

3-phase motor IC

Jun, 2007

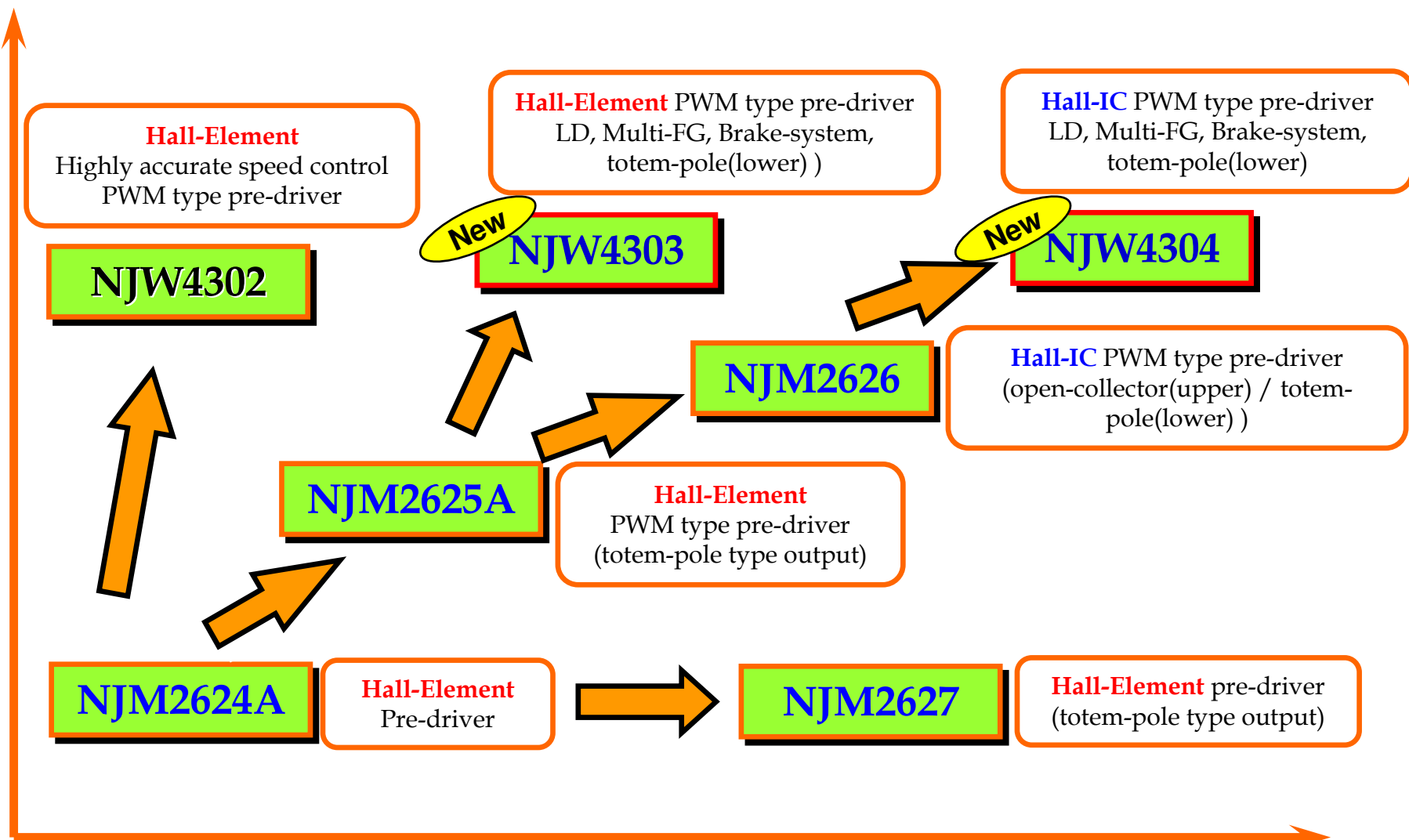
New Japan Radio Co., Ltd.

Marketing Department Section 1

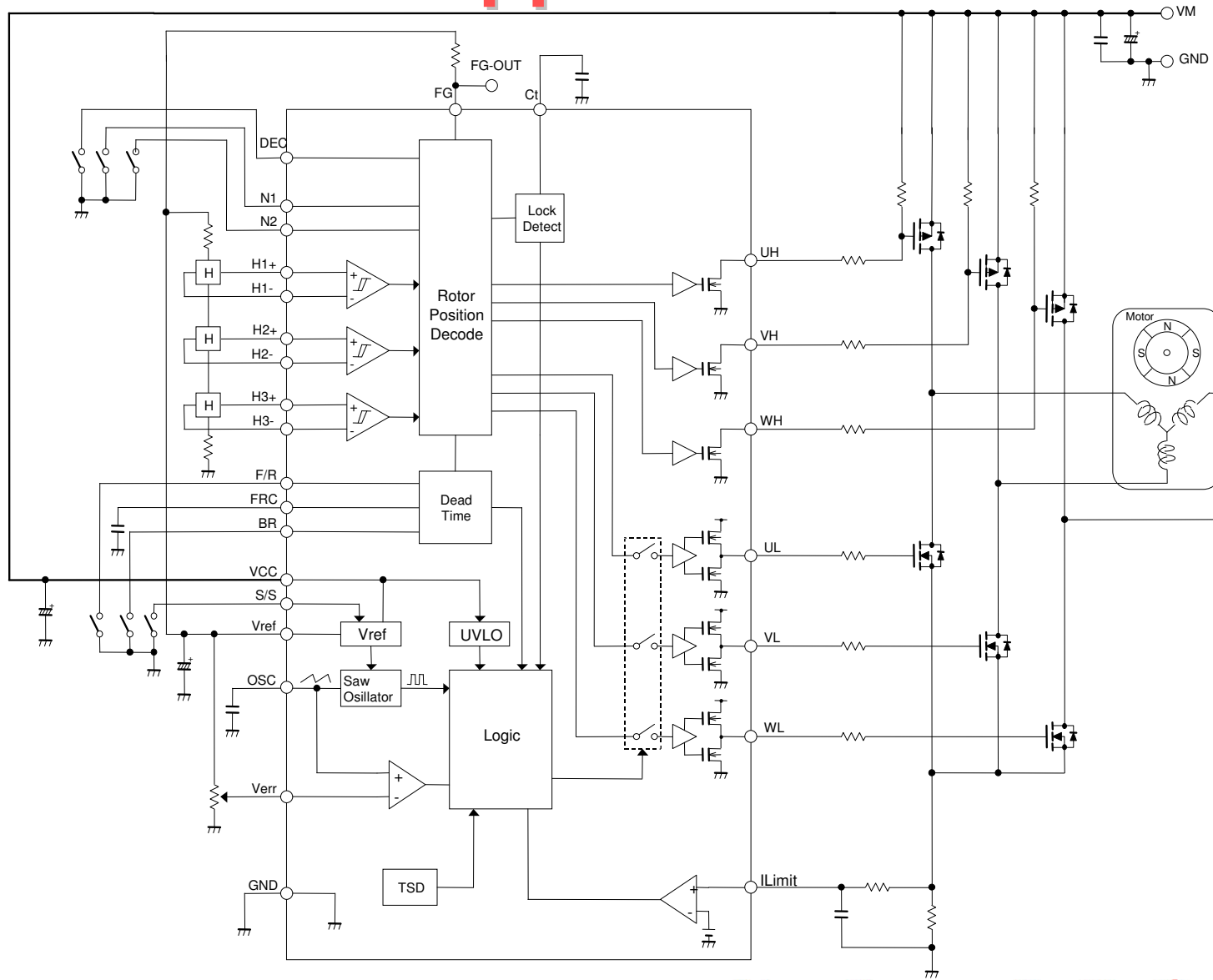
Standard Linear IC Division

New Japan Radio Co., Ltd.

3-Phase DC Brushless Motor IC



NJW4303 Application Circuit



3-phase pre-driver comparison

(Hall element type)

PARAMETER	UNIT	NJW4303V	LB11695M	LB11696V
Technology		BCD	Bipolar	
Maximum Voltage	V	40	20	18
Recommended Voltage	V	7.6-+35.0	8.0-19.0	8.0-17.0
Operating temperature	deg.C	-40-+85	-20-+100	
Package		SSOP32	MFP30SD	SSOP30
Position Detector		Hall Element		
Internal Outputs	Upper	Sink TR	totem-pole	
	Lower	totem-pole		
Speed control		PWM/DC		
Current control		○	○	○
F/R change control		○	○	○
-F/R Dead time		○	○	○
UVLO		○	○	○
Thermal shut down(TSD)		○	○	
Lock Protection		○	○	○
-Auto release		○		○
Rotation signal		FG	FG	FG/RD
-Multi FG		○	○	○
Brake function		○		
120/60 available		○		
Power Save		○	○	○

New NJW4304

DMOS
UD

Hall IC-PWM Type 3-Phase DC Brushless Motor Control IC

Features:

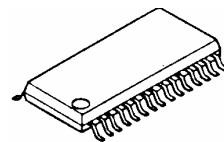
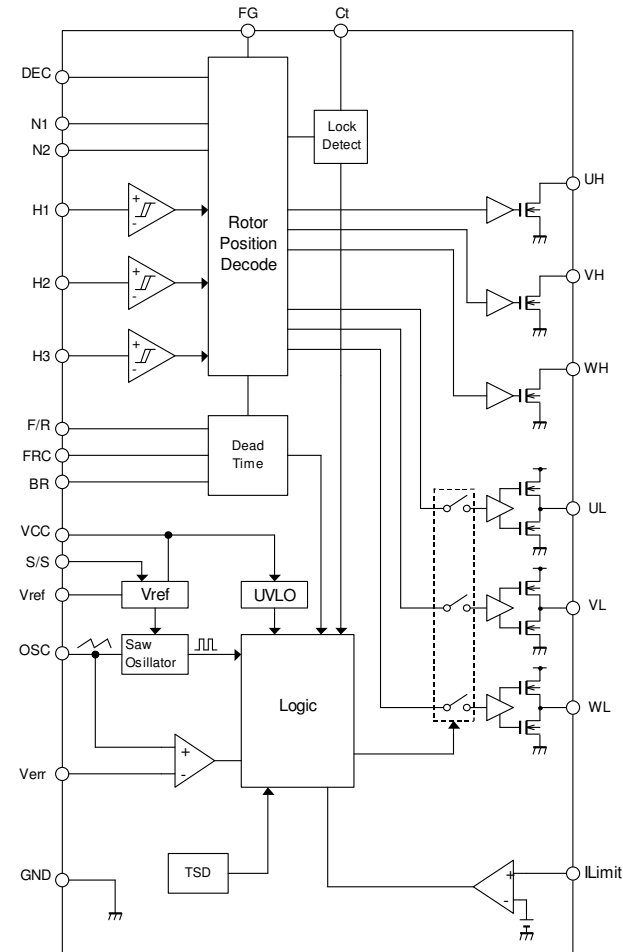
FET direct drive

- Operation voltage range 7 to 35 V
- Low side totem-pole output

Control / Safety Features

- Hall IC Control Type
- PWM control circuit
- Forward / Reverse direction change
- Internal Soft Start
- Brake System
- Lock Detection System
- 120° / 60° Phase Difference Change Function
- Multi - FG Output (2 bit input change type)
- Over current protect
- Thermal Shutdown Circuit

■ BLOCK DIAGRAM

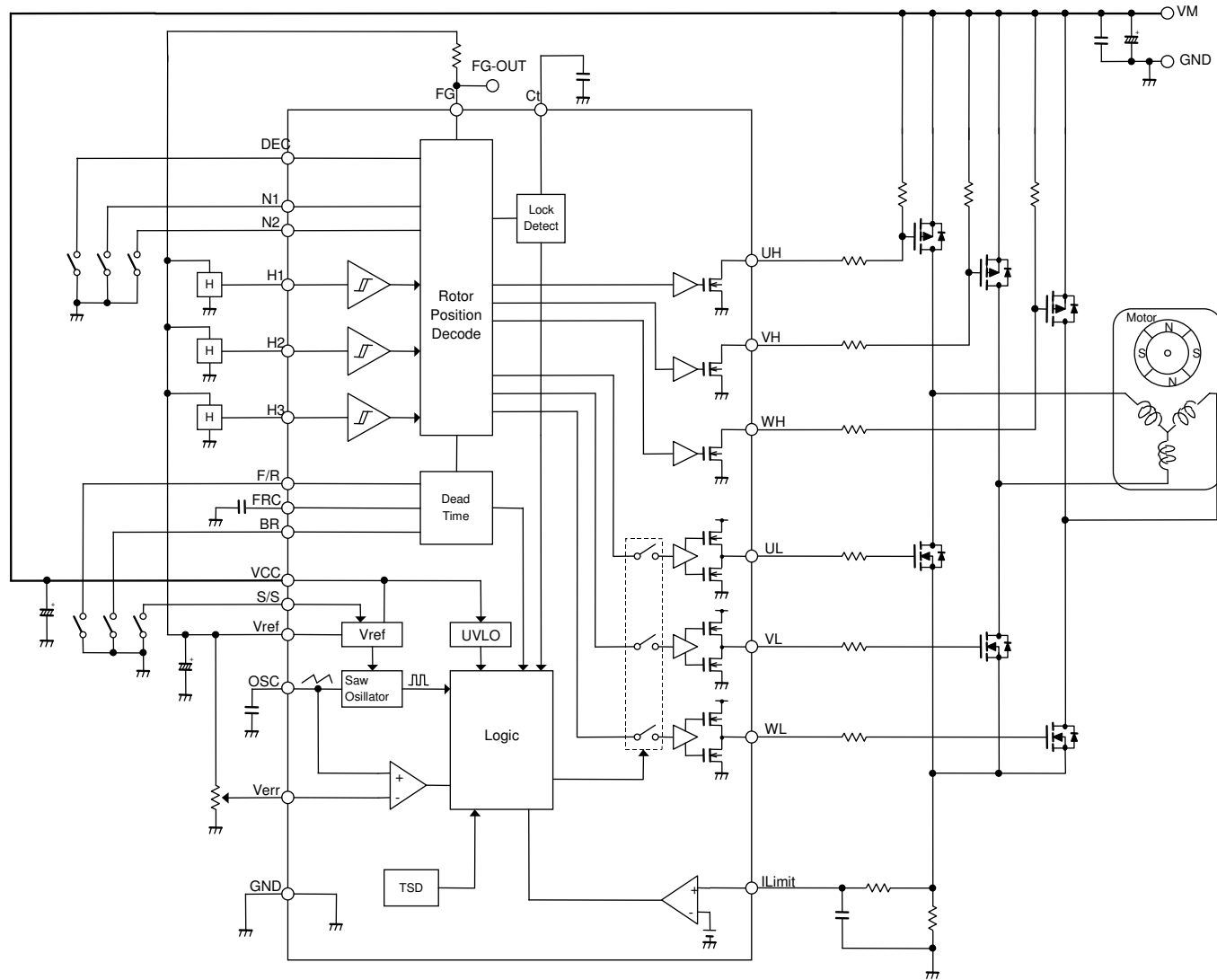


■ PACKAGE OUTLINE

NJW4304V(SSOP32:11.0x7.6xh1.15mm, Pin pitch:0.65mm)

New Japan Radio Co., Ltd.

NJW4304 Application Circuit



3-phase pre-driver comparison

(Hall IC type)

PARAMETER	Unit	NJW4304	MC33035
Technology		BCD	Bipolar
Maximum Voltage	V	40	40
Recommended Voltage	V	7- 35	10 - 35
Operating temperature	deg.C	-40 - +85	
Package		SSOP32	SO24
Position Detector		Hall-IC	
Internal Outputs	Upper	Sink-Tr	
	Lower	Totem-pole	
Speed control		PWM/DC	DC
Current control		○	○
F/R change control		○	○
-F/R Dead time		○	-
UVLO		○	○
Thermal Shut Down (TSD)		○	○
Lock Protection		○	-
-Auto release		○	-
Rotation signal (FG)		○	-
-Multi FG		○	-
Brake function		○	○
120/60 available		○	○

NJM2624A

MP

3-Phase DC Brushless Motor Control IC

Features:

- **Application**

- Hot-water supply system
- 80mm x 80mm over size fan motor

- **5V / 12V operation**

- Voltage range 4.5 to 18 V

- **Control Features**

- ON / OFF switched function (PWM input terminal)
- Forward / Reverse direction change function

■ PACKAGE OUTLINE



NJM2624AD

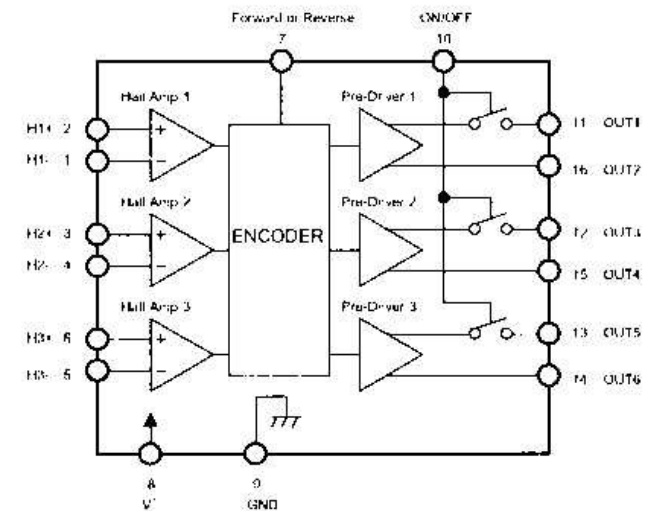


NJM2624AM

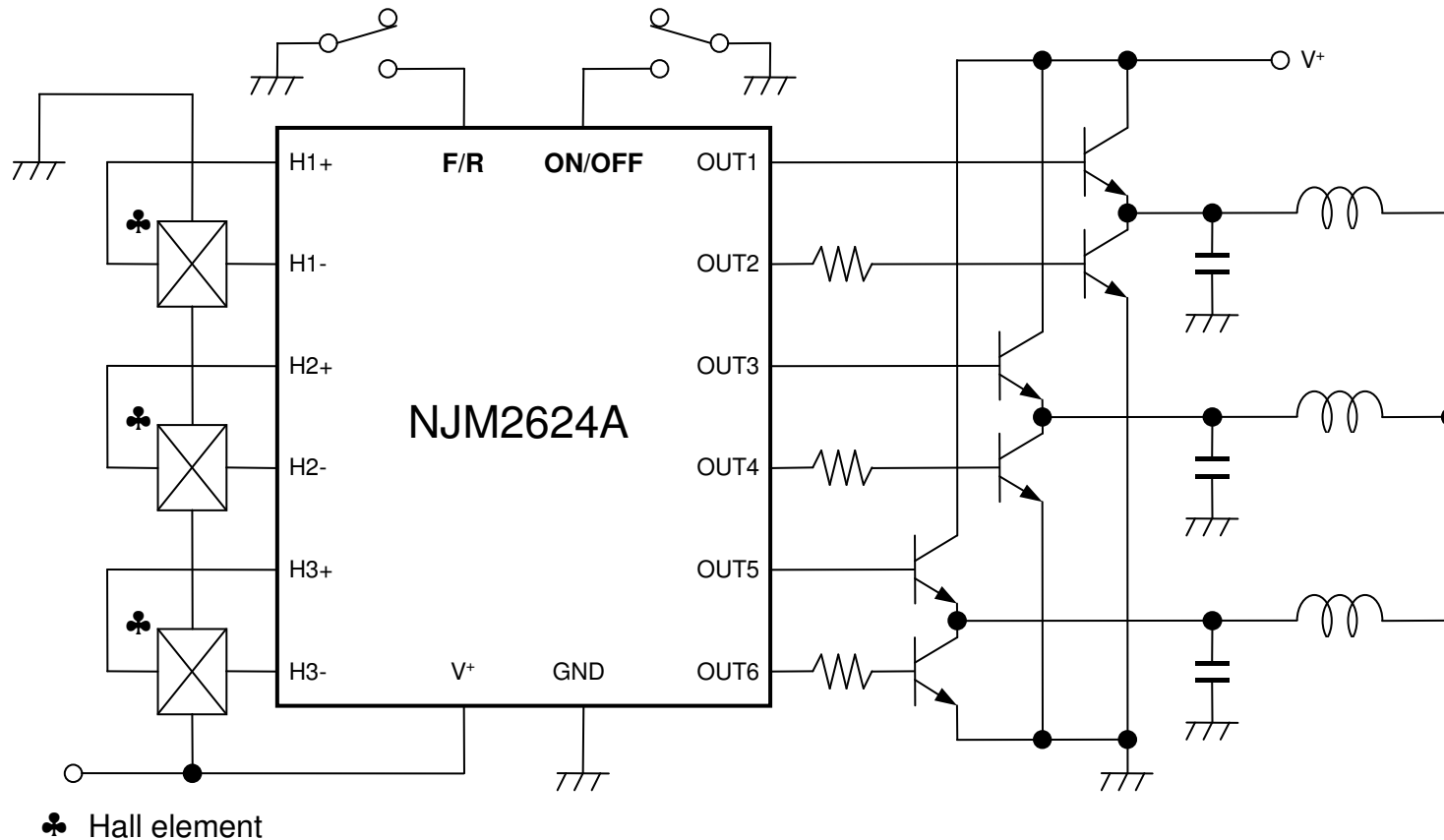


NJM2624AV

■ BLOCK DIAGRAM



NJM2624A Application Circuit



NJM2627

MP

3-Phase DC Brushless Motor Control IC

Features:

- **Application**

- Hot-water supply system
- 80mm x 80mm over size

high flow fan motor

- **FET direct drive**

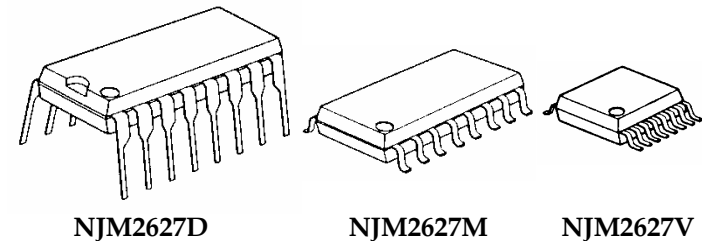
- Operation voltage range 4.5 to 18 V

- **Control Features**

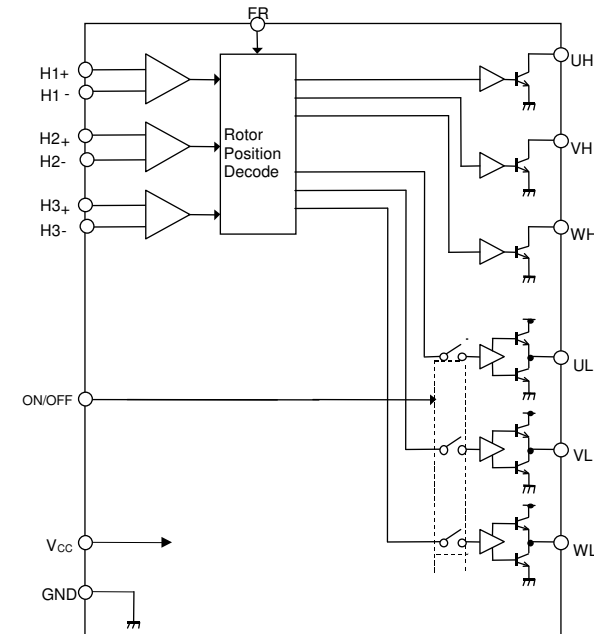
- ON / OFF switched function (PWM input terminal)
- Forward / Reverse direction change function

- **Pin Compatible to NJM2624A**

■ PACKAGE OUTLINE

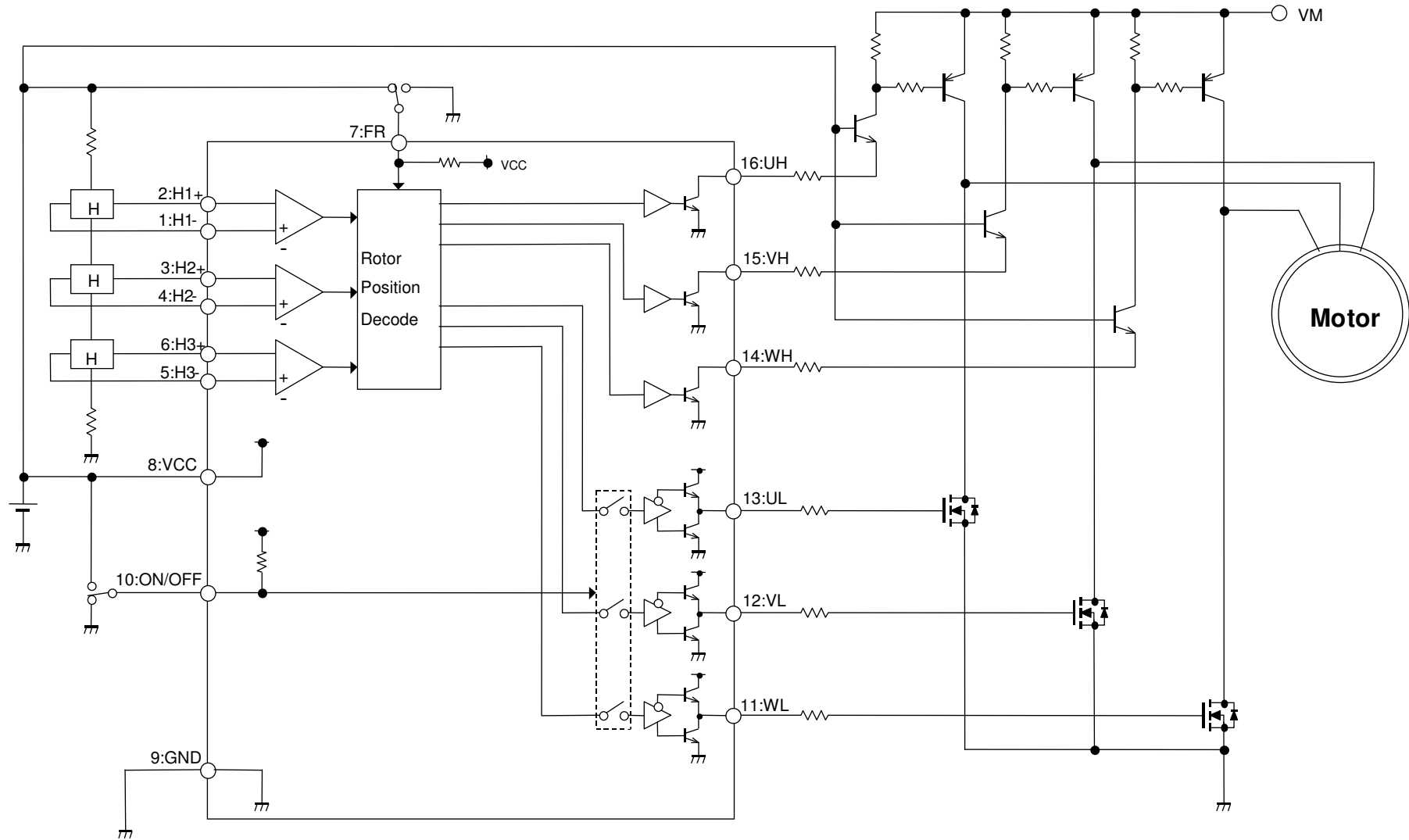


■ BLOCK DIAGRAM



New Japan Radio Co., Ltd.

NJM2627 Application Circuit



NJM2625A

MP

PWM Type 3-Phase DC Brushless Motor Control IC

Features:

• Application

- Water pump system
- Power seat (Car), Air cleaner (Car)
- High flow Fan (80mm x 80mm over size)
- Impact driver

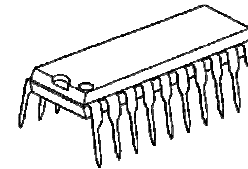
• FET drive

- Operation voltage range 8 to 18 V
- Upper side / Low side totem-pole output

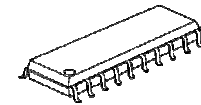
• Control / Safety Features

- PWM control circuit
- FG output
- Forward / reverse direction change function
- Over current protect

■ PACKAGE OUTLINE

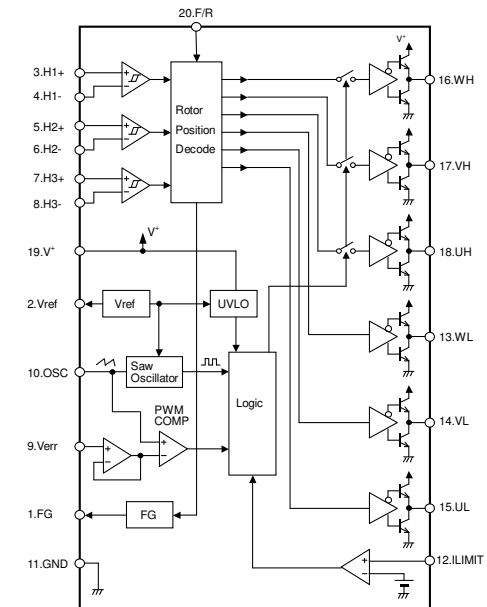


NJM2625AD



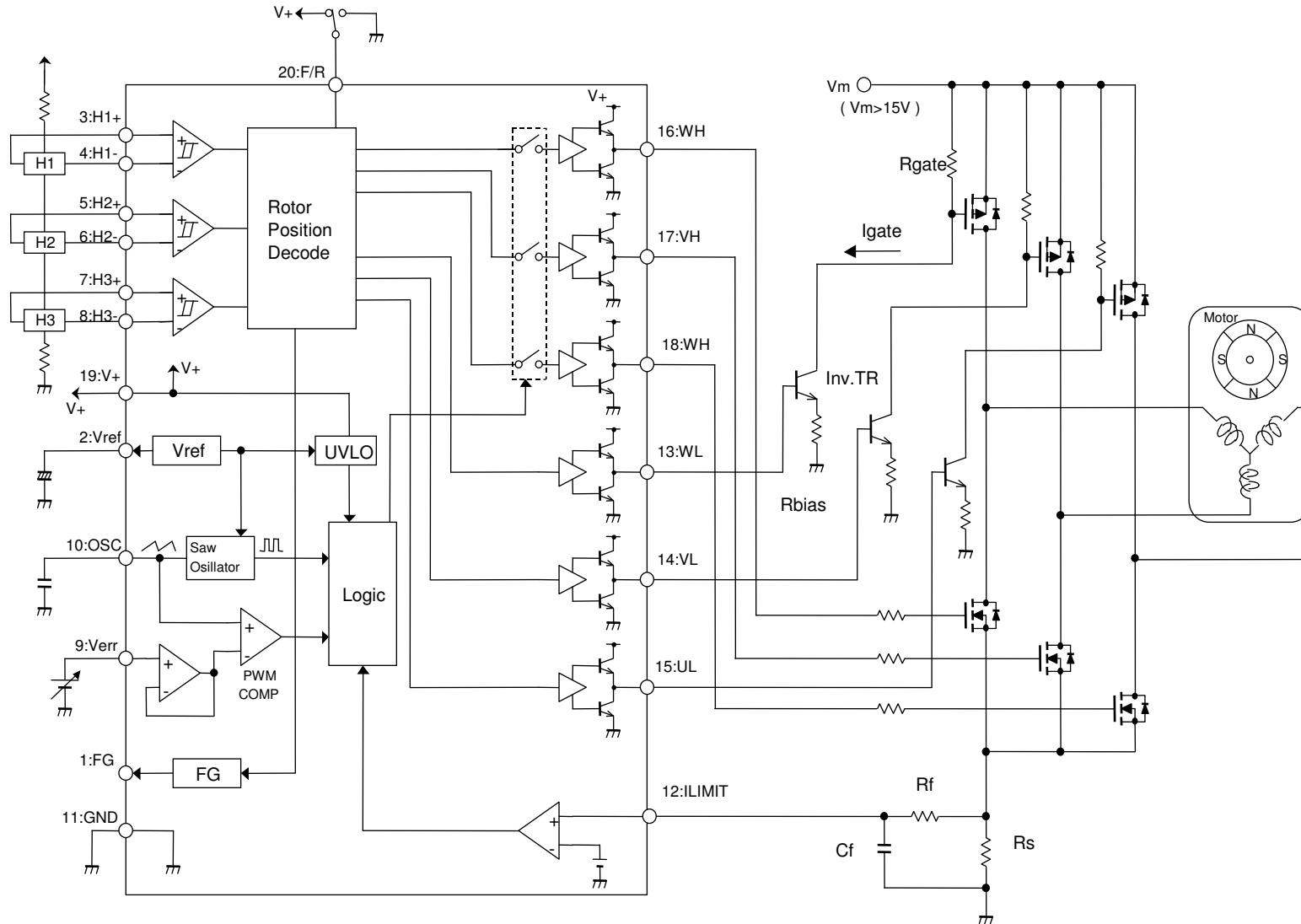
NJM2625AM

■ BLOCK DIAGRAM



New Japan Radio Co., Ltd.

NJM2625A Application Circuit



NJM2626

MP

PWM Type 3-Phase DC Brushless Motor Control IC

Features:

• Application

- Cleaner
- Massage chair
- High flow Fan (80mm x 80mm over size)
- Impact driver

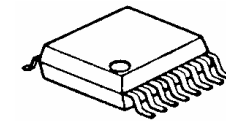
• FET drive

- Operation voltage range 6 to 26 V
- Low side totem-pole output

• Control / Safety Features

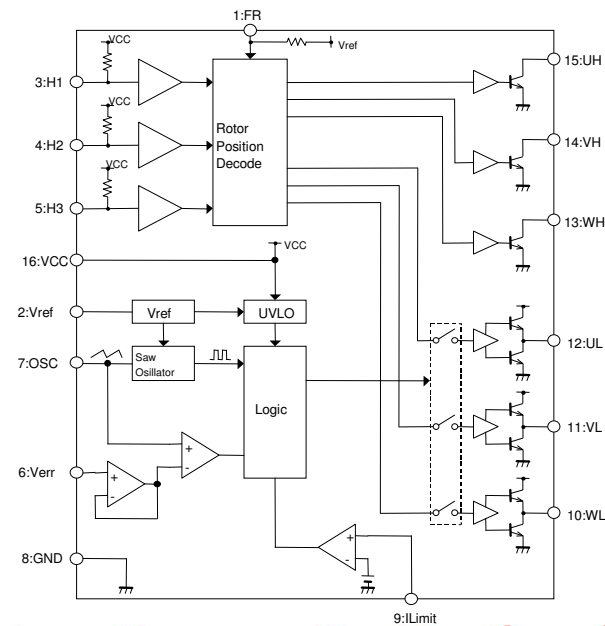
- PWM control circuit
- Forward / Reverse direction change
- Over current protect

■ PACKAGE OUTLINE



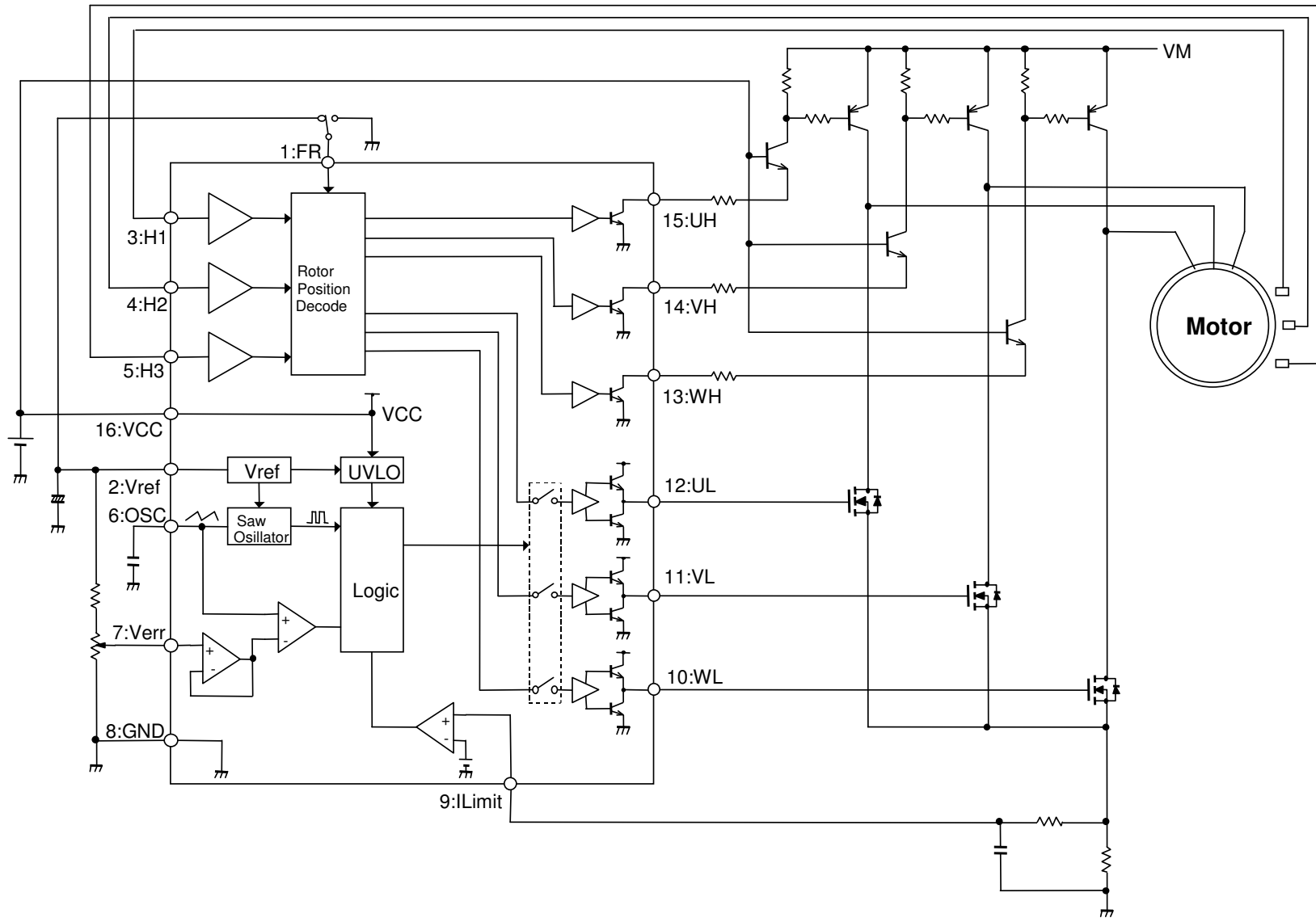
NJM2626V

■ BLOCK DIAGRAM



New Japan Radio Co., Ltd.

NJM2626 Application Circuit



3-PHASE MOTOR IC LINE UP

TYPE	FUNCTION	STATUS
NJM2624A	3-PHASE DC MOTOR CONTROL Pre-DRIVER IC	MP
NJM2625A	PWM TYPE 3-PHASE DC MOTOR CONTROL Pre-DRIVER IC	MP
NJM2626	PWM TYPE 3-PHASE DC MOTOR CONTROL Pre-DRIVER IC (Hall IC Control))	MP
NJM2627	3-PHASE DC MOTOR CONTROL Pre-DRIVER IC	MP
NJW4302	PWM TYPE 3-PHASE DC MOTOR CONTROL Pre-DRIVER IC	MP
NJW4303	PWM TYPE 3-PHASE DC MOTOR CONTROL Pre-DRIVER IC	2007.12 ES
NJW4304	PWM TYPE 3-PHASE DC MOTOR CONTROL Pre-DRIVER IC (Hall IC Control))	2008.04 ES