

NJM2065A/NJM2075A

The NJM2065A is a low-voltage operating DOLBY B·C-type noise reduction processor IC. The NJM2065A is a suitable to the headphone stereo and small cassette tape recorder.

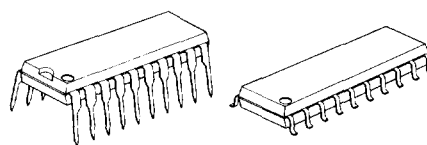
The NJM2075A is 250mVrms decoded output voltage.

■ Package Outline

■ Features

- Low Supply Voltage Operation 1.8~6.0V (NJM2065A)
3.5~6.0V (NJM2075A)
- 20 Pin Small Package
- Minimum External Components
- Internal Switch of NR ON/OFF, ENCODE/DECODE
- Dolby Level

Encode Output Level	100mVrms
Decode Output Level	100mVrms (NJM2065A) 250mVrms (NJM2075A)



NJM2065AD
NJM2075AD

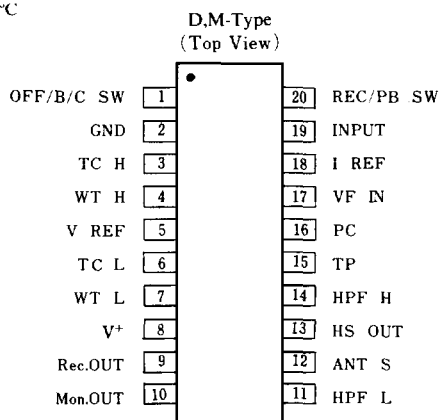
NJM2065AM
NJM2075AM

- (note) 1. The word "DOLBY" and double D mark are trademark of Dolby Laboratory. We can only deliver the NJM2065A/2075A to the licensed customers.
2. Please refer to the application manual issued by Dolby Laboratory.

■ Absolute maximum Ratings (Ta=25°C)

Supply Voltage	V ⁺	6.5V
Power Dissipation	P _D (D-Type) (M-Type)	700mW 350mW
Operating Temperature Range	T _{opr}	-20~+75°C
Storage Temperature Range	T _{stg}	-40~+125°C

■ Connection Diagram



■ **NJM2065A Electrical Characteristics** ($V^+ = 3.0V$, (note 1), $T_a = 25^\circ C$)

Parameter	Symbol	Test Condition				Min.	Typ.	Max.	Unit
		R/P	NR	f(Hz)	Other Condition				
Operating Supply Voltage	V_{ope}					1.8		6	V
Supply Current	I_{cc}	R	OFF		No signal	1.5	3	5	mA
Voltage Gain (REC)	G_{VR}	R	OFF	1k		9	10	11	dB
(MON)	G_{VM}	R	OFF	1k		9	10	11	dB
Encode Characteristics									
B Type (1)	B-1	R	B	5k	0dB	-1.2	0.3	1.8	dB
B Type (2)	B-2	R	B	1.4k	-15dB	0.8	2.3	3.8	dB
B Type (3)	B-3	R	B	1k	-25dB	4.2	5.7	7.2	dB
B Type (4)	B-4	R	B	5k	-30dB	6.7	8.2	9.7	dB
B Type (5)	B-5	R	B	5k	-40dB	9.8	10.3	11.8	dB
C Type (1)	C-1	R	C	5k	0dB	-4.3	-2.3	-0.3	dB
C Type (2)	C-2	R	C	1k	-20dB	3.9	5.9	7.9	dB
C Type (3)	C-3	R	C	500	-30dB	9.8	11.8	13.8	dB
C Type (4)	C-4	R	C	700	-40dB	14.5	16.5	18.5	dB
C Type (5)	C-5	R	C	5k	-60dB	19.4	20.4	22.4	dB
Decode Characteristics									
B Type	B_d	P	B	5k	-30dB		-8.2		dB
C Type	C_d	P	C	1k	-40dB		-16.5		dB
Signal Handling	SH	P	C	1k	THD=1%, $V^+ = 1.8V$	12	13		dB
S/N Ratio (PIN 9)									
C Type	SN_c	R	C		} $R_g = 5.6k\Omega$ CCIR/ARM	60	62		dB
B Type	SN_B	R	B				71		dB
NR OFF	SN_o	R	OFF				78		dB
Total Harmonic Distortion									
NR OFF (REC)	THD1	R	OFF	1k	0dB		0.03	0.2	%
NR OFF (MON)	THD2	P	OFF	1k	0dB		0.03		%
B Type (REC)	THD3	R	B	1k	0dB		0.05		%
B Type (MON)	THD4	P	B	1k	0dB		0.05		%
C Type (REC)	THD5	R	C	1k	0dB		0.09	0.4	%
C Type (MON)	THD6	P	C	1k	0dB		0.08		%
Control Voltage									
REC	V_{ctR}	} Voltage between both terminals of 10k Ω register connected to pin 20				0		0.2	V
PLAY	V_{ctP}					1.6		V^+ (note 2)	V
NR OFF	V_{ctO}	} Voltage between both terminals of 8.2k Ω register connected to pin 1.				1		11.2	V
B Type	V_{ctB}					1.6		V^+ (note 2)	V
C Type	V_{ctC}					0		0.2	V

(note 1): Definition of 0dB DOLBY LEVEL.

Encode Mode: On NR-OFF condition, put 400 Hz input signal to PIN19, and adjust the voltage of PIN15 to 31.6mV. At this condition the voltage of PIN9 is about 100mV which is 0dB.

Decode Mode: On NR-OFF condition, put 400Hz input signal, to PIN19, and adjust the voltage of PIN15 to 31.6mV. At this condition the voltage of PIN10 is about 100mV which is 0dB.

(note 2): The PLAY mode or B TYPE mode is realized by adding voltage between 1.6V and supply voltage to PIN20 or PIN1, or by open condition.

■ NJM2075A Electrical Characteristics ($V^+ = 3.5V$, (note 1), $T_a = 25^\circ C$)

Parameter	Symbol	Test Condition				Min.	Typ.	Max.	Unit
		R/P	NR	f(Hz)	Other Condition				
Operating Supply Voltage	V _{ope}					3.5		6	V
Supply Current	I _{cc}	R	OFF		No signal	1.5	3	5	mA
Voltage Gain (REC)	G _{VR}	R	OFF	1k		9	10	11	dB
(MON)	G _{VM}	R	OFF	1k		16	18	20	dB
Encode Characteristics									
B Type (1)	B-1	R	B	5k	0dB	-1.2	0.3	1.8	dB
B Type (2)	B-2	R	B	1.4k	-15dB	0.8	2.3	3.8	dB
B Type (3)	B-3	R	B	1k	-25dB	4.2	5.7	7.2	dB
B Type (4)	B-4	R	B	5k	-30dB	6.7	8.2	9.7	dB
B Type (5)	B-5	R	B	5k	-40dB	9.8	10.3	11.8	dB
C Type (1)	C-1	R	C	5k	0dB	-4.3	-2.3	-0.3	dB
C Type (2)	C-2	R	C	1k	-20dB	3.9	5.9	7.9	dB
C Type (3)	C-3	R	C	500	-30dB	9.8	11.8	13.8	dB
C Type (4)	C-4	R	C	700	-40dB	14.5	16.5	18.5	dB
C Type (5)	C-5	R	C	5k	-60dB	19.4	20.4	22.4	dB
Decode Characteristics									
B Type	B _d	P	B	5k	-30dB		-8.2		dB
C Type	C _d	P	C	1k	-40dB		-16.5		dB
Signal Handling	SH	P	C	1k	THD=1%, V ⁺ =3.5V	12	13		dB
S/N Ratio (PIN 9)									
C Type	SN _c	R	C		} R _g =5.6kΩ CCIR/ARM	60	62		dB
B Type	SN _B	R	B				71		dB
NR OFF	SN _o	R	OFF				78		dB
Total Harmonic Distortion									
NR OFF (REC)	THD1	R	OFF	1k	0dB		0.03	0.2	%
NR OFF (MON)	THD2	P	OFF	1k	0dB		0.03		%
B Type (REC)	THD3	R	B	1k	0dB		0.05		%
B Type (MON)	THD4	P	B	1k	0dB		0.05		%
C Type (REC)	THD5	R	C	1k	0dB		0.09	0.4	%
C Type (MON)	THD6	P	C	1k	0dB		0.08		%
Control Voltage									
REC	V _{c1R}	}	Voltage between both terminals of 10kΩ register connected to pin 20			0		0.2	V
PLAY	V _{c1P}					1.6		V ⁺ (note 2)	V
NR OFF	V _{c1O}	}	Voltage between both terminals of 8.2kΩ register connected to pin 1.			1		1.2	V
B Type	V _{c1B}					1.6		V ⁺ (note 2)	V
C Type	V _{c1C}					0		0.2	V

(note 1): Definition of 0dB DOLBY LEVEL.

Encode Mode: On NR-OFF condition, put 400 Hz input signal to PIN19, and adjust the voltage of PIN15 to 31.6mV. At this condition the voltage of PIN9 is about 100mV which is 0dB.

Decode Mode: On NR-OFF condition, put 400Hz input signal, to PIN19, and adjust the voltage of PIN15 to 31.6mV. At this condition the voltage of PIN10 is about 100mV which is 0dB.

(note 2): The PLAY mode or B TYPE mode is realized by adding voltage between 1.6V and supply voltage to PIN 20 or PIN 1, or by open condition.

■ Block Diagram and Basic Application

