

LR36683N

Vertical Driver LSI for CCD

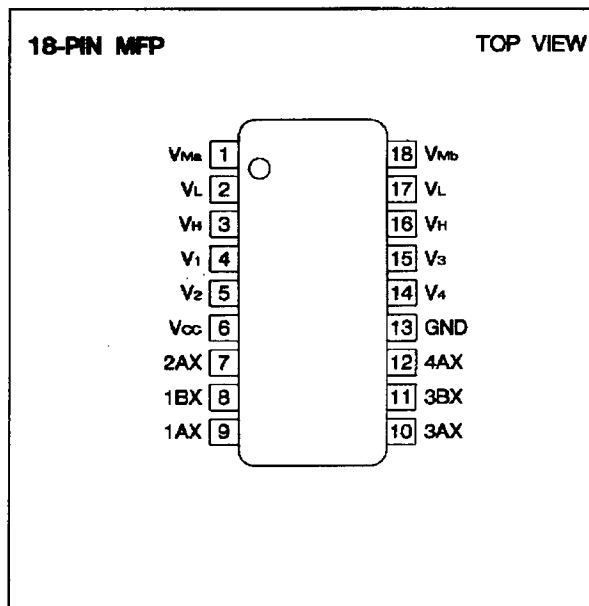
DESCRIPTION

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.

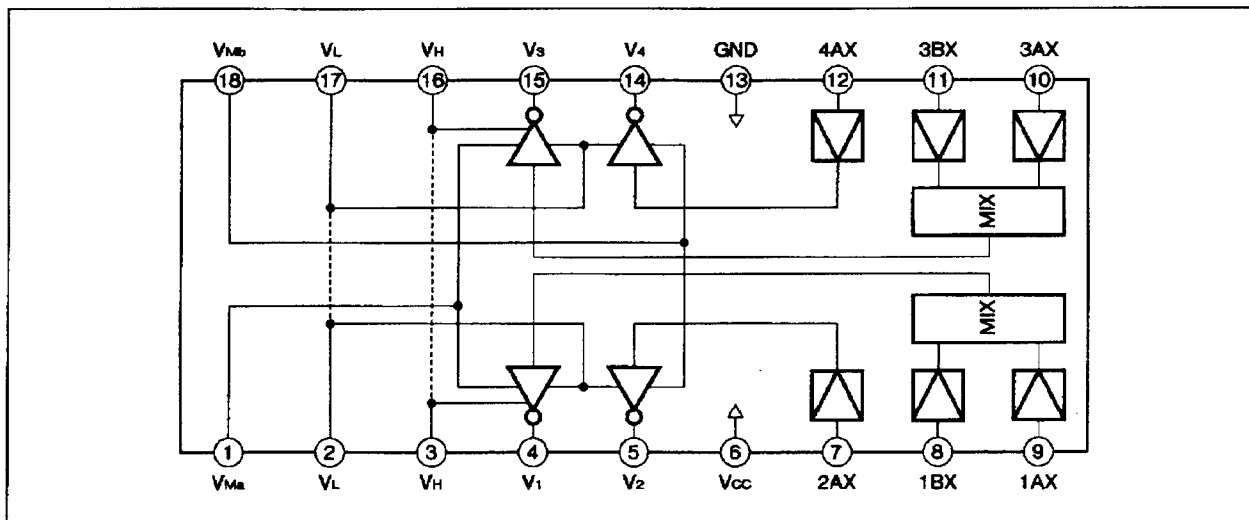
FEATURES

- 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 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 _{CC}	±3	mA	
Power dissipation	P _D	300 (70°C)	mW	
Storage temperature	T _{stg}	-55 to +150	°C	

NOTE :

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

AC CHARACTERISTICS

(V_{CC}=5.0 V, V_H=15.0 V, V_L=-9.0 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 →V _M -1.0 V Applied to V ₁ -V ₄		600	1200	ns
V _L level transition fall delay	t _{TRL}	V _{IN} to V _M →V _L +1.0 V Applied to V ₁ -V ₄		600	1200	ns
V _H level transition raise delay	t _{TRH}	V _{IN} to V _M →V _H -1.0 V Applied to V ₁ and V ₃		600	1200	ns
V _M level transition fall delay	t _{TRM}	V _{IN} to V _H →V _M +1.0 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

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

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} $	$V_{IL}=0\text{ V}$			1.0	μA	
High level input current	$ I_{IH} $	$V_{IH}=5\text{ V}$			1.0	μA	
Low level output voltage	V_{OL}	$I_{OL}<1\ \mu\text{A}$			-8.95	V	
High level output voltage	V_{OH}	$I_{OH}<1\ \mu\text{A}$	14.95			V	2
INTermediate level output voltage	V_{OMLa}	$I_{OMLa}<1\ \mu\text{A}$	-0.05			V	2
	V_{OMHa}	$I_{OMHa}<1\ \mu\text{A}$			0.05	V	2
	V_{OMLb}	$I_{OMLb}<1\ \mu\text{A}$	-0.05			V	1
	V_{OMHb}	$I_{OMHb}<1\ \mu\text{A}$			0.05	V	1
Low level output current	I_{OL}	$V_{OL}=V_L+0.1\text{ V}$	1.0			mA	
High level output current	I_{OH}	$V_{OH}=V_H-0.1\text{ V}$	1.0			mA	2
INTermediate -level output current	I_{OMLa}	$V_{OMLa}=V_M-0.1\text{ V}$	1.0			mA	2
	I_{OMHa}	$V_{OMHa}=V_M+0.1\text{ V}$	1.0			mA	2
	I_{OMLb}	$V_{OMLb}=V_M-0.1\text{ V}$	1.0			mA	1
	I_{OMHb}	$V_{OMHb}=V_M+0.1\text{ V}$	1.0			mA	1
Output on resistance	R_{ONH}	$I_{OH}=30\text{ mA}$		20		Ω	2
	R_{ONM}	$I_{OH}=30\text{ mA}$		20		Ω	
	R_{ONL}	$I_{OH}=30\text{ mA}$		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