

**LED DOT MATRIX**
**BL-M46X581**
**Features:**

- Ø 121.50mm (4.6") 10.0 dot matrix LED display..
- Ø Low current operation.
- Ø Excellent character appearance.
- Ø Easy mounting on P.C. Boards or sockets.
- Ø I.C. Compatible.
- Ø ROHS Compliance.


**Super Bright**
**Electrical-optical characteristics: (Ta=25°C) (Test Condition: IF=20mA)**

Part No			Chip			VF Unit:V		Iv	
Row Cathode	Column Anode	Row Anode	Column Cathode	Emitted Color	Material	λp (nm)	Typ	Max	TYP.(mcd)
BL-M46A581S-XX		BL-M46B581S-XX		Hi Red	GaAlAs/GaAs,SH	660	1.85	2.20	155
BL-M46A581D-XX		BL-M46B581D-XX		Super Red	GaAlAs/GaAs,DH	660	1.85	2.20	180
BL-M46A581UR-XX		BL-M46B581UR-XX		Ultra Red	GaAlAs/GaAs,DDH	660	1.85	2.20	230
BL-M46A581E-XX		BL-M46B581E-XX		Orange	GaAsP/GaP	635	2.10	2.50	120
BL-M46A581Y-XX		BL-M46B581Y-XX		Yellow	GaAsP/GaP	585	2.10	2.50	120
BL-M46A581G-XX		BL-M46B581G-XX		Green	GaP/GaP	570	2.20	2.50	140

**Ultra Bright**
**Electrical-optical characteristics: (Ta=25°C) (Test Condition: IF=20mA)**

Part No		Chip			VF Unit:V		Iv		
Row Cathode	Column Anode	Row Anode	Column Cathode	Emitted Color	Material	λp V (nm)	Typ	Max	TYP.(mcd)
BL-M46A581UHR-X		BL-M46B581UHR-X		Ultra Red	AlGaInP	645	2.10	2.50	230
BL-M46A581UE-XX		BL-M46B581UE-XX		Ultra Orange	AlGaInP	630	2.10	2.50	170
BL-M46A581YO-XX		BL-M46B581YO-XX		Ultra Amber	AlGaInP	619	2.10	2.50	170
BL-M46A581UY-XX		BL-M46B581UY-XX		Ultra Yellow	AlGaInP	590	2.10	2.50	170
BL-M46A581UG-XX		BL-M46B581UG-XX		Ultra Green	AlGaInP	574	2.20	2.50	200
BL-M46A581PG-XX		BL-M46B581PG-XX		Ultra Pure Green	InGaN	525	3.80	4.50	250
BL-M46A581B-XX		BL-M46B581B-XX		Ultra Blue	InGaN	470	2.70	4.20	120
BL-M46A581W-XX		BL-M46B581W-XX		Ultra White	InGaN	/	2.70	4.20	200

--XX: Surface / Lens color :

Number	0	1	2	3	4	5
Ref Surface Color	White	Black	Gray	Red	Green	
Epoxy Color	Water clear	White diffused	Red Diffused	Green Diffused	Yellow Diffused	

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**Absolute maximum ratings (Ta=25°C)**

Parameter	S	D	UR	E	Y	G	Unit
Forward Current $I_F$	25	25	25	25	25	30	mA
Power Dissipation $P_d$	60	60	60	60	60	65	mW
Reverse Voltage $V_R$	5	5	5	5	5	5	V
Peak Forward Current $I_{PF}$ (Duty 1/10 @1KHZ)	150	150	150	150	150	150	mA
Operation Temperature $T_{OPR}$	-40 to +80						°C
Storage Temperature $T_{STG}$	-40 to +85						°C
Lead Soldering Temperature $T_{SOL}$	Max.260±5°C for 3 sec Max. (1.6mm from the base of the epoxy bulb)						°C

**Absolute maximum ratings (Ta=25°C)**

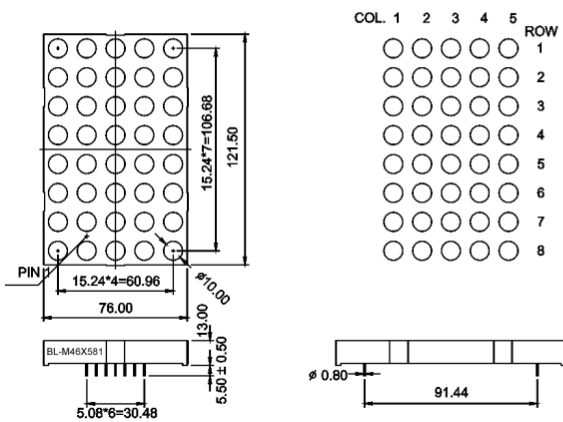
Parameter	UHR	UE	YO	UY	UG	PG	B	W	Unit
Forward Current $I_F$	30	30	30	30	30	30	30	30	mA
Power Dissipation $P_d$	75	65	65	65	75	110	120	120	mW
Reverse Voltage $V_R$	5	5	5	5	5	5	5	5	V
Peak Forward Current $I_{PF}$ (Duty 1/10 @1KHZ)	150	150	150	150	150	150	100	100	mA
Operation Temperature $T_{OPR}$	-40 to +80								°C
Storage Temperature $T_{STG}$	-40 to +85								°C
Lead Soldering Temperature $T_{SOL}$	Max.260±5°C for 3 sec Max. (1.6mm from the base of the epoxy bulb)								°C

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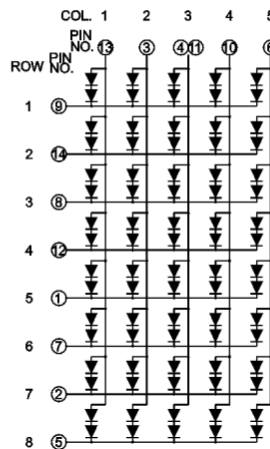
BL-M46X581

### Package configuration & Internal circuit diagram

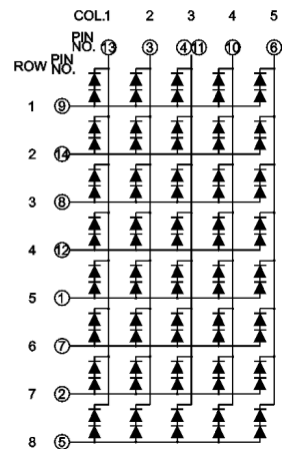
#### BL-M46X581 Series



#### BL-M46A581



#### BL-M46B581



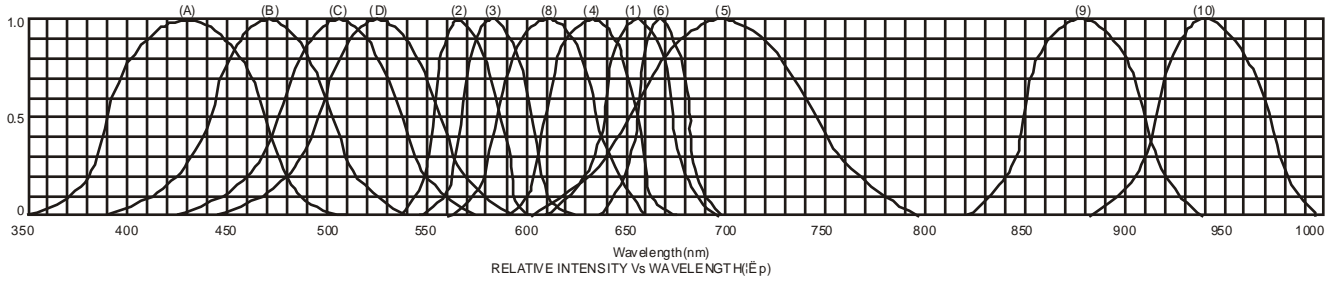
#### Notes:

1. All dimensions are in millimeters (inches)
2. Tolerance is  $\pm 0.25(0.01)$  unless otherwise noted.
3. Specifications are subject to change without notice.

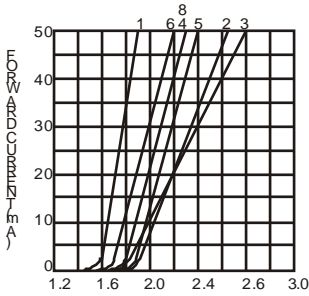
**LED DOT MATRIX**

**BL-M46X581**

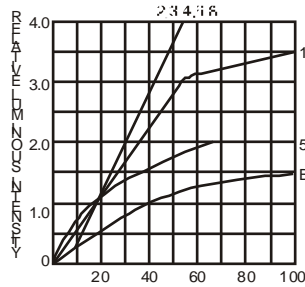
**Typical electrical-optical characteristics curves:**



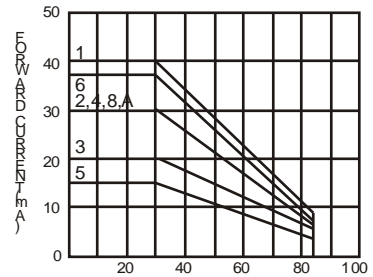
- (1) - GaAsP/GaAs 655nm/Red
- (2) - GaP 570nm/Yellow Green
- (3) - GaAsP/GaP 585nm/Yellow
- (4) - GaAsP/GaP 635nm/Orange & Hi-Eff Red
- (5) - GaP 700nm/Bright Red
- (6) - GaAlAs/GaAs 660nm/Super Red
- (8) - GaAsP/GaP 610nm/Super Red
- (9) - GaAlAs 880nm
- (10) - GaAs/GaAs & GaAlAs/GaAs 940nm
- (A) - GaN/SiC 430nm/Blue
- (B) - InGaN/SiC 470nm/Blue
- (C) - InGaN/SiC 505nm/Ultra Green
- (D) - InGaAlSiC 525nm/Ultra Green



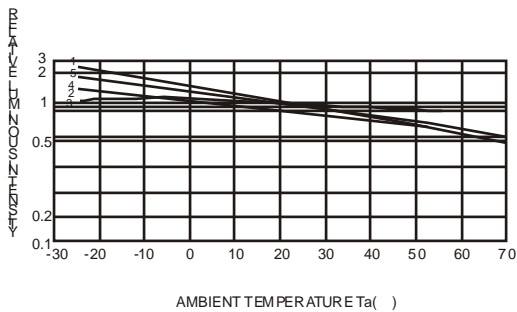
FORWARD VOLTAGE (Vf)  
FORWARD CURRENT VS.  
FORWARD VOLTAGE



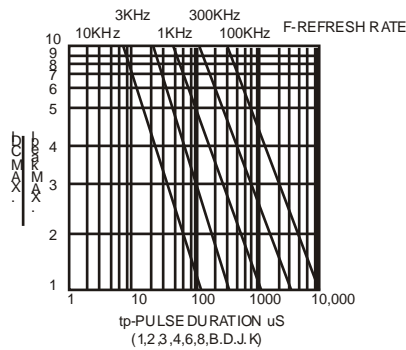
FORWARD CURRENT (mA)  
RELATIVE LUMINOUS  
INTENSITY VS. FORWARD  
CURRENT



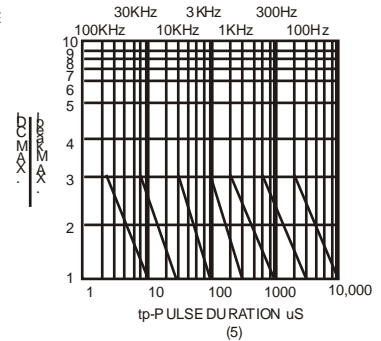
AMBIENT TEMPERATURE Ta ( °C )  
FORWARD CURRENT VS. AMBIENT  
TEMPERATURE



AMBIENT TEMPERATURE Ta ( °C )



tp-PULSE DURATION  $\mu$ s  
(1,2,3,4,6,8,B,D,J,K)



(5)

NOTE: 25 free air temperature unless otherwise specified