

LR36683N

Vertical Driver LSI for CCD

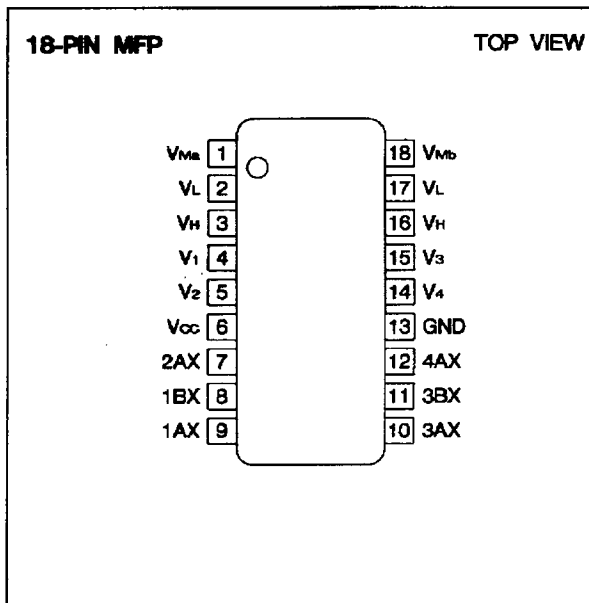
DESCRIPTION

The LR36683N is a vertical clock driver designed for use with CCD area sensors. The driver transforms voltage levels from CMOS level (0 to 5 V) to 27 Vp-p (MAX.) and impedance conversion.

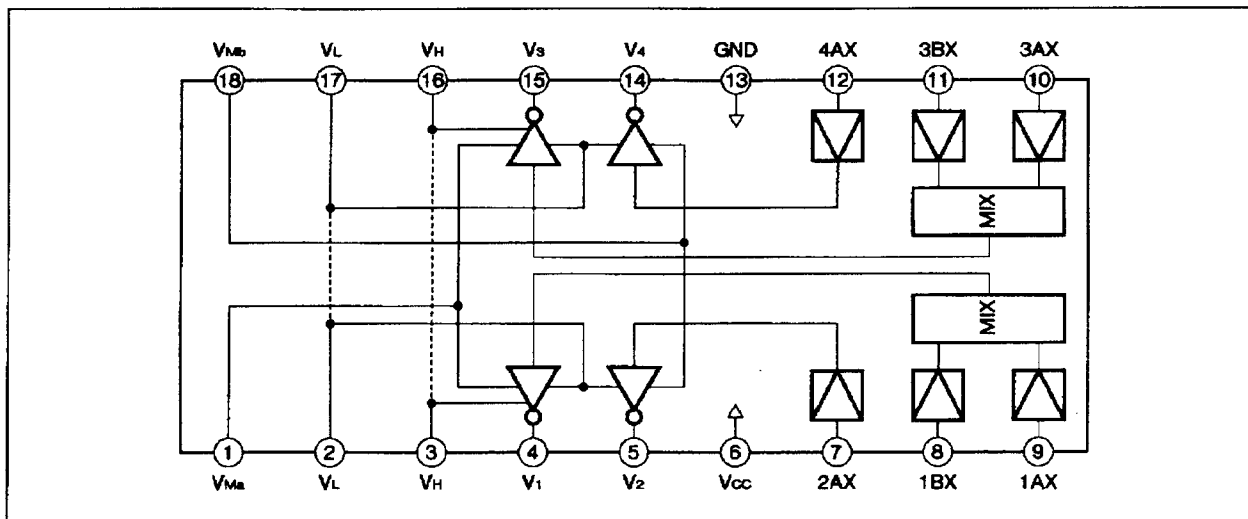
FEATURES

- Two bi-level output circuits
Two tri-level output circuits
- Supply voltage : $V_{CC}=5.0$ V (TYP.)
 $V_H-V_L=27$ Vp-p (MAX.)
 $V_H=20.0$ V (MAX.)
 $V_L=-5.0$ V (MAX.)
 $V_M=0$ to 4.0 V (independently controllable with bi- or tri-level outputs)
- Switchable between NTSC (EIA) and PAL (CCIR) systems
- Package : 18-pin MFP(MFP018-P)

PIN CONNECTIONS



BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNIT	NOTE
Supply voltage	V_{CC}	$V_{SS} - 0.3 \text{ V}$ to $V_{SS} + 6.0$	V	1
	$V_H - V_L$	29.0		
	V_{Ma}, V_{Mb}	V_L to V_H		
Input voltage	$V_{IN} V_{SS}$	-0.3 to $V_{CC} + 0.3$	V	
DC load current	I_{OCC}	± 3	mA	
Power dissipation	P_D	300 (70°C)	mW	
Storage temperature	T_{stg}	-55 to $+150$	°C	

NOTE :

1. V_H (MIN.) = V_{CC} , V_L (MAX.) = GND

AC CHARACTERISTICS

($V_{CC} = 5.0 \text{ V}$, $V_H = 15.0 \text{ V}$, $V_L = -9.0 \text{ V}$, $V_{Ma} = V_{Mb} = 0$ to 4 V , $T_a = -20$ to 70°C)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_M level transition raise delay	t_{TRM}	V_{IN} to $V_L \rightarrow V_M - 1.0 \text{ V}$ Applied to $V_1 - V_4$		600	1200	ns
V_L level transition fall delay	t_{TFL}	V_{IN} to $V_M \rightarrow V_L + 1.0 \text{ V}$ Applied to $V_1 - V_4$		600	1200	ns
V_H level transition raise delay	t_{TRH}	V_{IN} to $V_M \rightarrow V_H - 1.0 \text{ V}$ Applied to V_1 and V_3		600	1200	ns
V_M level transition fall delay	t_{TFM}	V_{IN} to $V_H \rightarrow V_M + 1.0 \text{ V}$ Applied to V_1 and V_3		600	1200	ns
Supply current	I_{DYN}	During operation		9	18	mA

NOTES :

- The maximum applicable voltage on any pin with respect to GND.
- Referenced to the "TIMING DIAGRAM".
- Applied to "EQUIVALENCE CIRCUIT".
- Applied to "PRECAUTION" 1 and 3.

DC CHARACTERISTICS

($V_{CC}=5.0$ V, $V_H=15.0$ V, $V_L=-9.0$ V, $V_{Ma}=V_{Mb}=0$ to 4 V, referenced to GND,
 $T_a=-20$ to 70°C)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT	NOTE
Low level input voltage	V_{IL}		0		1.0	V	
High level input voltage	V_{IH}		4.0		5.0	V	
Low level input current	$ I_{IH} $	$V_{IL}=0$ V			1.0	μA	
High level input current	$ I_{IH} $	$V_{IH}=5$ V			1.0	μA	
Low level output voltage	V_{OL}	$I_{OL}<1$ μA			-8.95	V	
High level output voltage	V_{OH}	$I_{OH}<1$ μA	14.95			V	2
INTERmediate level output voltage	V_{OMLa}	$I_{OMLa}<1$ μA	-0.05			V	2
	V_{OMHa}	$I_{OMHa}<1$ μA			0.05	V	2
	V_{OMLb}	$I_{OMLb}<1$ μA	-0.05			V	1
	V_{OMHb}	$I_{OMHb}<1$ μA			0.05	V	1
Low level output current	I_{OL}	$V_{OL}=V_L+0.1$ V	1.0			mA	
High level output current	I_{OH}	$V_{OH}=V_H-0.1$ V	1.0			mA	2
INTERmediate-level output current	I_{OMLa}	$V_{OMLa}=V_M-0.1$ V	1.0			mA	2
	I_{OMHa}	$V_{OMHa}=V_M+0.1$ V	1.0			mA	2
	I_{OMLb}	$V_{OMLb}=V_M-0.1$ V	1.0			mA	1
	I_{OMHb}	$V_{OMHb}=V_M+0.1$ V	1.0			mA	1
Output on resistance	R_{ONH}	$I_{OH}=30$ mA		20		Ω	2
	R_{ONM}	$I_{OH}=30$ mA		20		Ω	
	R_{ONL}	$I_{OH}=30$ mA		20		Ω	
Static current	I_{CC}				200	μA	
	I_H				200	μA	
	I_M				200	μA	
	I_L				200	μA	

- The current must be specified with the absolute value.
- Applied to "PRECAUTION" 1 and 3.

NOTES :

1. Applied to pins V_2 and V_4 .
2. Applied to pins V_1 and V_3 .

CCD sensor imaging area sensor pattern recognition timing generator vertical driver white balance