DIGITAL AUDIO

Digital Volume

YM3615B DVR

■ OUTLINE

The YM3615B (DVR) is an LSI developed by Yamaha for the control of digital volume in digital audio applications. This LSI can be connected with practically all MSB-first 16-bit LSIs in CD player systems and is provided with digital volume functions over a 330-step range from a minimum level of −66 dB in 0.2 dB steps.

■ FUNCTIONS

- Log-linear digital volume functions can be created by simply supplying pulses to the UP and DOWN terminals.
- Input consists of MSB-first DAC signals to 1DAC, and can be connected to the step level of 96 or 98 steps per 1DAC cycle or up the level of four-times oversampling data.

YM3815-H	Q OUT output
YM3613C	DO output
YM3623B	DO output
YM3404B	DLO output (1DAC output)

Connection is also possible with signals that allow connection with the DAC of other manufacturers.

- Output can be directly connected to PCM56 of Burr-Brown
- Its minimum levels −8 dB and log-linear characteristics are porvided for 300 steps in 0.2 dB units over a range from −65.8 dB (the minimum level preceding the first step) to 0 dB.

■ ELECTRICAL CHARACTERISTICS

1 Absolute Maximum Ratings

Item	Symbol	Min.	Max.	Unit
Supply voltage	V_D	−0.3	7.0	V
Input voltage	Vi	V_{SS}−0.3	V_{DD}+0.5	V
Operating Temperature	Top	0	+70	℃
Storage temperature	Tstg	−50	+125	℃

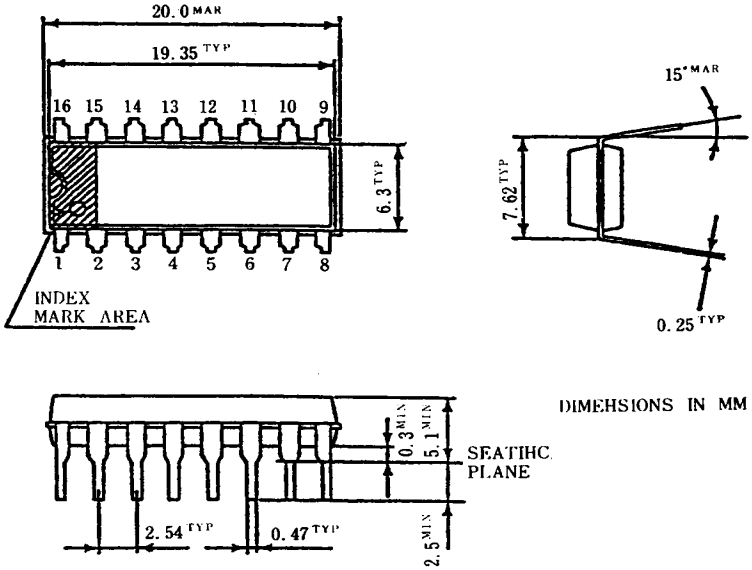
2 Recommended Operating Conditions

Item	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	V_{DD}	4.75	5.00	5.25	V
Operating temperature	Top	0	25	70	℃

3 Electrical Characteristics

Item	Symbol	Terms	Min.	Typ.	Max.	Unit
Clock frequency	fc	(BCI input)			9.216	MHz
Low-level input voltage	VIL		0		0.4	V
High-level input voltage	VIH	(Excluding M0,M1)	2.4		V_{DD}	V
Hight-level input voltage	VIH	M0,M1	4.0		V_{DD}	V
Low-level output voltage	VOL		0		0.4	V
High-level output voltage	VOH		2.4		V_{DD}	V
DATA set-up time	Tset	(DLI SRI WCI)	50			nSec
DATA hold time	THLD	(DLI DRI WCI)	15			NSec
Clock ON time	TCLH	(BCI)	40			nSec
Clock OFF time	TCLL	(BCI)	40			nSec
Output delay time		(DLO, DRO)	0	45	45	nSec
Output delay time		AD4, AD1)		100	100	nSec
Output capacity				50	50	PF
UP/DOWN terminal ON time			BCI × 2 clocks			—
UP/DOWN terminal OFF time			BCI × 2 clocks			—

■ OUTLINE DIMENSIONS



DIMEHSIONS IN MM

■ BLOCK DIAGRAM