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To :

Date : Apr. 18, 2024

Data Sheet	
Product Name	LPM025M785x

Approval Signature

Approved by	Date

Proposed by	Date

Specifications are subject to change without notice.

Preliminary

Japan Display Inc.

Japan Display Inc.	Sh. No.	LPM025M785x	Page	1 /20
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3. GENERAL DATA

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(1) Part Name	LPM025M785x
(2) Module Dimensions	46.0(W) mm × 57.06(H) mm × 1.66(t) mm (Excluding FPC, adhesive on the metal case and Top POL)
(3) Active Area Dimensions	43.0344 (W) mm × 46.0368 (H) mm
(4) Pixel Pitch	0.00695(W) mm × 0.02085 (H) mm (1218ppi)
(5) Resolution	2064× 3 (R,G,B) (W) × 2208 (H) dots
(6) Color Pixel Arrangement	RGB Vertical Stripe
(7) Display Mode	Transmissive Type, Normally Black Mode, In-Plane Switching Mode
(8) Number of Colors	16,777,216 Colors
(9) Viewing Direction	Perpendicular to the display surface
(10) Backlight	Light Emitting Diode (LED), 12 LEDs (2in1) ; 4 series 3 strings
(11) Weight	7.63g (typ) without protection film
(12) Power Supply Voltage	VSP = 5.7+/- 0.1V VSN=-5.7+/- 0.1V
(13) Interface I/O power supply Note (1)	IOVCC = 1.8V +/-0.1 V The same voltage as "H" level of a customer's interface signal must be supplied IOVCC.
(14) IC	NT57900 or Equivalent (Source and Power IC : Novatek)
(15) Interface	Video mode w/3:1 VESA DSC, MIPI-C-Phy 1port
(16) Methode of Inversion	Column Inversion
(17) Surface Treatment	Low reflection treatment

Note (1) IOVCC is the reference voltage for adjusting the I/O signal level of NT57900
IOVCC voltage must be determined according to a customer's system.
(2) Theses spec are guaranteed in refresh rate typ. 90Hz.

4. ABSOLUTE MAXIMUM RATINGS

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4.1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS OF LCD

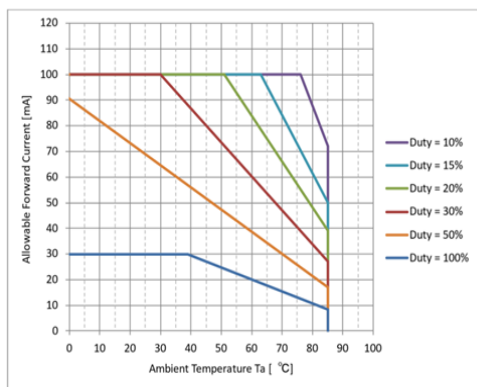
Ta=25°C

Item	Symbol	Min	Max	Unit	Note
Supply Voltage	VSP	-0.3	7.0	V	(1)
Supply Voltage	VSN	-7.0	0.3	V	(2)
Supply Voltage	IOVCC	-0.3	2.0	V	(1)
MIPI line voltage range		-0.05	1.35	V	(1)
Logic Input voltage range		-0.3	IOVCC+0.3	V	(1)
LED Reverse Voltage	V_R	-	5	V	
LED Forward Current	I_{LED}	-	Note (3)	mA	per LED

Notes (1) Keep VSP, IOVCC, MIPI line and Logic Input voltage no lower than GND.

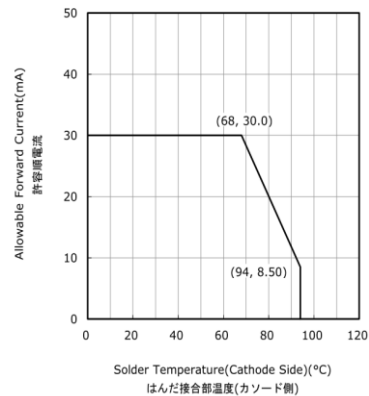
(2) Keep VSN Voltages no Higher than GND.

(3) Ambient Temperatures vs. Allow able Forward Current.



In case of "pulse width > 10ms", please apply "Duty = 100%".
パルス幅が10msを超える場合、Duty = 100%を適用下さい。

Solder Temperature(Cathode Side) vs Allowable Forward Current
はんだ接合部温度(カソード側)-許容順電流特性

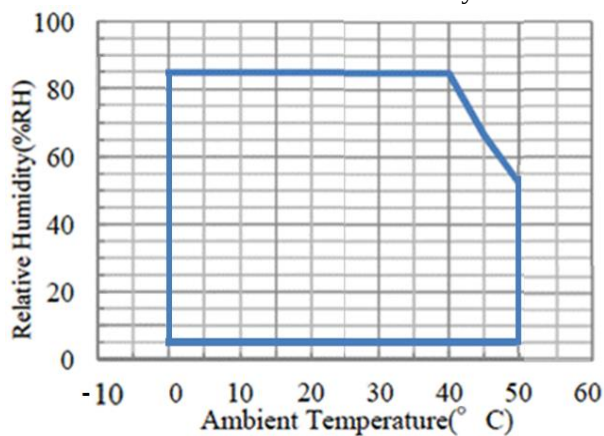


4.2 ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS

Item	Operating		Non-Operating (Note3)		Remarks
	Min	Max	Min	Max	
Ambient Temperature	0°C	50°C (2)	-30°C	70°C (2)	Note (3)
Humidity	Note (1)		Note (1)		No condensation
Corrosive Gas	Not Acceptable		Not Acceptable		

Notes (1) Ta ≤ 40°C 85%RH max.

Ta > 40°C Absolute humidity must be lower than the humidity of 85%RH at 40°C.



(2) The temperature of LCD surface shall be equal or less than 70°C.

(3) Background color slightly changes depending on ambient temperature and viewing angle. The temperature for operating in the table above apply to operation only. Visual qualities, such as brightness, color, contrast ratio and response time, to be evaluated at Ta=25°C Operating.

(4) This is not for storing condition. When storing LCM for long term, please follow the condition mentioned in "12.5 STORAGE".

5. ELECTRICAL CHARACTERISTICS

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LCD Module

Ta=25°C

Item	Symbol	Condition	Min	Typ	Max	Unit	Note
Power Supply Voltage for LCD	IOVCC	-	1.7	1.8	1.9	V	-
Power Supply Voltage for LCD	VSP	-	5.6	5.7	5.8	V	-
Power Supply Voltage for LCD	VSN	-	-5.8	-5.7	-5.6	V	-
Input Voltage for Logic Circuits	VIH		0.7×IOVCC	-	IOVCC	V	(1),(2)
	VIL		0	-	0.3×IOVCC		
Output Voltage for Logic Circuits	VOH	IOH=-0.1mA	0.8×IOVCC	-	-	V	(1),(3)
	VOL	IOL=0.1mA	-	-	0.2×IOVCC		
Power Supply Current	I _{IOVCC}	All White	-	-	85	mA	(4)
	I _{VSP}	All White	-	8.4	17	mA	(4)
	I _{VSN}	All White	-17	-7.0	-	mA	(4)
LED Forward Voltage	VLED	-	24.4	25.4	26.4	V	(5)
LED Forward Current	ILED	-	65.9	69	72.2	mA	(6)
LED Reverse Current	IR	-	-	-	50	μA	
Frame Frequency	fFLM	-	-	90	-	Hz	

Notes (1) IOVCC = 1.70V to 1.90V

(2) Input : RESX

(3) Output : LED_PWM, TE

(4) IOVCC=1.8V, VSP=5.7V, VSN=-5.7V, fFLM=90Hz

The current is time averaged value even for Maximum criteria.

(5) This is the value when LED Forward Current is 69mA.

(6) This is the value when the LED Driver is set to apply 69mA current to the LEDs.

6. OPTICAL CHARACTERISTICS

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LCD (BACKLIGHT ON)

Item		Symbol	Condition	Min	Typ	Max	Unit	Note
Brightness		B	$\varphi=0^{\circ}, \theta=0^{\circ}$	350	500	-	cd/m ²	(1),(2)
Brightness Uniformity		-	$\varphi=0^{\circ}, \theta=0^{\circ}$	70	-	-	%	(2),(3),(5)
Viewing Angle		CR	$\varphi=20^{\circ}, \theta=0^{\circ}$	TBD	-	-	-	(4),(6),(7)
			$\varphi=20^{\circ}, \theta=90^{\circ}$	TBD	-	-		
			$\varphi=20^{\circ}, \theta=45^{\circ}$	TBD	-	-		
Contrast Ratio		CR	$\varphi=0^{\circ}, \theta=0^{\circ}$	-	600	-	-	(6)
G to G worst Response Time		G to G	$\varphi=0^{\circ}, \theta=0^{\circ}$	-	5.0	-	ms	(8)
Color Tone (Primary Color)	Red	x	$\varphi=0^{\circ}, \theta=0^{\circ}$	0.612	0.642	0.672	-	-
		y		0.306	0.336	0.366		
	Green	x		0.266	0.296	0.326		
		y		0.574	0.604	0.634		
	Blue	x		0.124	0.154	0.184		
		y		0.026	0.056	0.086		
	White	x		0.278	0.303	0.328		
		y		0.284	0.309	0.334		
NTSC Ratio		-	-	72	-	%	-	
Flicker		-	$\varphi=0^{\circ}, \theta=0^{\circ}$	-	-	-30	dB	-
Gamma		-	w32~240	-	2.2	-	-	-

All the criteria shall be applied for initial(delivered) state. (Not for whole the product life.)

Measurement Conditions

Measurement environment : Dark room
 Ambient temperature : Ta=25°C
 Sequence : Refer to Item 8.4
 Power supply voltage : IOVCC=1.8V, VSP=5.7V, VSN=-5.7V
 Backlight current : I_{LED}=70mA x 2 Strings Duty13%

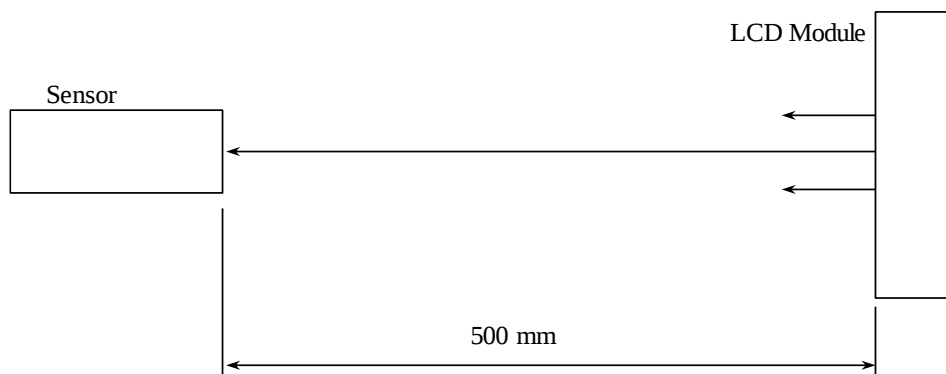
Optical adjustment condition : Backlight current set as DC.

Notes (1) Display image for measurement : All White

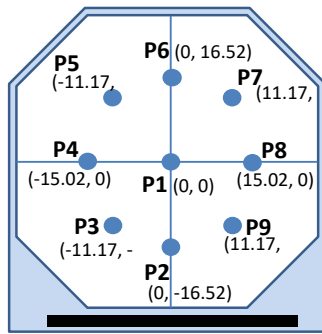
(2) Measurement system;

Sensor : CS-2000 or equivalent

Measurement point : Center of LCD's active area

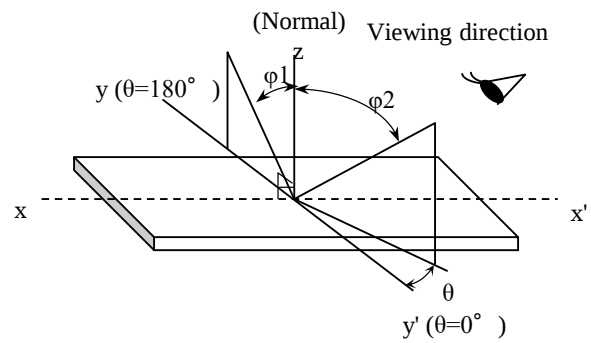


Notes (3) Measurement point



(4) Definition of θ and ϕ

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(5) Definition of brightness uniformity

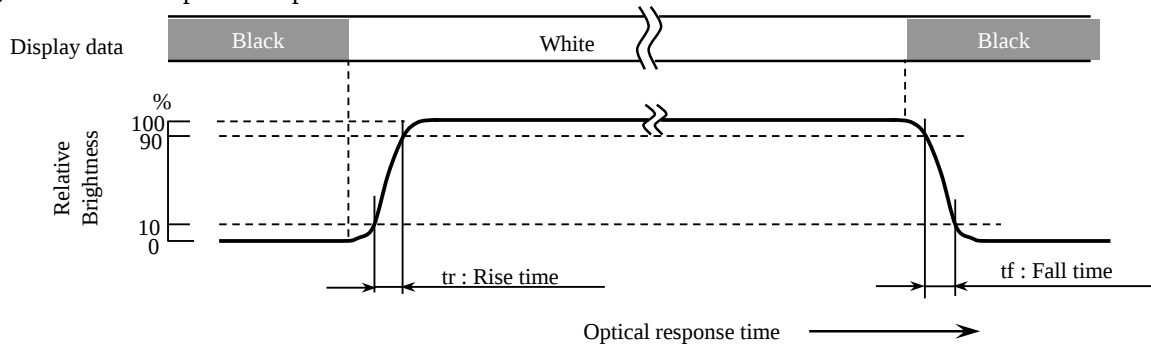
$$\text{Brightness uniformity} = \frac{\text{Brightness (min)}}{\text{Brightness (max)}} \times 100 (\%)$$

(6) Definition of Contrast "CR"

$$\text{CR} = \frac{\text{Brightness when displaying White raster}}{\text{Brightness when displaying Black raster}}$$

(7) Equipment Sensor : TBD

(8) Definition of Optical Response Time



7. INTERFACE

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7.1 INTERNAL PIN CONNECTION

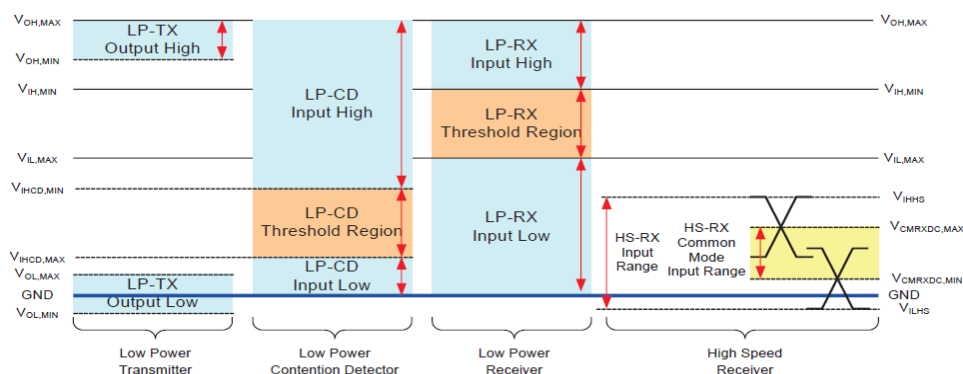
Description	Net Name	Pin#	Pin#	Net Name	Description
Return path	GND	2	1	GND	Return path
Backlight current drive	LED_C1	4	3	TE	Tearing Effect
	LED_A1	6	5	LEDPWM	PWM to BLU
	LED_C2	8	7	RESX	RESET
	LED_A2	10	9	EXT_VDD	No connect
	LED_C3	12	11	GND	Return path
	LED_A3	14	13	GPO[6] NC	No connect
Return path	GND	16	15	GND	Return path
Negative TFT power rail, typ -5.7V	VSN	18	17	GND	
	VSN	20	19	DSI_C1	CPHY LVDS
Return path	GND	22	21	DSI_B1	
	GND	24	23	DSI_A1	Return path
Positive TFT power rail, typ +5.7V	VSP	26	25	GND	
	VSP	28	27	DSI_C2	CPHY LVDS
Return path	GND	30	29	DSI_B2	
	GND	32	31	DSI_A2	Return path
1.8V digital power rail for DDIC	IOVCC	34	33	GND	
	IOVCC	36	35	DSI_C0	CPHY LVDS
	IOVCC	38	37	DSI_B0	
	IOVCC	40	39	DSI_A0	Return path
Return path	GND	42	41	GND	
No connect	NC	44	43	GND	
	NC	46	45	GND	
	NC	48	47	GND	
Return path	GND	50	49	GND	

7.2 TIMING CHARACTERISTICS

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MIPI CPHY DC Characteristics

Symbol	Parameter	Min	Typ	Max	V	Note
Power and Operation Voltage for MIPI Receiver						
IOVCC	Power Supply voltage for MIPI RX	1.7	1.8	1.9	V	
MIPI Characteristics for High Speed Receiver						
V_{ILHS}	Single-ended input low voltage	-40	-	-	mV	
V_{IHHS}	Single-ended input high voltage	-	-	535	mV	
V_{CMRXDC}	Common-mode voltage	95	-	390	mV	
$Z_{ID_AB}, Z_{ID_BC}, Z_{ID_CA}$	Differential input impedance	80	100	120	ohm	
V_{IDTH}	Differential input high threshold	-	-	40	mV	
V_{IDTL}	Differential input low threshold	-40	-	-	mV	
$V_{TERM-EN}$	Single-ended threshold for HS termination enable	-	-	450	mV	
MIPI Characteristics for Low Power Mode						
V_{PIN}	Pad signal voltage range	-50	-	1350	mV	
V_{GNDSH}	Ground shift	-50	-	50	mV	
V_{IL}	Logic 0 input threshold	-	-	550	mV	
V_{IH}	Logic 1 input threshold	740	-	-	mV	
V_{HYST}	Input hysteresis	25	-	-	mV	
V_{OL}	Output low level	-50	-	50	mV	
V_{OH}	Output high level	0.95	1.2	1.3	V	
Z_{OLP}	Output impedance of Low Power Transmitter	110	-	-	ohm	
$V_{IHCD\ MAX}$	Logic 1 contention threshold	450	-	-	mV	
$V_{ILCD\ MAX}$	Logic 0 contention threshold	-	-	200	mV	

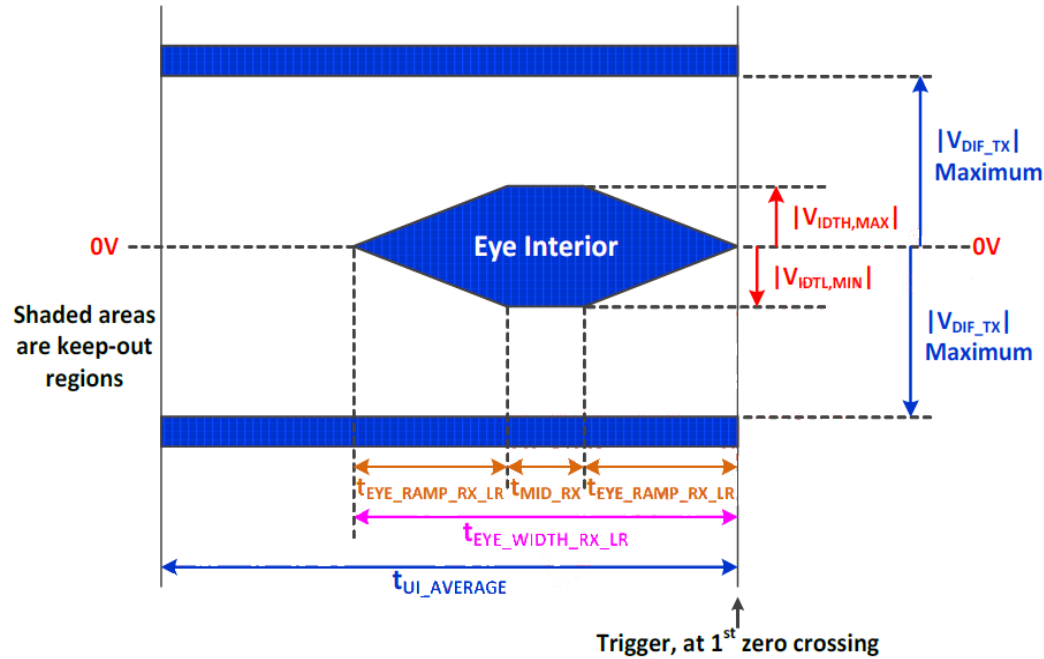


MIPI CPHY Interface Characteristics
High Speed Data Transmission Eye Diagram

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Parameter	Symbol	Min	Typ	Max	Unit	Note
UI average	$t_{UI_AVERAGE}$	0.77	-	12.5	ns	1,2
Eye ramp time at the reference channel output	$t_{EYE_RAMP_RX_LR}$	0.25	-	-	UI	
Eye width at the reference channel output	$t_{EYE_WIDTH_RX}$	0.5	-	-	UI	

- Notes 1. For MIPI speed limitation
 [1] Per lane bandwidth is 1.3Gbps
 [2] Total Bit Rate: 3.9Gbps for 8-8-8 per port
 2. Actual MIPI rate(UI) should follow the setting described in "DSI_Timing". JDI inspection also follow "DSI_Timing"



High-Speed data Transmission in Bursts

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Parameter	Symbol	Min	Typ	Max	Unit	Note
Time that the transmitter drives the 3-wire LP-000 line state immediately before the start of the HS transmission.	$T_{3\text{-PREPARE}}$	38	-	95	ns	
Time f or the slave to enable the HS line termination, starting from the time point when the A, B and C wire cross V_{IL_MAX}	$T_{3\text{-TERM-EN}}$	Note4	-	38	ns	
Time interval during which the HS receiver should ignore any HS transitions on the lane, starting from the beginning of $t_{3\text{-PREPARE}}$	T_{SETTLE}	95	-	300	ns	
Time that the transmitter drives LP-111 following a HS burst.	$T_{HS\text{-EXIT}}$	100	-	-	ns	
Length of any Low-Power state period	T_{LPX}	50	-	-	ns	
Time that the transmitter drives 3333333 following LP-000.	$T_{3\text{-PREBEGIN}}$	-	336	-	UI	
Time that the transmitter drives 3333333 before sync word 3444443.	$T_{3\text{-PREEND}}$	7	-	-	UI	
Time that the transmitter drives 4444444 after a HS burst	$T_{3\text{-POST}}$	224	-	-	UI	

Notes 1. The minimum value depends on the symbol rate. Implementations should ensure proper operation for all the supported symbol rates.

2. UI means Unit Interval.

3. TLPX is an internal state machine timing reference. Externally measured values may differ slightly from the specified values due to asymmetrical rise and fall times.

4. Receiver termination impedances shall not be enabled until the single-ended voltages on all of A, B and C fall below $V_{TERM-EN}$.

$$t_{3\text{-SETTLE}} > t_{3\text{-PREPARE}}$$

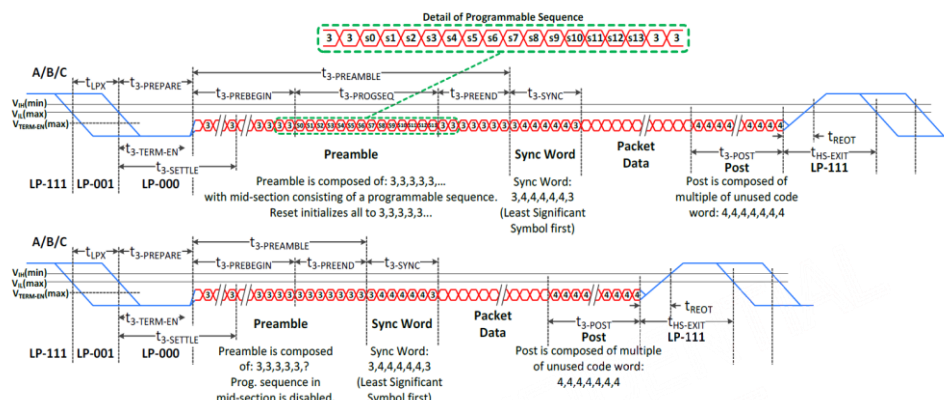
$$t_{3\text{-SETTLE}} < t_{3\text{-PREPARE}} + t_{3\text{-PREAMBLE}}$$

$$t_{3\text{-PREAMBLE}} = t_{3\text{-PREBEGIN}} + t_{3\text{-PROGSEQ}} + t_{3\text{-PREEND}}$$

$$t_{3\text{-PROGSEQ}} = 14\text{UI or } 0\text{UI}$$

$$t_{3\text{-SYNC}} = 7\text{UI}$$

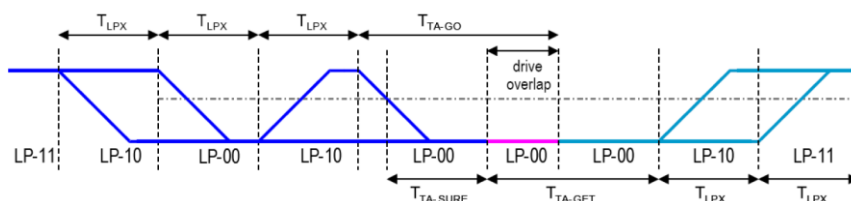
High-Speed Data Transmission in Bursts



Turnaround Procedure

Parameter	Symbol	Min	Typ	Max	Unit	Note
Length of any Low-Power state period : Master side	T_{LPX}	50	-	75	ns	
Length of any Low-Power state period : Slave side	T_{LPX}	50	-	75	ns	
Ratio of TLPX(MASTER)/TLPX(SLAVE) between Master and Slave side	Ratio T_{LPX}	2/3	-	3/2	-	
Time-out before new TX side start driving	$T_{TA\text{-SURE}}$	T_{LPX}	-	$2T_{LPX}$	ns	
Time to drive LP-000 by new TX	$T_{TA\text{-GET}}$	-	$5T_{LPX}$	-	ns	
Time to drive LP-000 after Turnaround Request	$T_{TA\text{-GO}}$	-	$4T_{LPX}$	-	ns	

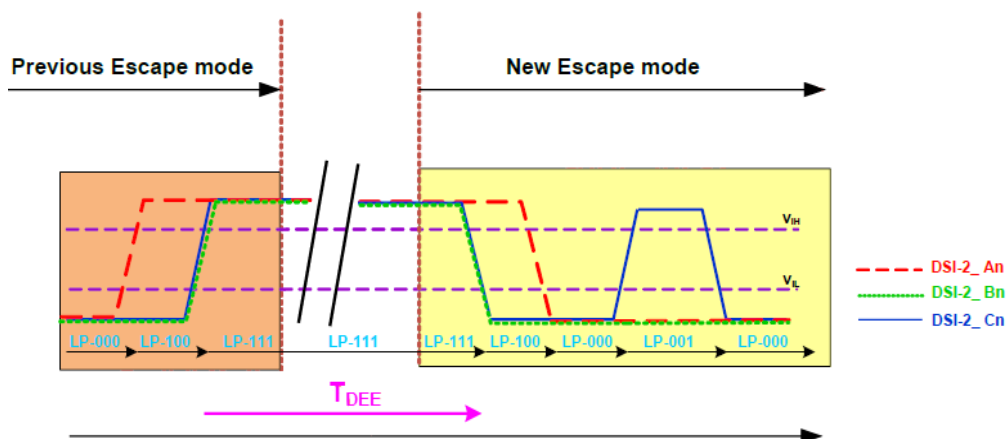
Turnaround Procedure



LP111 timing request between data transformation

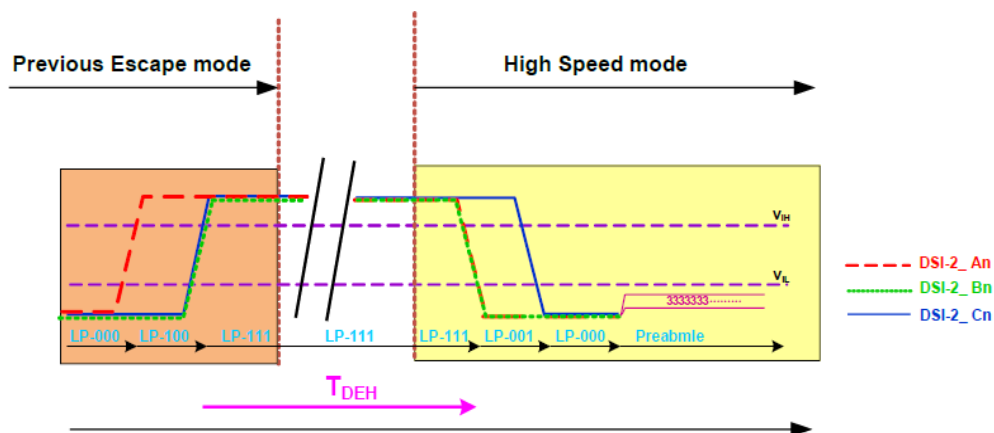
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(1) Timing between LP – LP command



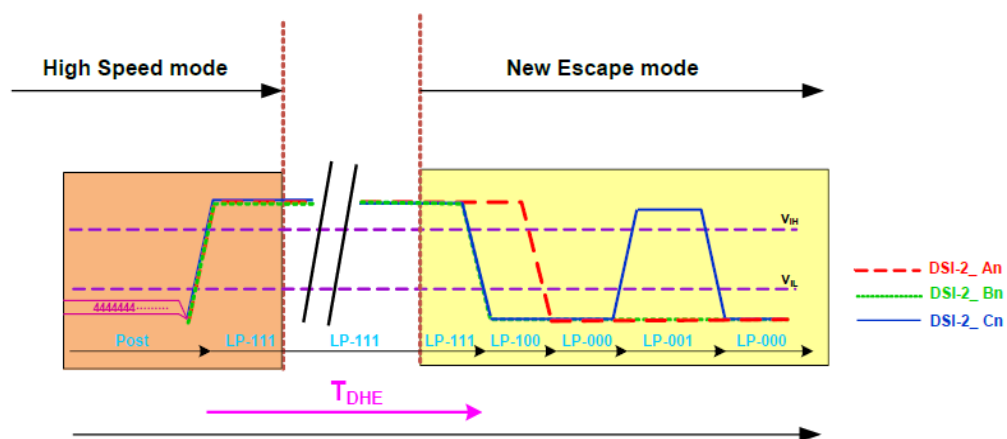
Parameter	Symbol	Min	Typ	Max	Unit	Note
LP-111 delay to a start of the new Escape Mode Entry	T_{DEE}	150	-	-	ns	

(2)Timing between LP – HS command



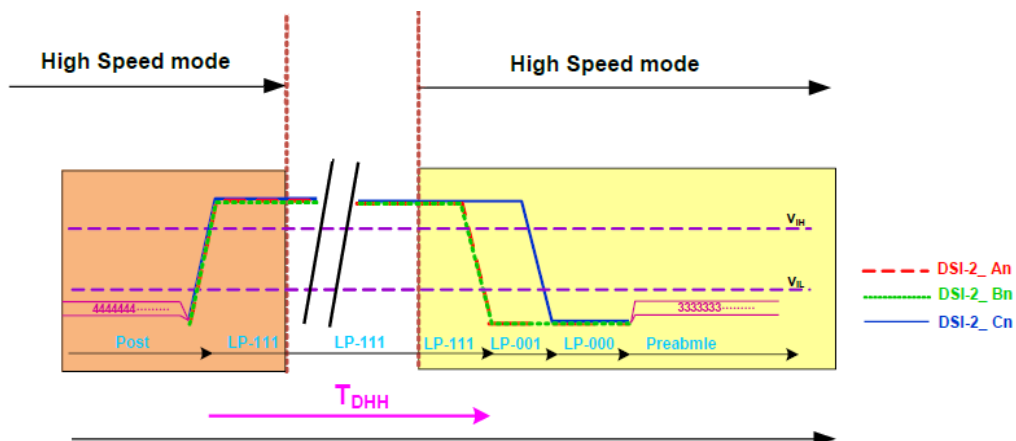
Parameter	Symbol	Min	Typ	Max	Unit	Note
LP-111 delay to a start of the Entering High Speed Mode	T_{DEH}	150	-	-	ns	

(3) Timing between HS – LP command



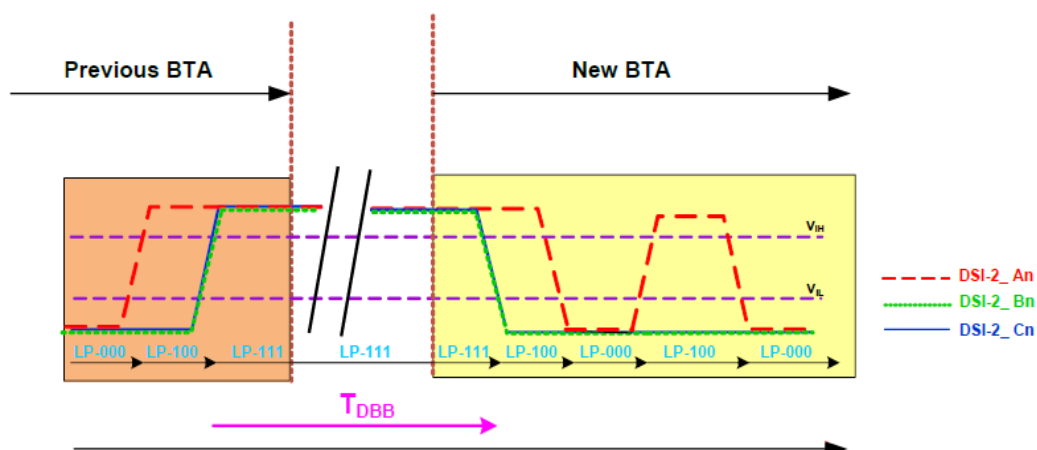
Parameter	Symbol	Min	Typ	Max	Unit	Note
LP-111 delay to a start of the Escape Mode Entry	T_{DHE}	150	-	-	ns	

(4) Timing between HS – HS command



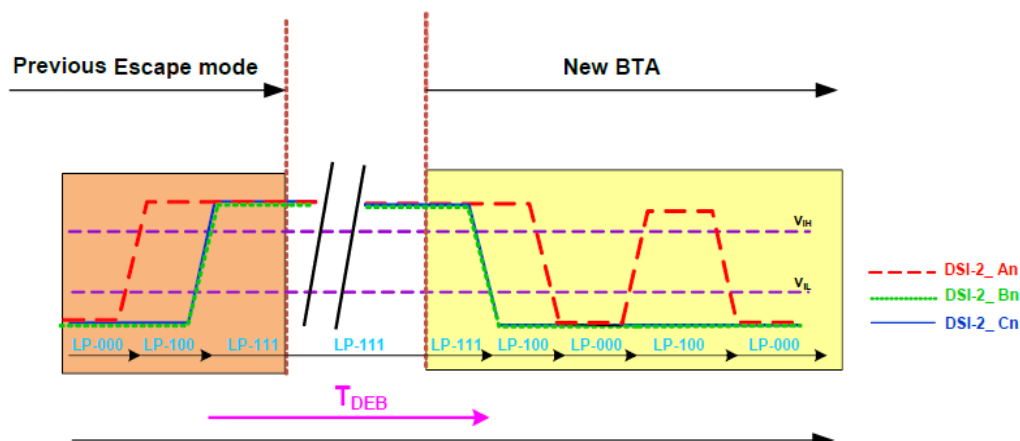
Parameter	Symbol	Min	Typ	Max	Unit	Note
LP-111 delay to a start of the Entering High Speed Mode	T_{DHH}	150	-	-	ns	

(5) Timing between BTA – BTA command



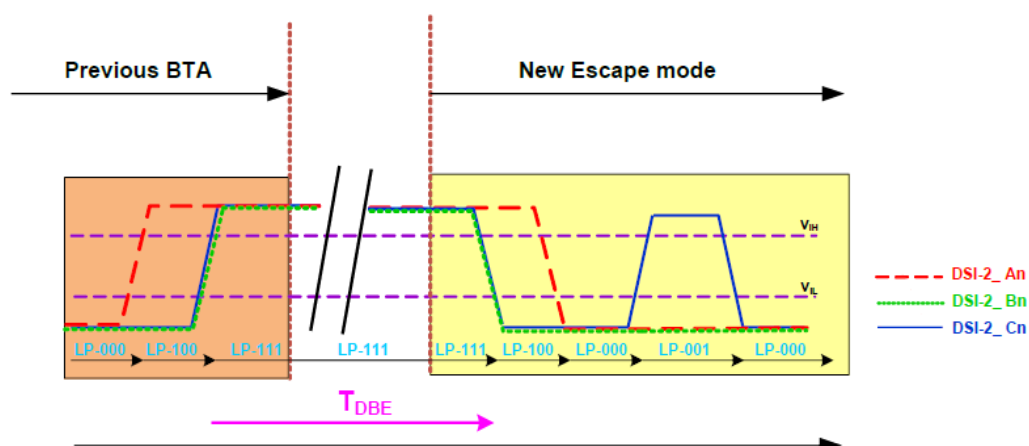
Parameter	Symbol	Min	Typ	Max	Unit	Note
LP-111 delay to a start of the new BTA	T_{DBB}	150	-	-	ns	

(6) Timing between LP – BTA command



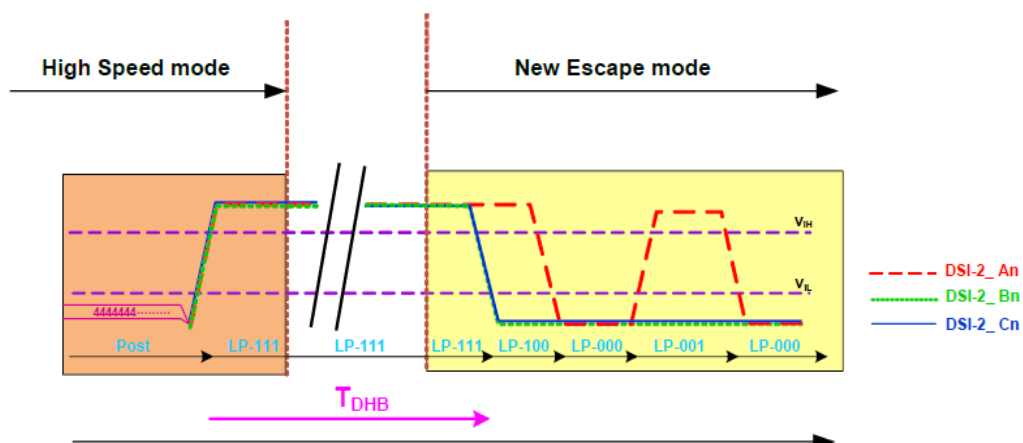
Parameter	Symbol	Min	Typ	Max	Unit	Note
LP-111 delay to a start of the BTA	T_{DEB}	150	-	-	ns	

(7) Timing between BTA – LP command



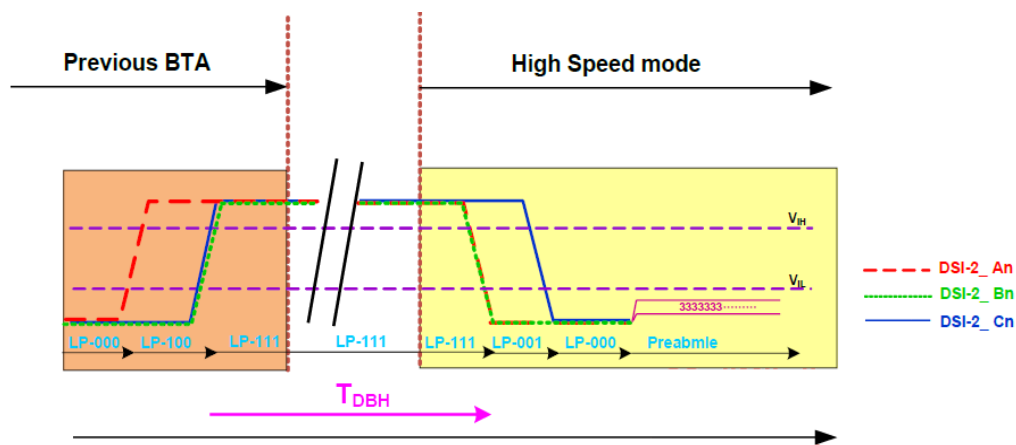
Parameter	Symbol	Min	Typ	Max	Unit	Note
LP-111 delay to a start of the Escape Mode Entry	T_{DBE}	150	-	-	ns	

(8) Timing between HS – BTA command



Parameter	Symbol	Min	Typ	Max	Unit	Note
LP-111 delay to a start of the BTA	T_{DHB}	150	-	-	ns	

(9)Timing between BTA – HS command



Parameter	Symbol	Min	Typ	Max	Unit	Note
LP-111 delay to a start of the Entering High Speed Mode	T_{DBH}	150	-	-	ns	

Timing Characteristics

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DSI_Timing

MIPI CPHY VideoMode with RAM 1port DSC(1:3)

Item			unit	Note
		90Hz		
PHY	D/CPHY	CPHY	-	
	Lane/Trio	3trio	-	
Comp.	VesaDSC	1/3comp	-	
	Slice width	1032	pxl	Horizontal 2slice
	Slice height	32	line	
Resol.	H resolution	2064	pxl	
	H res + Hdmy	2064	pxl	
	V resolution	2208	pxl	
V	Frame rate	90	Hz	
	V total	4723	line	
	V back porch	32	line	
	V front porch	2483	line	
H	1line time	2.353	us	
	H active	688	pxl	per port
	H active + Hdmy	688	pxl	per port
	H back porch	56	pixel	
	H front porch	55	pixel	
	MIPI rate	1189	Msp/s	
Transmission packet sequence		non burst mode with sync events	-	

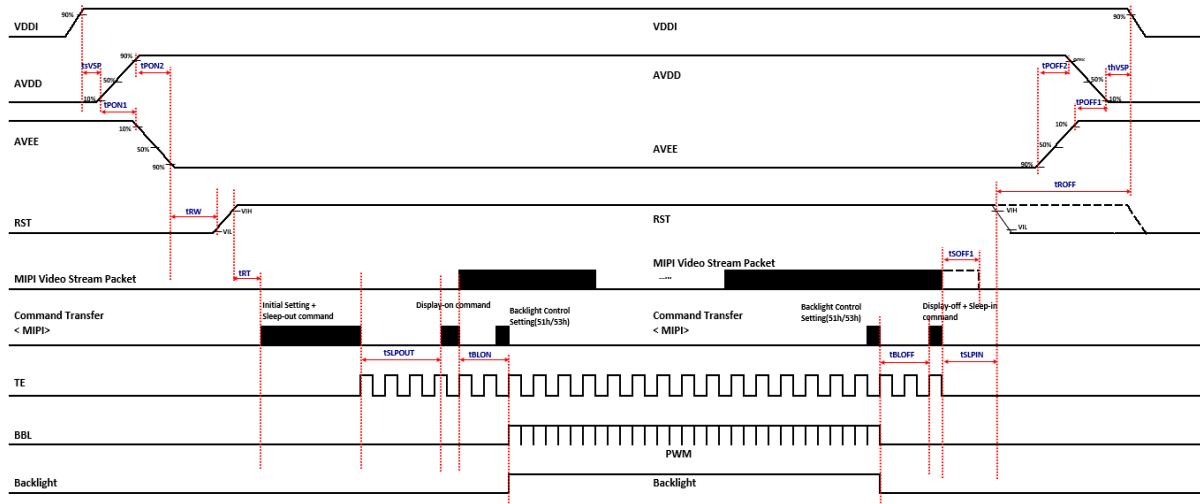
7.3 Power supply AC/DC specification and ON/OFF sequence

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1-1. Supply Power Voltage

	Min	Typ	Max	Description
AVDD	5.6	5.7	5.8	Analog power supply for LCD.
AVEE	-5.8	-5.7	-5.6	Analog power supply for LCD.
VDDI	1.7	1.8	1.9	Digital power supply for LCD

1-2. Power On/Off sequence



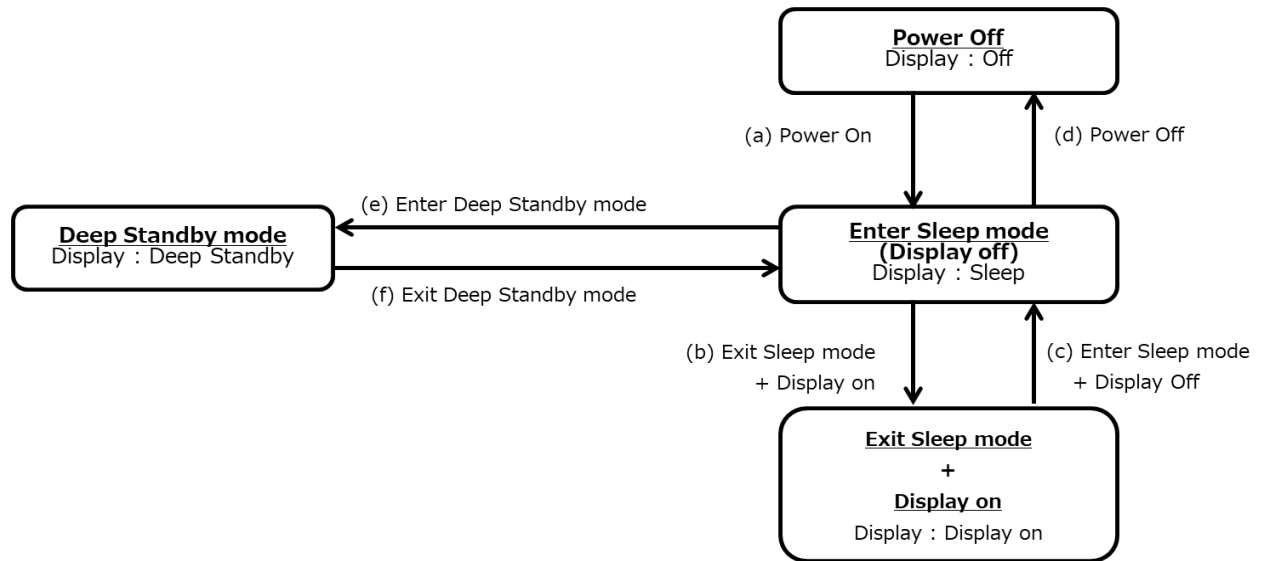
Note 1: After Sleep-Out Command, Driver IC will reload MTP registers and do internal power on action.
Therefore, any initial settings (such as S4h, S8h, etc.) by MIPI should be set after Sleep-Out command with minimum delay time 100ms.
Note 2: For detailed panel-related power sequence, please refer to HT37930 Application Notes.

Item	Symbol	Condition	Min	Typ	Max	Unit
AVDD - AVEE delay time (10% to 10%)	tPON1	Power On	0	-	-	us
AVDD - AVEE delay time (90% to 90%)	tPON2	Power On	0	-	-	us
VDDI On to AVDD On time (90% to 10%)	tSVSP	Power On	0	-	-	ms
All Power On to RST Hi-level time (90% to VIH)	tRW	Power On	10	-	-	ms
RST Hi-level (VIH) to 1st Command time	tRT1	Power On	10	-	-	ms
(MIPI goes to LP11 state) to RST goes to High-level (VIL)	tRT2	Power On	0	-	-	us
SLPOUT Sequence Request time	tSLPOUT	Power On	100	-	-	ms
Display On Command to BL On time	tBLON	Power On	40	-	-	ms
AVDD - AVEE delay time (10% to 10%)	tPOFF1	Power Off	0	-	-	us
AVDD - AVEE delay time (90% to 90%)	tPOFF2	Power Off	0	-	-	us
AVDD Off to VDDI Off time (10% to 90%)	tHVSP	Power Off	0	-	-	us
RST Low to VDDI Off time (VIH to 90%)	tROFF	Power Off	0	-	-	us
BL Off to Display Off Command time	tBLOFF	Power Off	0	-	-	us
SLPIN Sequence Request time	tSLPIN	Power Off	60	-	-	ms
SLPIN Finished to MIPI Video Stream Off	tSOFF1	Power Off	0	-	-	us
RST goes to Low-level (VIH) to (MIPI goes to LP00 state)	tSOFF2	Power Off	0	-	-	us

Item	Min	Typ	Max	Unit
Tpower_ramp_up (10% - 90%) for VDDI	-	-	2	ms
Tpower_ramp_down (90% - 10%) for VDDI	-	-	2	ms
Tpower_ramp_up (10% - 90%) for AVDD / AVEE	0.2	-	5	ms
Tpower_ramp_down (90% - 10%) for AVDD / AVEE	0.2	-	5	ms

7.4 State transition diagram

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(a) Power On Sequence

Step	Action/Command	DSI Data Type (DDIC)	Address	Data	Note
1	RESET="L"				
2	VDDI On				
3	Wait 1ms (min.)				Over 1ms from VDDI=90% (depends on External Power Supply Circuit)
4	AVDD On				
5	Wait 1ms (min.)				Over 1ms from AVDD=90% to AVEE=10% (depends on External Power Supply Circuit)
6	AVEE On				
7	Wait 10ms (min.)				Over 10ms from AVEE=90% (depends on External Power Supply Circuit)
8	RESET="H"				
9	Wait 10ms (min.)				Wait Min. 10ms

(d) Power Off Sequence

Step	Action/Command	DSI Data Type (DDIC)	Address	Data	Note
1	RESET="L"				
2	Wait 1ms(min.)				Wait Min. 1ms
3	AVEE Off				
4	Wait 1ms(min.)				Wait Min. 1ms
5	AVDD Off				
6	Wait 1ms(min.)				Wait Min. 1ms
7	VDDI Off				

(e) Enter Deep Standby mode Sequence

Step	Action/Command	DSI Data Type (DDIC)	Address	Data	Note
1	Page select	DCS	0x15	0xFF	0x10
2	Enter the Deep Standby mode	DCS	0x15	0x4F	0x01
3	MIPI drive to LP-00				

(f) Exit Deep Standby mode Sequence

Step	Action/Command	DSI Data Type (DDIC)	Address	Data	Note
1	RESET="L"				
2	Wait 3ms (min.)				Low pulse more than 3ms
3	MIPI drive to LP-11				
4	RESET="H"				

(b) Exit Sleep mode + Display On Sequence (Initial setting & Exit Sleep mode & Display On)

Step	Action/Command	DSI Data Type (DDIC)	Address	Data (90Hz)	Note
1	Page select	MCS	0x29	0xFF	0x20
2	LCD setting1	MCS	0x29	0x7F	0x04
3	Reload CMD	MCS	0x29	0xFB	0x01
4	Page select	MCS	0x29	0xFF	0x23
5	LCD setting2	MCS	0x29	0x00	0x00
		MCS	0x29	0xB4	0x30
		MCS	0x29	0x8F	0x02
		MCS	0x29	0x90	0x6A
		MCS	0x29	0xD2	0x15
		MCS	0x29	0xD3	0x39
		MCS	0x29	0xD0	0x02
		MCS	0x29	0xD1	0x01
6	Reload CMD	MCS	0x29	0xFB	0x01
7	Page select	MCS	0x29	0xFF	0x25
8	IC setting1	MCS	0x29	0x38	0x04
9	LCD setting3	MCS	0x29	0xCC	0x00
		MCS	0x29	0xCD	0x20
		MCS	0x29	0xCE	0x00
		MCS	0x29	0xCF	0x20
		MCS	0x29	0xD0	0x00
		MCS	0x29	0xD1	0x20
		MCS	0x29	0xD2	0x00
		MCS	0x29	0xD3	0x20
		MCS	0x29	0x77	0x00
		MCS	0x29	0x78	0x20
		MCS	0x29	0x79	0x00
		MCS	0x29	0x7A	0x20
		MCS	0x29	0x7B	0x00
		MCS	0x29	0x7C	0x20
		MCS	0x29	0x7D	0x00
		MCS	0x29	0x7E	0x20
10	LCD setting4	MCS	0x29	0xD4	0x0F
		MCS	0x29	0xD5	0x5C
		MCS	0x29	0xD6	0x0F
		MCS	0x29	0xD7	0x5C
		MCS	0x29	0xD8	0x0F
		MCS	0x29	0xD9	0x5C
		MCS	0x29	0xDA	0x0F
		MCS	0x29	0xDB	0x5C
		MCS	0x29	0xBC	0xFF
		MCS	0x29	0xBD	0xFF
		MCS	0x29	0xBE	0xFF
		MCS	0x29	0xBF	0xFF
		MCS	0x29	0xC0	0xFF
		MCS	0x29	0xC1	0xFF
		MCS	0x29	0xC2	0xFF
		MCS	0x29	0xC3	0xFF
11	Dely_VID_VESA	MCS	0x29	0xE0	0x02
		MCS	0x29	0xE1	0x30
12	Reload CMD	MCS	0x29	0xFB	0x01
13	Page select	MCS	0x29	0xFF	0xE0
14	IC setting2	MCS	0x29	0x23	0x05
15	Reload CMD	MCS	0x29	0xFB	0x01
16	Page select	MCS	0x29	0xFF	0x24
17	IC setting3	MCS	0x29	0xCA	0x00
		MCS	0x29	0xCB	0xYZ
18	Reload CMD	MCS	0x29	0xFB	0x01
19	Page select	DCS	0x15	0xFF	0x10
20	Compression mode	DCS	0x15	0x03	0x01
21	Set Display Mode	DCS	0x15	0xBB	0x13
22	Data compression method	DCS	0x15	0xC0	0x03
23	PPS Table1	DCS	0x39	0xC1	0x89
				0x28	
				0x00	
				0x20	
				0xC2	
				0x00	
				0x03	
				0x04	
				0x04	
				0x10	
				0x00	
				0x0E	
				0x03	
				0x19	
				0x01	
				0xAA	
24	PPS Table2	DCS	0x39	0xC2	0x10
				0xF0	
25	Tearing Effect Line ON	DCS	0x15	0x35	0x00
26	Data Direction Access Control	DCS	0x15	0x36	0x00
27	Set the Interface Pixel Format	DCS	0x15	0x3A	0x77
28	Set Tear Line	DCS	0x39	0x44	0x00
				0x00	
29	LCD setting5	DCS	0x39	0x51	0xFF
30	LCD setting6	DCS	0x15	0x53	0x24
31	LCD setting7	DCS	0x15	0x55	0x00
32	Reload CMD	DCS	0x15	0xFB	0x01
33	Video stream Packet Start				
34	Exit the Sleep-In Mode	DCS	0x05	0x11	-
35	Wait 6frame (min.)				Do NOT input any command during ON sequence.
36	Display On	DCS	0x05	0x29	-

8. DIMENSIONAL OUTLINE (TENTATIVE)

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