	HS-128D-CRGAN	Spec. No.	
	128MM Red+Green Color Dot Matrix	Part	MODULE

SPECIFICATION

CUSTOMER :

DEVICE NAME :

MODEL NO. :

ISSUED DATE :

[CUSTOMER APPROVAL]

APPROVAL NO.				
APPROVAL DATE				
APPROVAL	INSPECTER	CHECK	APPROVAL	COMMENT

[SUPPLIER]

ISSUED DEPT.	ISSUE	REVIEW	REVIEW	APPR'D

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1. OVERVIEW


16*32 LED dot matrix module to display.

It is integrated with SMD LED. This module is compact, slim and light.

It is suitable for the wide applications of a graphic & video board beyond a simple message board.

2. SPECIFICATION

ITEM	DISCRIPTION
Size(WxHxD)	256(W) x 128(H) x 10(mm)
Display Color	3 COLOR(RED, GREEN, AMBER)
Number of Dots	512DOTS (32(W)x16(H))
Drive mode	Dynamic Drive(1/16 duty)
Brightness Control	Controlled VR2(RED, GREEN)
View Angle	Horizontal: $\pm 60^{\circ}$ Vertical: $\pm 60^{\circ}$
Weight	

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3. ELECTRICAL SPECIFICATION

1) Absolute Maximum Ratings(Ta=25°C)


ITEM		SYMBOL	CONDITION	UNIT
DC Supply Voltage	Circuit	Vcc	5	V
	LED	Vled	5	V
Input Voltage	Circuit	Vcc	Vcc(±0.3)	V
	LED	Vled	Vled(-0.3)	V
Current Consumption	Circuit	IC	0.1(Vcc=5V)	A
	LED	IL	5(Vled=5V)	A
Clock Frequency		F	25	MHz
Operating Temperature		Topr	-20 ~ +65	°C
Storage Temperature		Tstg	-20 ~ +85	°C
Isolation Temperature		Viso	AC500V(10mA), 1Minute(connector~supporter)	

2) RECOMADABLE DRIVE CONDITIONS

ITEM		SYMBOL	CONDITION	UNIT
DC Supply Voltage	Circuit	Vcc	5	V
	LED	Vled	5	V
Operating Temperature		Topr	-20 ~ +45	°C

4. OPTICAL CHARCTERISTIC

ITEM		SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity	AMBER	L _v	-	1200	-	cd/m ²
Peak Emission Wave length	RED GREEN	λ _p	-	630 570	-	nm


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5. INPUT LEVEL

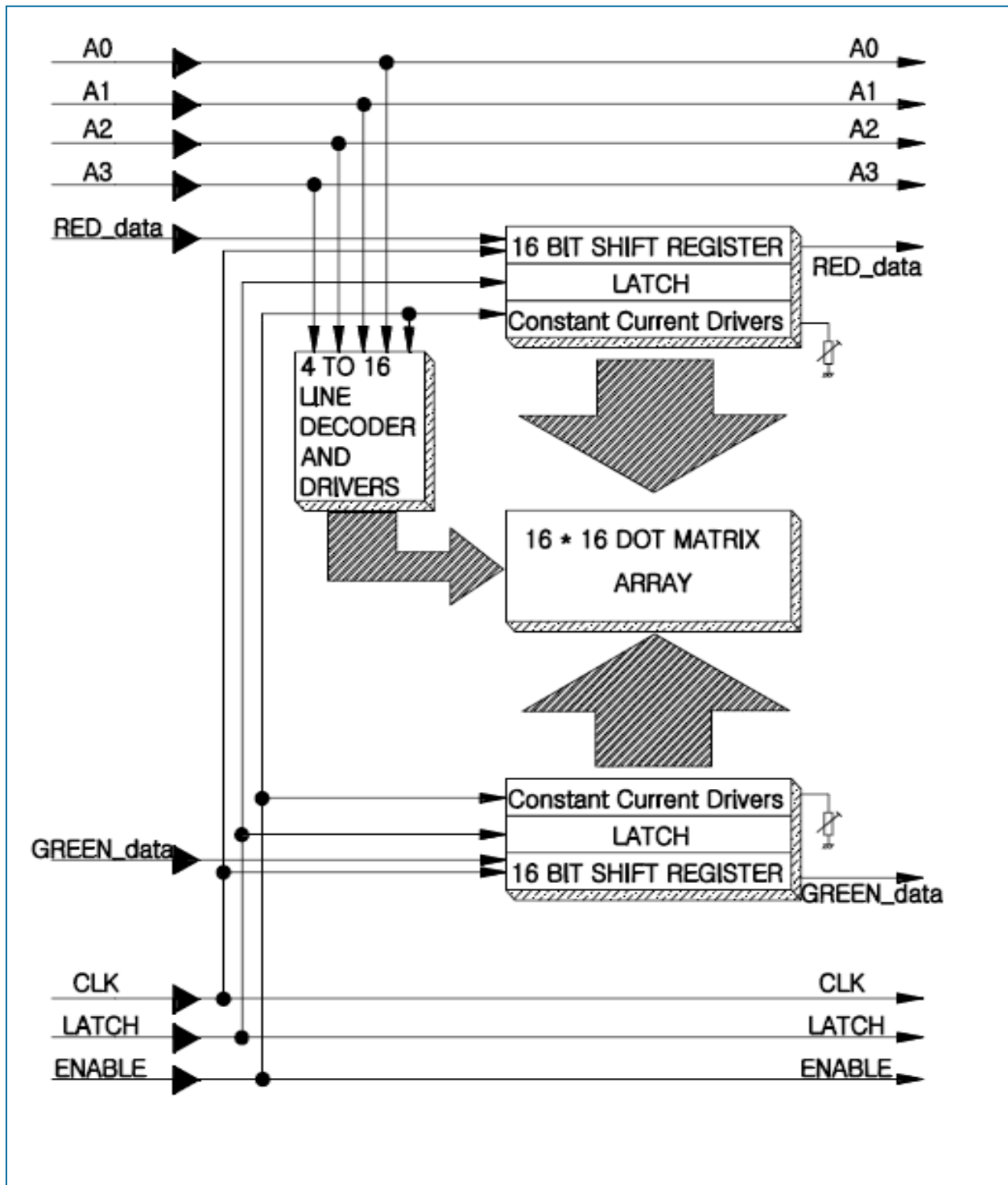
ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT
Input "L"	ViL	-	-	0.8	V
Input "H"	ViH	2.4	-	-	

6. FUNCTION

ITEM	PIN NAME	DESCRIPTION	PIN No.
Power Pin	VCC	Power supply for the circuit	1
	GND	Grounding of the module	2
	VLED	Power supply for the LED	3
Data Pin	GREEN Data(GD)	Data input for green color	6
	RED Data(RD)	Data input for red color	8
	Line Address(A0~A3)	Signal input for line address	9,10,11,12
	Clock(CLK)	Clock signal for data input and display	4
	Latch(LA)	Signal input for data latch (New data latch at rising edge)	2
	Out Enable(OE)	Display ON or OFF control ("H" display off, "L" display on)	1
	GND	Grounding of the module	3,5,7

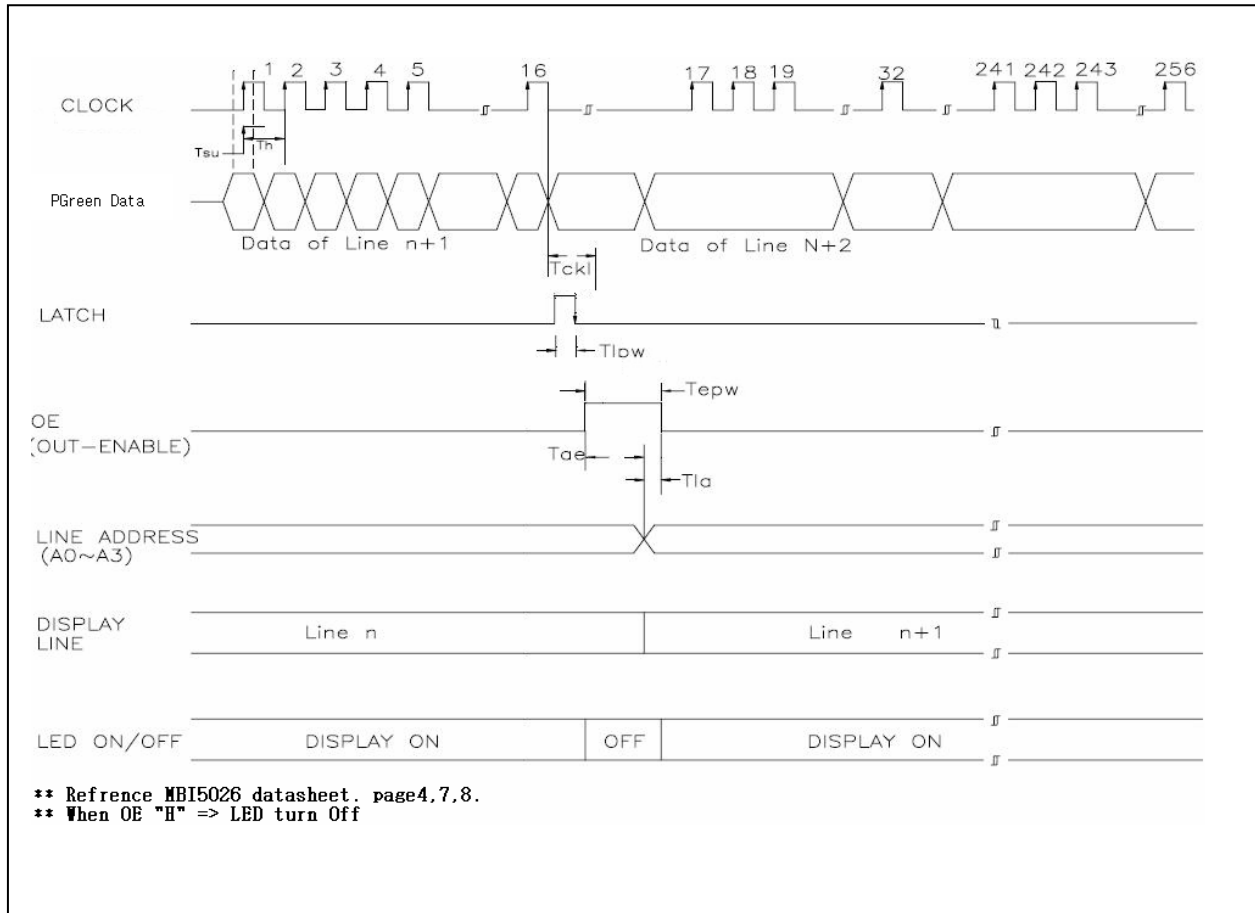
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7. BLOCK DIAGRAM




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8. TIMING CHART



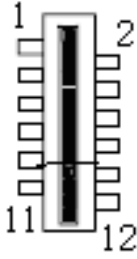
● OPERATING TIMING

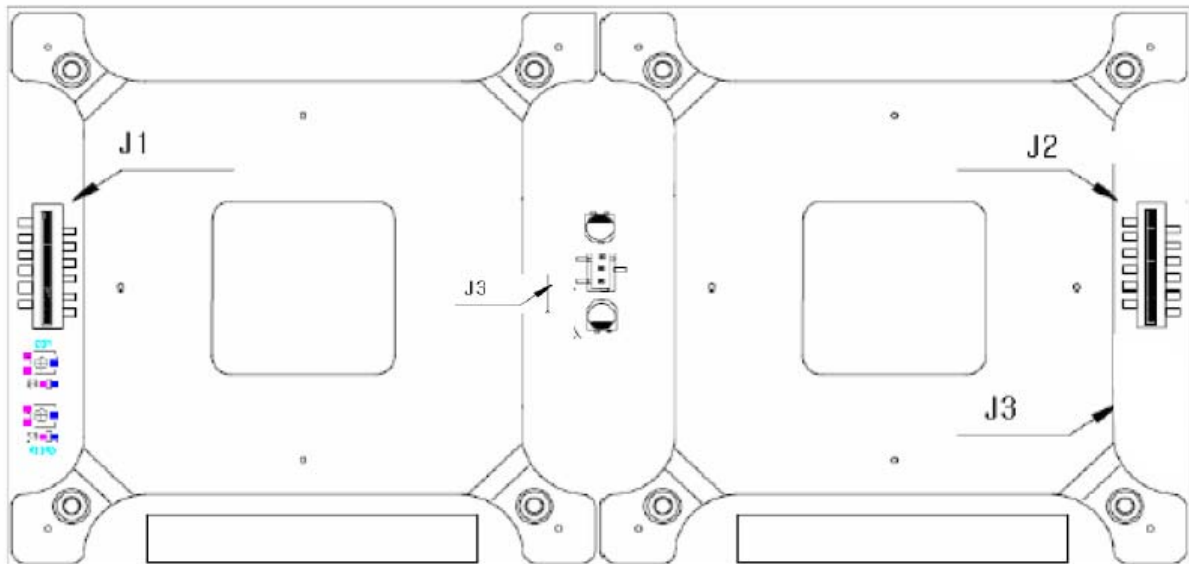
CHARACTORISTICS	SYMBOL	MIN.	MAX.	UNIT
Clock Cycle	T	-	25	MHz
Data Setup Time	Tsu	5	-	ns
Data Hold Time	Th	20	-	ns
Latch Pulse Width	Tpw	20	-	ns
Clock Latch Time	Tckl	20	-	ns
Enable Pulse Width	Tepw	200	-	ns
Address Enable Time	Tae	1.5	-	us
Latch Address Time	Tla	1.5	-	us


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9. PIN CONNECTION

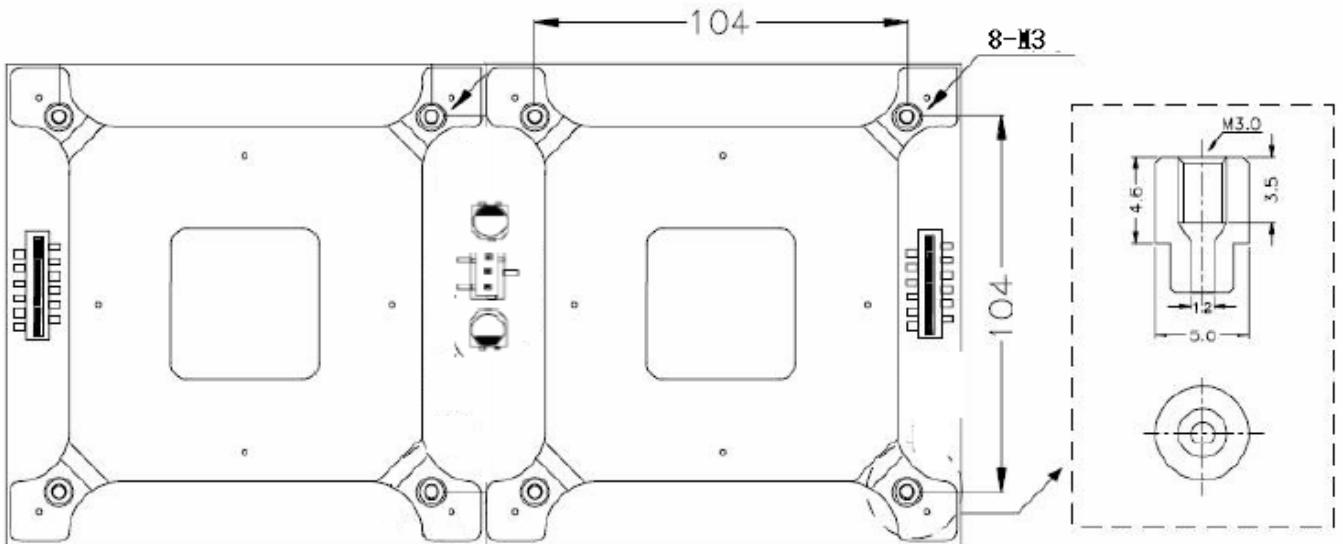
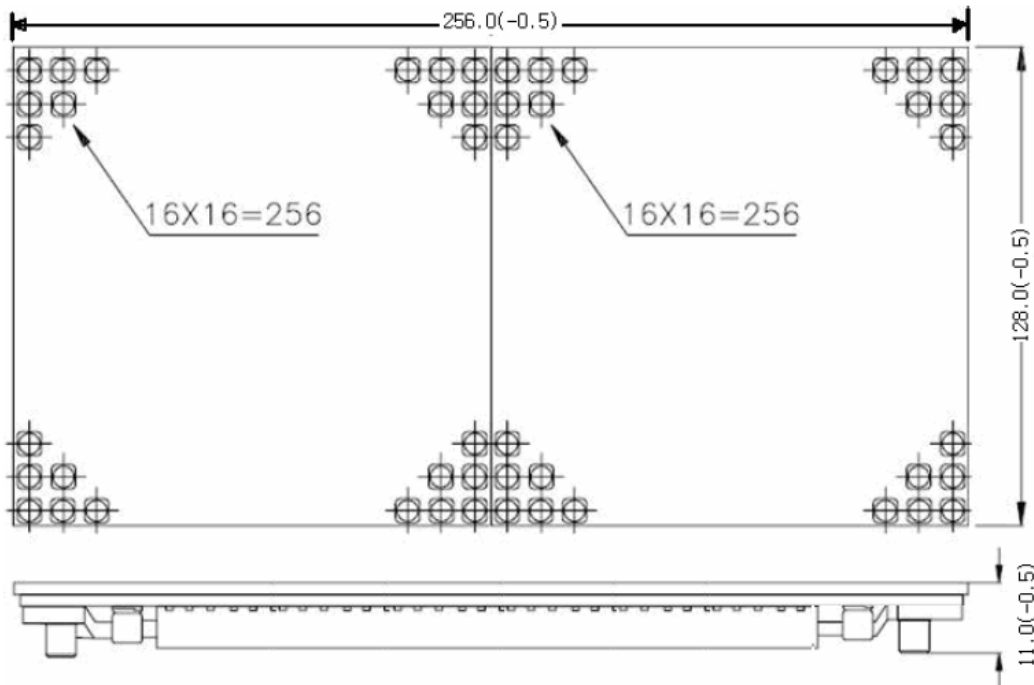
● DATA SIGNAL FUNCTION(J1, J2)


CONNECTOR	PIN		DESCRIPTION
	NUM.	NAME	
	1	OE	Out Enable
	2	LA	Data strob
	3	GND	Ground of the module
	4	CLK	Clock signal for input data
	5	GND	Ground of the module
	6	GD	Data Input for ROW0 ~ ROW15 green color
	7	GND	Ground of the module
	8	RD	Data Input for ROW0 ~ ROW15 red color
	9	A0	Data address 0
	10	A1	Data address 1
	11	A2	Data address 2
	12	A3	Data address 3



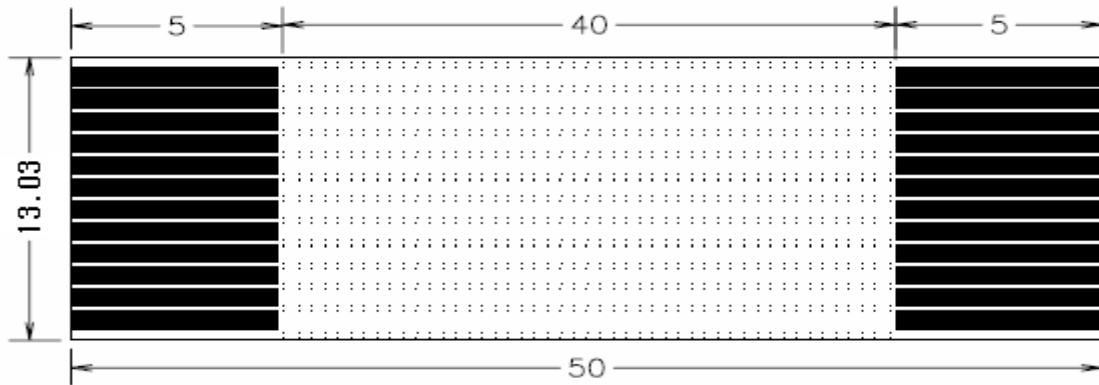
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10. DIMENSION



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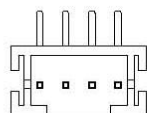
11. CONNECTION & CABLE STANDARD




- 1) J1,J2 FFC Cable
- 2) J3 Power Cable

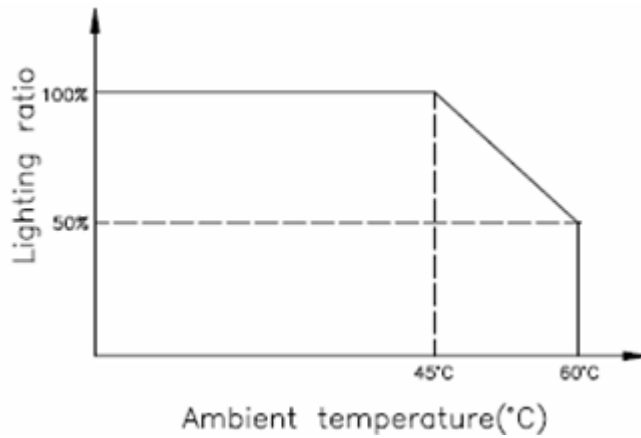
CONNECTION NO.	MODEL NO.	SPEC.
J1, J2	FFC12P 1.0mm	12P*50*1.00(0.1*0.75)
J3	GH-0322-300R	J3 to P1,P3 : 300mm J3 to P2 : 150mm

3) J3 Power

PIN NO	NAME	FUNCTION DESCRIPTION	FEATURE
1	Vcc	Supply Voltage _ Circuit	
2	GND	Signal Ground	
3	GND	Signal Ground	
4	Vdd	Supply Voltage _ LED	

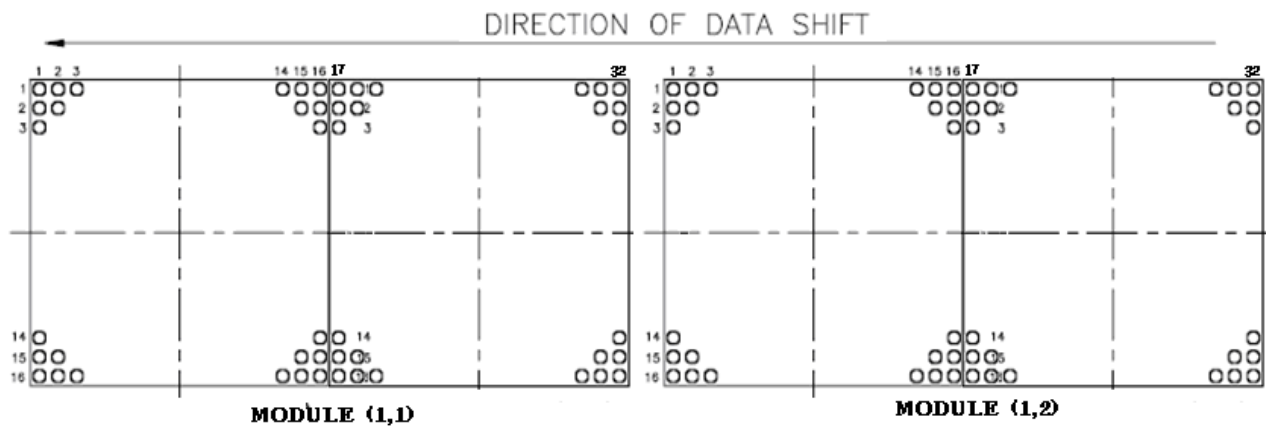
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12. THE RATE OF LIST DERATING CURVE



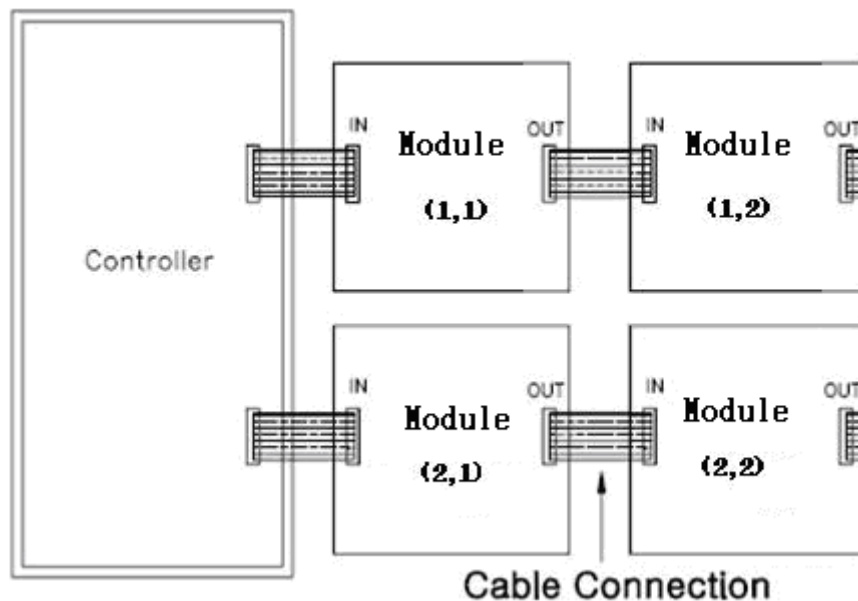
When you drive the module, refer to left graph.

13. DATA SHIFT DIRECTION



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14. EXAMPLE CONNECTION




15. MATTER ON CAUTION WHEN INSTALLED (assembly)

- 1) It should be installed deeply considered in noisy place because wrong operation might be occurred
- 2) Make sure of power source before operating after being assembled module. Damage may be occurred by low voltage or short circuit.
- 3) The module is not waterproofed. So, do waterproof treatment to instrument of you need.
- 4) Please install module within guaranteed scope and specially escape installation from circumstance of smoke, dust, and SO₂-GAS.
- 5) Please turn off power source if there is no data transmission when you testing its operation after installation.
- 6) Please establish policy of heat release and use it under circumstance within guarantee scope in case a lot of module is assembled and used.
- 7) In case it is used under below zero circumstance, it is favorable to use it with high voltage within maximum extent of value of input power source.
- 8) Please make instrument after examining weight fully as module weight is 80g.

16. MATTER OF REFERENCE WHEN HANDING

- 1) Over voltage prevention circuit is built in "LED POWER SUPPLY(VLED)" of module and LED will be turned off in case high voltage is supplied beyond maximum extent of regular power.
- 2) VR volume of brightness adjustment-use is adjusted in fixed rank by LOT and supplied therefore don't operate it as you please.
- 3) Operating circuit is composed of CMOS, so, please take caution for static electricity.
- 4) If you have any question for using this, please contact us.

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※ Warranty contents

Exchange without compensation will be made for the period of **12month** after having been delivered in case troubles in ordinary treatment in occurred.

Warranty is for deliver products. Expense of exchange work, damage compensation for advertisement suspension is not paid. Also compensative treatment will be made in case of following even for warranty period.

1. Troubles by handing carelessness and wrong using.
2. Troubles by inapplicable repair or remarking.
3. Troubles by natural disaster.

◎ Matters that demand attention and notice in compliance with contents of this document and use of the product.

- 1) In case that the products mentioned in this document is application ti foreign exchange and foreign control law, admission of Korea government is required when exporting or taking out.
- 2) Technical information mentioned in this document is record of production characteristics and practical circuit and it is not mean guarantee of possessive right of industry or permission if performance right.
- 3) Standard use of this production – it is used for general electronic parts(dedicators, Display, Office machine measuring equipment and home consumer products). When it is used for specific use(Aviation space, Traffic equipment. Burning equipment and safety equipment, ETC) which special quality and reliability is required and when trouble or miss operation of these threaten human's life of do harm to person, you should discuss it whit us in advance considering using except standard use of our intention.
- 4) You should use it within the warranty scope for special maximum rating operation power source electronic voltage scope and heat release ability. We are not responsible for the defect that occur to instrument when it is used beyond our warranty measures.

◎ If you have any question or change required about the specification, please solve it after agreement with us.