

Typical Electro-Optical Characteristics for Twist Nematic (TN) Display¹

LC Fluid Type ²		TN COMMERCIAL (S)										TN EXTENDED (W)								
Drive Method		Static	Multiplex (LV)					Multiplex (HV)					Static	Multiplex (HV-W)						
			1/2	1/3	1/4	1/8	1/16	1/2	1/3	1/4	1/8	1/16		1/2	1/3	1/4	1/8	1/16		
Operating Temperature		°C	-10~+60		0~+50					-10~+60					-40~+80		-30~+80		-20~+70	
Storage Temperature		°C	-20~+60										-40~+80							
Typical Operating Voltage ^{3,4}		-10°C	V		--	--	--	--	--	--	--	--	--	--	--	--	--	6.4	8.5	
		0°C	--	--	--	--	3.5	5.0	--	--	--	--	--	--	--	--	--	6.2	8.2	
		25°C	3.0	3.0	3.1	3.2	3.4	4.6	3.9	4.2	4.7	5.4	7.5	5.0	3.9	4.2	4.7	5.8	7.7	
		50°C	--	--	--	--	2.4	4.1	--	--	--	--	--	--	--	--	--	5.3	7.1	
Typical Switching Time ⁵		T _{OFF}	0°C	mSec		250	350	250	300	200	250	320	100	180	250	300				
			25°C	80	100	100	150	80	130	140	40	55	100	150						
		T _{ON}	0°C	mSec		200	300	250	300	180	250	300	100	110	250	300				
			25°C	60	100	100	150	80	90	100	50	50	100	150						
Typical Temperature Coefficient (0~40°C)		mV/°C	--	-10	--	--	-7.5	-12.5	-12.5	--	-7.5	--	--							
Operating Frequency Range ⁶		Hz	30~300	30~85					30~300	30~85										
Max. Contrast Ratio		25°C	CR _{MAX}	30	20					30	20									
Viewing Angle @ CR>=2 ⁵		25°C	θ _y	-65°~+25°		-50°~+10°		-45°~+5°		-65°~+25°		-50°~+10°		-45°~+5°		-65°~+25°		-45°~+5°		
			θ _x	-70°~+70°					-70°~+70°					-70°~+70°		-70°~+70°				

Notes:

- ¹ -- The following table presents typical values only for positive TN displays and these values are subject to changes without notice. Please consult VARITRONIX for the exact values of your display.
- ² -- For fluids with other characteristics, please consult VARITRONIX.
- ³ -- Optimum drive voltage of multiplexed display varies with temperature. It must be adjusted for optimum operation in the extremes of temperature range. Please consult VARITRONIX for the temperature coefficient of the particular fluid used.
- ⁴ -- Maximum allowable DC voltage is 50mV.
- ⁵ -- See following figures for definitions of switching time, contrast ratio, inclined viewing angles θ_y and θ_x.
- ⁶ -- Display could flicker but consumes less current at lower operating frequency.

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