΩ MIN. AT 500 V DC NOTE2 DC500 Vノカ-にて10 MΩ以上 (注2)	
DIELECTRIC STRENGTH 絶縁耐圧	1 MINUTE AT 500 V AC, 50/60 Hz NOTE2 AC50/60 Hz, 500 Vにて1分間耐えること (注2)	
OPERATING TEMP. 使用温度範囲	-10 °C ~ +70 °C	
SOUND PRESSURE LEVEL 音圧レベル	43 dB(A) (NOMINAL) (NOTE1) (中心値) (注1)	10 dB(A) (NOMINAL) (NOTE1) (中心値) (注1)

↓

After change

PWM DUTY CYCLE PWMフェーディングサイクル	100 %	0 %
RATED VOLTAGE 定格電圧	12 V DC	
OPERATING VOLTAGE 使用電圧範囲	RATED VOLTAGE ±15 % (10.2 V DC ~ 13.8 V DC)	
RATED CURRENT 定格電流	0.39 A AT 12 V DC (DC12 Vにて)	0.05 A AT 12 V DC (DC12 Vにて)
RATED SPEED 定格回転速度	5000 ± 500 min ⁻¹ AT 12 V DC (DC12 Vにて)	1100 ± 440 min ⁻¹ AT 12 V DC (DC12 Vにて)
INSULATION RESISTANCE 絶縁抵抗	10 MΩ MIN. AT 500 V DC NOTE2 DC500 Vノカ-にて10 MΩ以上 (注2)	
DIELECTRIC STRENGTH 絶縁耐圧	1 MINUTE AT 500 V AC, 50/60 Hz NOTE2 AC50/60 Hz, 500 Vにて1分間耐えること (注2)	
OPERATING TEMP. 使用温度範囲	-10 °C ~ +70 °C	
SOUND PRESSURE LEVEL 音圧レベル	43 dB(A) (NOMINAL) (NOTE1) (中心値) (注1)	12 dB(A) (NOMINAL) (NOTE1) (中心値) (注1)

No. A0053343 - Attached Sheet 6 - 2/2



No. A0053343 - Attached Sheet 7 - 1/1

[MODEL]

9GA0912P4G03, 9GA0912P4G031, 9GA0912P4G051, 9GA0912P4G061, 9GA0912P4G071, 9GA0912P4G08,
 9GA0912P4G09, 9GA0912P4G10,
 9GA0912P4GD05,
 9GA0912P4G03-A01, 9GA0912P4G03-A02

[Contents of change]

		Before Change	After Change
Motor drive IC	Pulse sensor Or sensor-less type	LB11967	BD6973
	Lock sensor type		BD6974
	Manufacture	On-semiconductor	Rohm
Operating voltage		No change	
Electrical current		No change	
Speed		No change	
Operating temp.		No change	
Sound pressure level		No change	
Control terminal		No change	
Air flow – static pressure character		No change	
PWM duty cycle - Speed characteristic		No change	
Sensor spec.		No change	
Life Expectancy		No change	

No. A0053343 - Attached Sheet 8 - 1/2

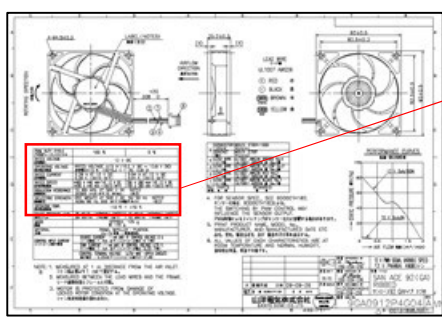
[MODEL]

9GA0912P4G04, 9GA0912P4G07

[Contents of change]

		Before Change	After Change
Motor drive IC	Type name	LB11967	BD6973
	Manufacture	On-semiconductor	Rohm
Operating voltage		No change	
Electrical current		0.04[A] @ PWM 0% Refer to Fig.1	0.05[A] @ PWM 0% Refer to Fig.1
Speed		700 +/- 350 [min ⁻¹] @ PWM0% Refer to Fig.1	1100 +/- 440 [min ⁻¹] @ PWM0% Refer to Fig.1
Operating temp.		No change	
Sound pressure level		10[dBA(A)] @ PWM 0% Refer to Fig.1	12[dBA(A)] @ PWM 0% Refer to Fig.1
Control terminal		No change	
Air flow – static pressure character		Refer to Fig.2	
PWM duty cycle - Speed characteristic		Refer to Fig.3	
Sensor spec.		No change	
Life Expectancy		No change	

FIG.1



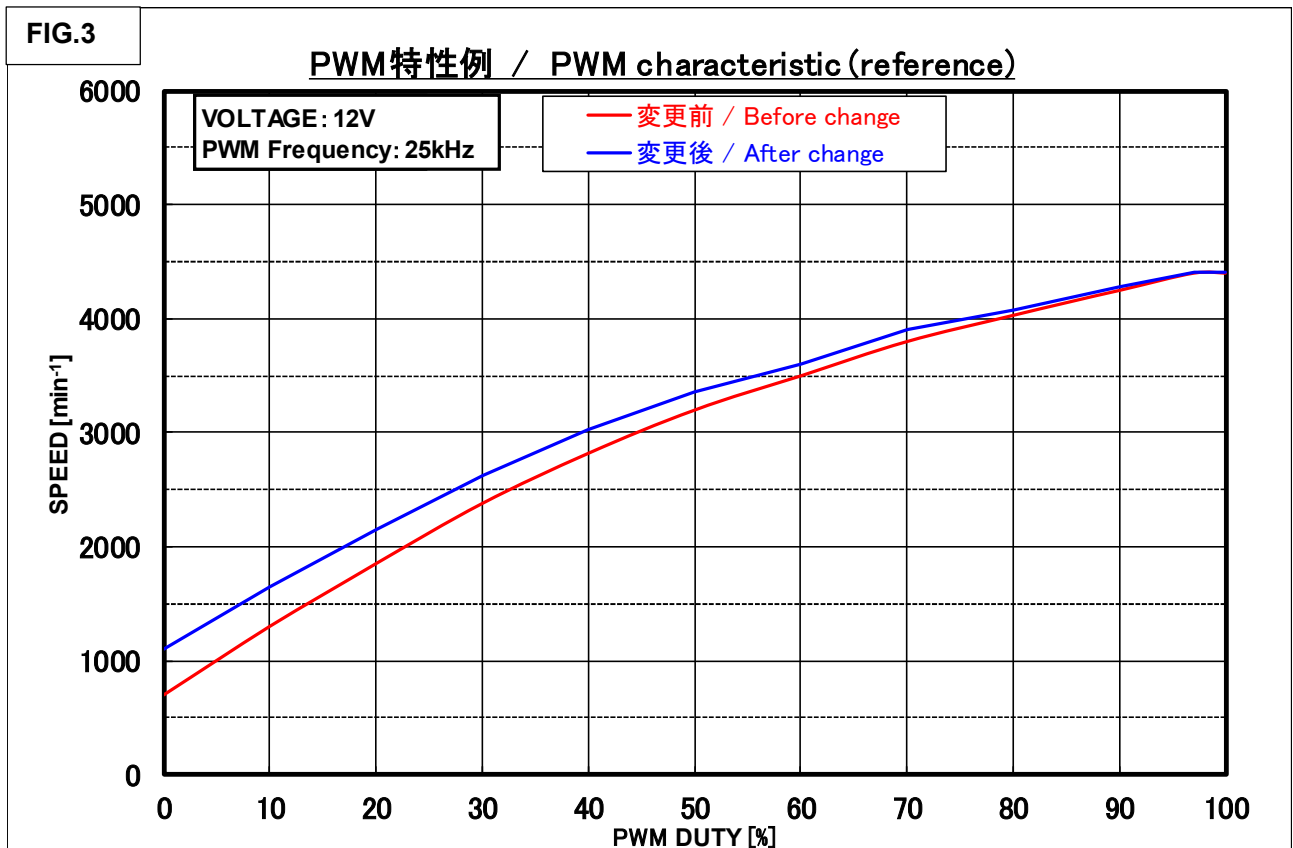
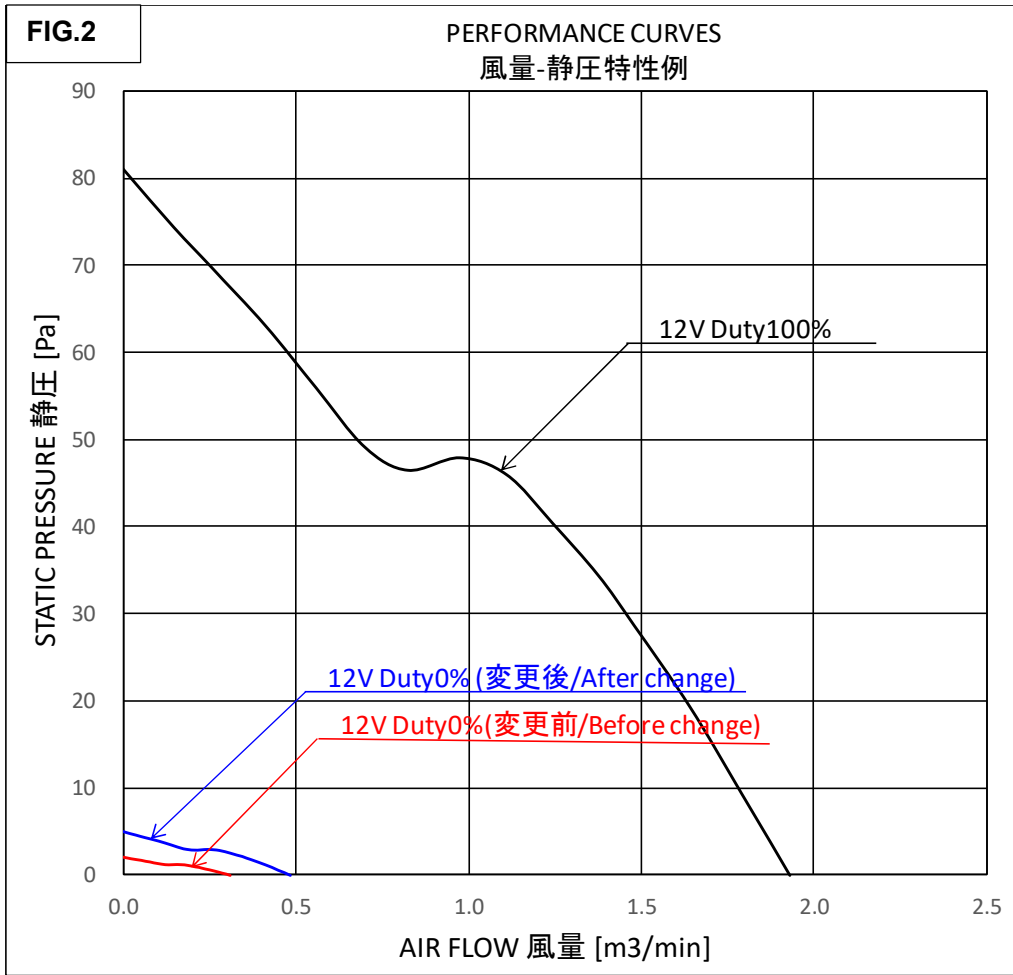
Before Change

PWM DUTY CYCLE PWMパルスデューティサイクル	100 %	0 %
RATED VOLTAGE 定格電圧	12 V DC	
OPERATING VOLTAGE 使用電圧/転回	RATED VOLTAGE ±15 % (10.2 V DC ~ 13.8 V DC)	
RATED CURRENT 定格電流	0.28 A AT 12 V DC (DC12 Vにて)	0.04 A AT 12 V DC (DC12 Vにて)
RATED SPEED 定格回転速度	4400 ± 440 min ⁻¹ AT 12 V DC (DC12 Vにて)	700 ± 350 min ⁻¹ AT 12 V DC (DC12 Vにて)
INSULATION RESISTANCE 絶縁抵抗	10 MΩ MIN. AT 500 V DC; NOTE2 DC500 Vにて10 MΩ以上 (注2)	
DIELECTRIC STRENGTH 絶縁耐圧	1 MINUTE AT 500 V AC, 50/60 Hz; NOTE2 AC50/60 Hz, 500 Vにて1分間耐えること (注2)	
OPERATING TEMP. 使用温度範囲	-10 ℃ ~ +70 ℃	
SOUND PRESSURE LEVEL 騒音レベル	39 dB(A) (NOMINAL) (NOTE1) (中心値) (注1)	10 dB(A) (NOMINAL) (NOTE1) (中心値) (注1)

After Change

PWM DUTY CYCLE PWMパルスデューティサイクル	100 %	0 %
RATED VOLTAGE 定格電圧	12 V DC	
OPERATING VOLTAGE 使用電圧/転回	RATED VOLTAGE ±15 % (10.2 V DC ~ 13.8 V DC)	
RATED CURRENT 定格電流	0.28 A AT 12 V DC (DC12 Vにて)	0.05 A AT 12 V DC (DC12 Vにて)
RATED SPEED 定格回転速度	4400 ± 440 min ⁻¹ AT 12 V DC (DC12 Vにて)	1100 ± 440 min ⁻¹ AT 12 V DC (DC12 Vにて)
INSULATION RESISTANCE 絶縁抵抗	10 MΩ MIN. AT 500 V DC; NOTE2 DC500 Vにて10 MΩ以上 (注2)	
DIELECTRIC STRENGTH 絶縁耐圧	1 MINUTE AT 500 V AC, 50/60 Hz; NOTE2 AC50/60 Hz, 500 Vにて1分間耐えること (注2)	
OPERATING TEMP. 使用温度範囲	-10 ℃ ~ +70 ℃	
SOUND PRESSURE LEVEL 騒音レベル	39 dB(A) (NOMINAL) (NOTE1) (中心値) (注1)	12 dB(A) (NOMINAL) (NOTE1) (中心値) (注1)

No. A0053343 - Attached Sheet 8 - 2/2



No. A0053343 - Attached Sheet 9 - 1/1

[MODEL]

9GA0912P4S03, 9GA0912P4S031, 9GA0912P4S06, 9GA0912P4S09, 9GA0912P4S10, 9GA0912P4S11,
 9GA0912P4S12, 9GA0912P4S14, 9GA0912P4S15, 9GA0912P4S17

[Contents of change]

		Before Change	After Change
Motor drive IC	Type name	LB11967	BD6973
	Manufacture	On-semiconductor	Rohm
Operating voltage		No change	
Electrical current		No change	
Speed		No change	
Operating temp.		No change	
Sound pressure level		No change	
Control terminal		No change	
Air flow – static pressure character		No change	
PWM duty cycle - Speed characteristic		No change	
Sensor spec.		No change	
Life Expectancy		No change	

No. A0053343 - Attached Sheet 10 - 1/1

[MODEL]

9GA0924J401, 9GA0924J4011, 9GA0924J402, 9GA0924J4021, 9GA0924J403, 9GA0924J405,
 9GA0924J4D01, 9GA0924J4D03,
 9GA0924G401, 9GA0924G4011, 9GA0924G402, 9GA0924G4021, 9GA0924G4D01, 9GA0924G4D03,
 9GA0924S401, 9GA0924S4011, 9GA0924S402, 9GA0924S4021, 9GA0924S403, 9GA0924S4D01,
 9GA0924S4D03, 9GA0924S4D04, 9GA0924S4D05, 9GA0924S4D06, 9GA0924S4D07, 9GA0924S4D08,
 9GA0924S4D09,
 9GA0924H401, 9GA0924H4011, 9GA0924H402, 9GA0924H4021, 9GA0924H403, 9GA0924H404,
 9GA0924H405, 9GA0924H406,
 9GA0924H4D01, 9GA0924H4D011, 9GA0924H4D01-C, 9GA0924H4D03, 9GA0924H4D04,
 9GA0924F401, 9GA0924F4011, 9GA0924F402, 9GA0924F4021, 9GA0924F4031,
 9GA0924F4D01, 9GA0924F4D011

[Contents of change]

		Before Change	After Change
Motor drive IC	Pulse sensor Or sensor-less type	LB11967	BD6973
	Lock sensor type		BD6974
	Manufacture	On-semiconductor	Rohm
Operating voltage		No change	
Electrical current		No change	
Speed		No change	
Operating temp.		No change	
Sound pressure level		No change	
Control terminal		Non-applicable	
Air flow – static pressure character		No change	
PWM duty cycle - Speed characteristic		Non-applicable	
Sensor spec.		No change	
Life Expectancy		No change	

No. A0053343 - Attached Sheet 11 - 1/1

[MODEL]

9GA0924S4631,

9GA0924W401, 9GA0924W4011, 9GA0924W402, 9GA0924W4021, 9GA0924W4D01, 9GA0924W4D011,

9GA0924M401, 9GA0924M4011, 9GA0924M402, 9GA0924M4021, 9GA0924M4D01, 9GA0924M4D011,

9GA0924L401, 9GA0924L4011, 9GA0924L402, 9GA0924L4021, 9GA0924L4D01, 9GA0924L4D011

[Contents of change]

		Before Change	After Change
Motor drive IC	Type name	LV8860	NJW4320
	Manufacture	On-semiconductor	Nisshinbo-Micro-Devices
Operating voltage		No change	
Electrical current		No change	
Speed		No change	
Operating temp.		No change	
Sound pressure level		No change	
Control terminal		Non-applicable	
Air flow – static pressure character		No change	
PWM duty cycle - Speed characteristic		Non-applicable	
Sensor spec.		No change	
Life Expectancy		No change	

No. A0053343 - Attached Sheet 12 - 1/1

[MODEL]

9GA0924P4J03, 9GA0924P4J031, 9GA0924P4J041, 9GA0924P4J05, 9GA0924P4J06, 9GA0924P4J07,
 9GA0924P4J08, 9GA0924P4J13, 9GA0924P4J14, 9GA0924P4J15, 9GA0924P4J16, 9GA0924P4J17,
 9GA0924P4J20, 9GA0924P4J22, 9GA0924P4J23, 9GA0924P4G03, 9GA0924P4G031, 9GA0924P4G-3,
 9GA0924P4S03, 9GA0924P4S031, 9GA0924P4S05, 9GA0924P4S06,
 9GA0924P4J05-A01, 9GA0924P4S03-A02

[Contents of change]

		Before Change	After Change
Motor drive IC	Type name	LB11967	BD6973
	Manufacture	On-semiconductor	Rohm
Operating voltage		No change	
Electrical current		No change	
Speed		No change	
Operating temp.		No change	
Sound pressure level		No change	
Control terminal		No change	
Air flow – static pressure character		No change	
PWM duty cycle - Speed characteristic		No change	
Sensor spec.		No change	
Life Expectancy		No change	