

01-BL1602A1
02-BL1602AW

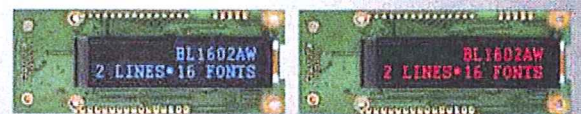
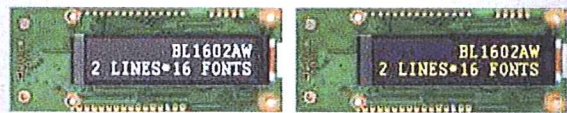
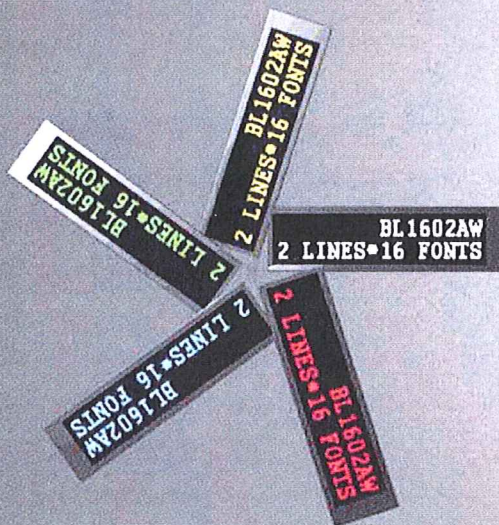
03-BL1602E1
04-BL1602EW

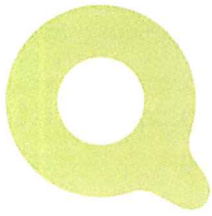
05-BL2002A1
06-BL2002AW

07-BL2004A1
08-BL2004AW

OLED - Character Type

- (BL Series)





Q-NITTO

BL1602A1



BL-1

Ultra wide temperature

Feature

1. COG module
2. 5V power supply
3. 5x8 dots format display
4. Built-in controller: US2066
5. Color: white, yellow, green
6. Support MCU Interfaces :
 - o 4 / 8-bit 6800/8080-series parallel interface
 - o Serial Peripheral Interface
 - o I²C Interface (Up to 400kbit/s)
7. 256-step contrast control
8. 3 sets of CGROM
(ROM A / B / C – hardware/software selectable)
9. Operating temperatures: -40°C to 85°C

Mechanical Data

Item	Standard Value	Unit
Module Dimension	68.5 x 17.5	mm
Active Area	56.22 x 11.52	mm
Dot Size	0.57 x 0.67	mm
Character Size	2.97 x 5.57	mm

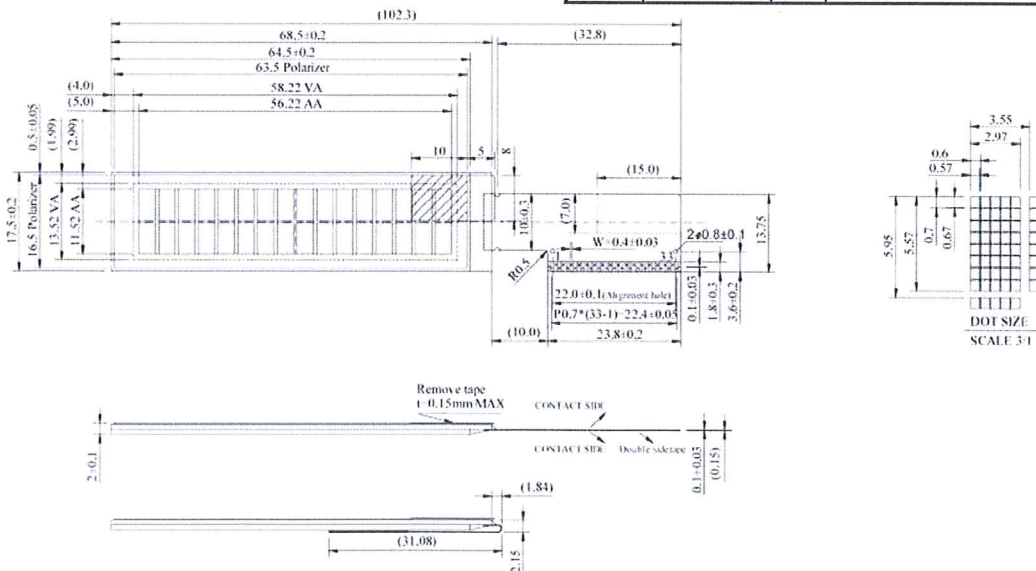
Electronic Characteristics

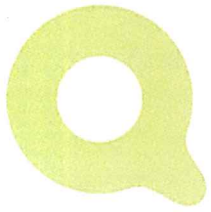
Item	Symbol	Condition	Value	Unit
Input Voltage	Vdd	Vdd =+ 5.0V	5.0(Typ.)	V
Supply Current	Idd	Vdd = +5.0V	300(Typ.)	uA
Life Time (Yellow)		150 cd/m ²	50,000	hrs
Life Time (White)		150 cd/m ²	25,000	hrs
Life Time (Green)		150 cd/m ²	25,000	hrs

Pin Assignment

Pin	Symbol	I/O	Description
1	N.C	-	Reserved Pin
2	VSL	P	Voltage output Low Level for SEG Signal
3	VSS	P	Ground
4	REGVDD	I	5V I/O Regulator Configuration
5	SHLC	I	Scanning Direction for COM Signal
6	SHLS	I	Mapping Direction for SEG Signal
7	VDD	P	Power Supply for logic Circuit
8	VDDIO	P	Power Supply for Interface logic Level
9~11	BS0~2	I	Communicating Protocol Selection
12	GPIO	I/O	General Purpose Input /Output
13	CS#	I	Chip Select
14	RES#	I	Power Reset for Controller and Driver
15	D/C#	I	Data/ Command Control
16	R/W#(WR#)	I	Read/ Write Select or Write
17	E(RD#)	I	Read /Write Enable or Read
18~25	D0~D7	I/O	Host Data Input/ Output Bus
26	IREF	I	Current Reference for Brightness Adjustment
27~28	ROM0~1	I	Built-in Character ROM Selection
29~30	OPR0~1	I	Character ROM/RAM Management
31	VCOMH	P	Voltage Output High Level for COM signal
32	VCC	P	Power Supply for Panel
33	NC	-	Reserved Pin

Dimension





Q-NITTO

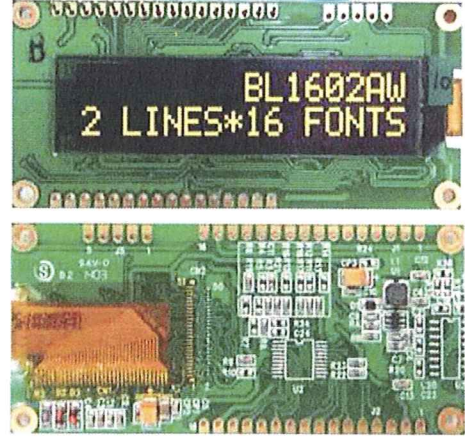
BL1602AW



BL-2

Feature

1. COG with SMT
2. 5V single power supply with built-in positive voltage
3. 5x8 dots format display
4. Built-in controller : US2066
5. Color: white, yellow, green
6. Support MCU Interfaces:
 - o 4 / 8-bit 6800/8080-series parallel interface
 - o Serial Peripheral Interface
 - o I²C Interface (Up to 400kbit/s)
7. 256-step contrast control
8. 3 sets of CGROM
(ROM A / B / C – hardware/software selectable)
9. Operating temperatures: -40°C to 85°C
10. Option: +3.3V single power supply



Mechanical Data

Item	Standard Value	Unit
Module Dimension	80.0 x 36.0	mm
Active Area	58.22 x 13.52	mm
Dot Size	0.57 x 0.67	mm
Character Size	2.97 x 5.57	mm

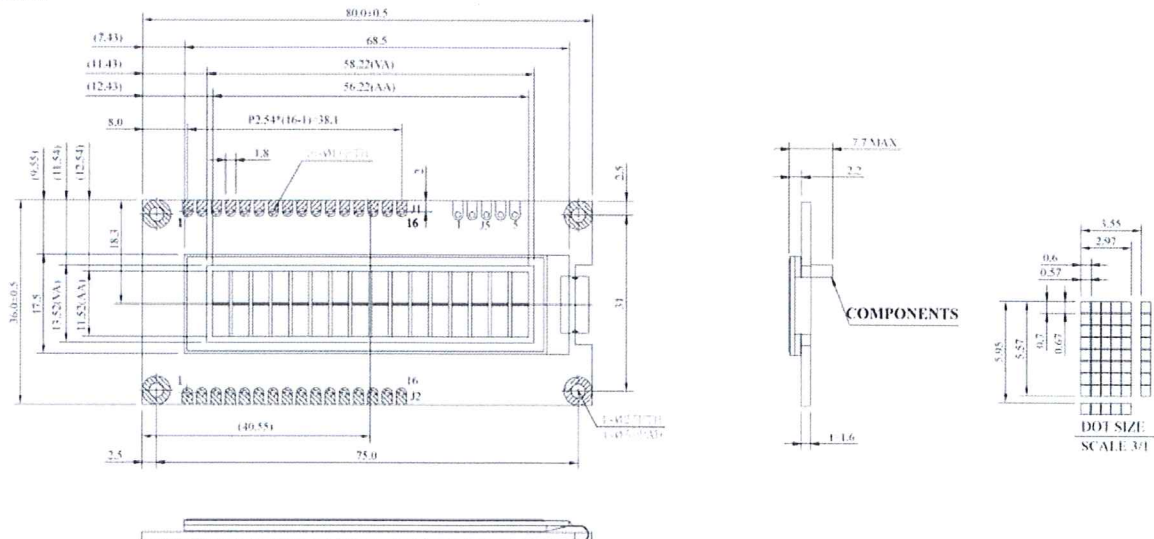
Electronic Characteristics

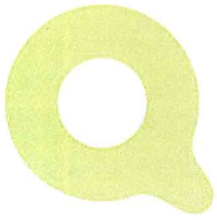
Item	Symbol	Condition	Typical Value	Unit
Input Voltage	Vdd	Vdd =+ 5.0V	5.0	V
Supply Current	Idd	Vdd =+ 5.0V	65.0	mA
Life Time (Yellow)		150cd/m ²	50,000	hrs

Pin Assignment

Pin	Symbol	Level	Description
1	GND	0V	Ground
2	VDD	5.0V	Supply voltage for logic.
3	NC	-	-
4	RS	H/L	H: DATA, L: Instruction code
5	RW	H/L	H: Read (MPU→Module) L: Write (MPU←Module)
6	E	H→L	Chip enable signal
7~14	DB0~7	H/L	Data bit 0~7
15	NC	-	-
16	NC	-	-

Dimension





Q-NITTO

BL1602E1



Feature

1. COG package
2. 5V power supply
3. 5x8 dots format display
4. Built-in controller : US2066
5. Color: white, yellow, green
6. Support MCU Interfaces:
 - o 4 / 8-bit 6800/8080-series parallel interface
 - o Serial Peripheral Interface
 - o I²C Interface (Up to 400kbit/s)
7. 256-step contrast control
8. 3 sets of CGROM
(ROM A / B / C – hardware/software selectable)
9. Operating temperatures: -40°C to 85°C



BL-3

Ultra wide temperature

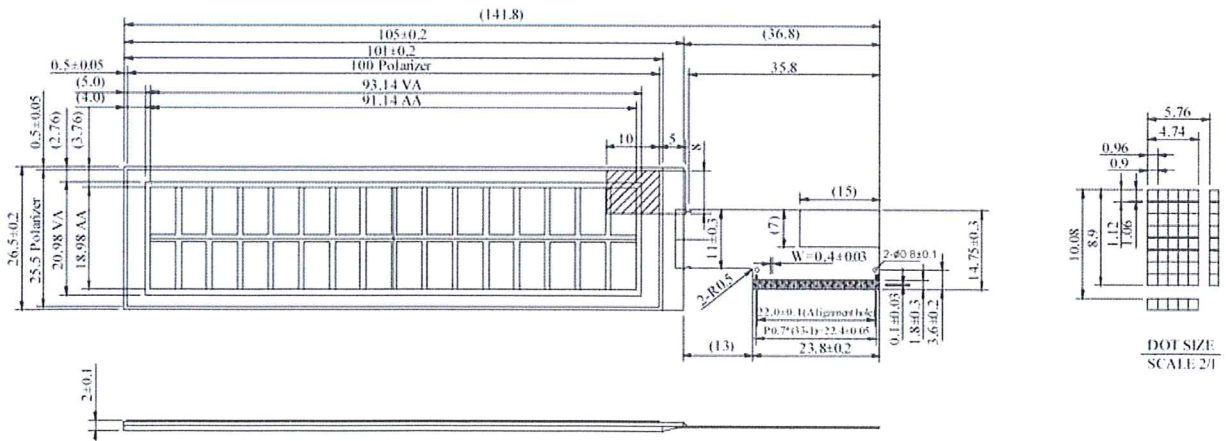
Mechanical Data

Item	Standard Value	Unit
Module Dimension	105 x 26.5	mm
Active Area	91.14 x 18.98	mm
Dot Size	0.9 x 1.06	mm
Character Size	4.74 x 8.9	mm

Electronic Characteristics

Item	Symbol	Condition	Value	Unit
Input Voltage	Vdd	Vdd = +5.0V	5.0(Typ.)	V
Supply Current	Idd	Vdd = +5.0V	300(Typ.)	uA
Life Time (Yellow)		120 cd/m ²	80,000	hrs
Life Time (White)		100 cd/m ²	40,000	hrs
Life Time (Green)		120 cd/m ²	40,000	hrs

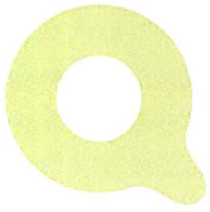
Dimension



Pin Assignment

Pin	Symbol	I/O	Description
1	N.C	-	Reserved Pin
2	VSL	P	Voltage output Low Level for SEG Signal
3	VSS	P	Ground
4	REGVDD	I	5V I/O Regulator Configuration
5	SHLC	I	Scanning Direction for COM Signal
6	SHLS	I	Mapping Direction for SEG Signal
7	VDD	P	Power Supply for logic Circuit
8	VDDIO	P	Power Supply for Interface logic Level
9~11	BS0~2	I	Communicating Protocol Selection
12	GPIO	I/O	General Purpose Input /Output
13	CS#	I	Chip Select
14	RES#	I	Power Reset for Controller and Driver
15	D/C#	I	Data/ Command Control
16	R/W#(WR#)	I	Read/ Write Select or Write
17	E(RD#)	I	Read /Write Enable or Read
18~25	D0~D7	I/O	Host Data Input/ Output Bus
26	IREF	I	Current Reference for Brightness Adjustment
27~28	ROM0~1	I	Built-in Character ROM Selection
29~30	OPR0~1	I	Character ROM/RAM Management
31	VCOMH	P	Voltage Output High Level for COM signal
32	VCC	P	Power Supply for Panel
33	NC	-	Reserved Pin





Q-NITTO

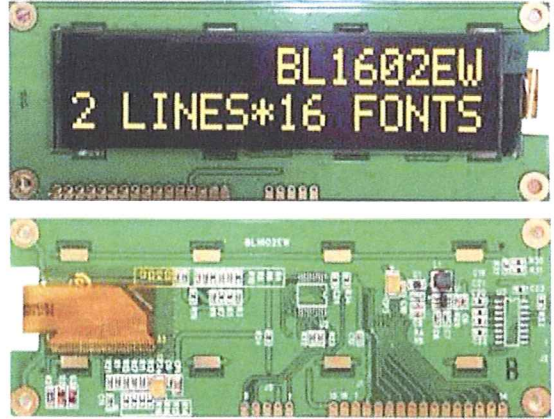
BL1602EW



BL-4

Feature

1. COG with SMT
2. 5V single power supply with built-in positive voltage
3. 5x8 dots format display
4. Built-in controller : US2066
5. Color: white, yellow, green
6. Support MCU Interfaces:
 - o 4 / 8-bit 6800/8080-series parallel interface
 - o Serial Peripheral Interface
 - o I²C Interface (Up to 400kbit/s)
7. 256-step contrast control
8. 3 sets of CGROM
(ROM A / B / C – hardware/software selectable)
9. Operating temperatures: -40°C to 85°C
10. Option: +3.3V single power supply



Mechanical Data

Item	Standard Value	Unit
Module Dimension	122.0 x 44.0	mm
Active Area	93.14 x 20.98	mm
Dot Size	0.90 x 1.06	mm
Character Size	4.74 x 8.90	mm

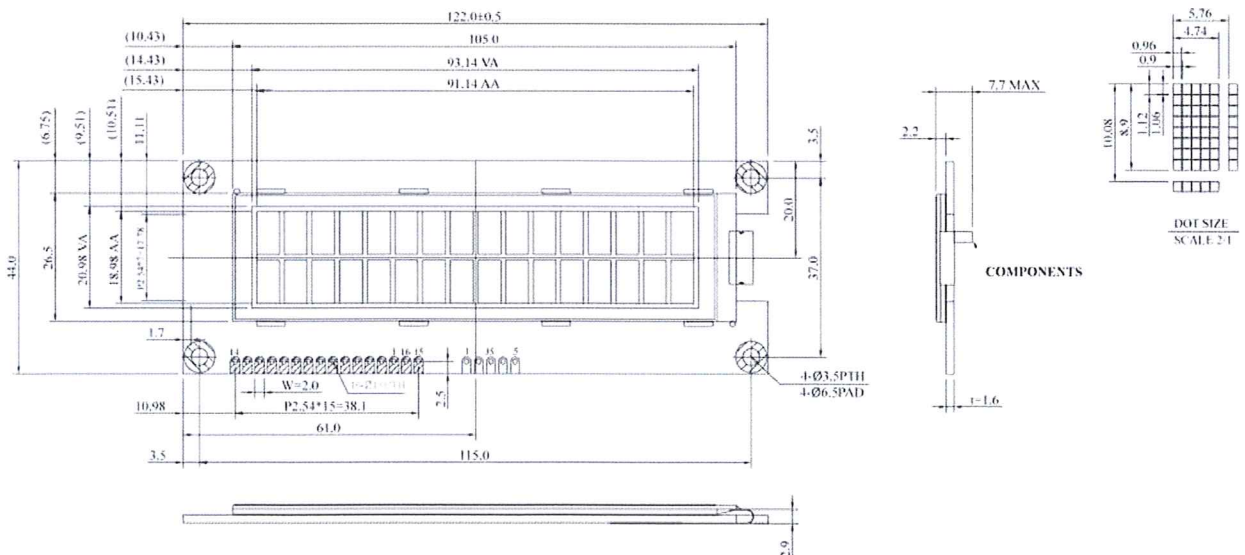
Electronic Characteristics

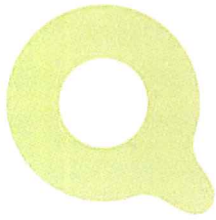
Item	Symbol	Condition	Typical Value	Unit
Input Voltage	Vdd	Vdd =+ 5.0V	5.0	V
Supply Current	Idd	Vdd =+ 5.0V	150.0	mA
Life Time (Yellow)		120cd/m ²	80,000	hrs

Pin Assignment

Pin	Symbol	Level	Description
1	GND	0V	Ground
2	VDD	5.0V	Supply voltage for logic .
3	NC	-	-
4	RS	H/L	H: DATA, L: Instruction code
5	R/W	H/L	H: Read (MPU→Module) L: Write (MPU←Module)
6	E	H→L	Chip enable signal
7~14	DB0~7	H/L	Data bit 0~7
15	NC	-	-
16	NC	-	-

Dimension





Q-NITTO

BL2002A1



Feature

1. COG package
2. 5V power supply
3. 5x8 dots format display
4. Built-in controller : US2066
5. Color: white, yellow, green
6. Support MCU Interfaces:
 - o 4 / 8-bit 6800/8080-series parallel interface
 - o Serial Peripheral Interface
 - o I²C Interface (Up to 400kbit/s)
7. 256-step contrast control
8. 3 sets of CGROM
(ROM A / B / C – hardware/software selectable)
9. Operating temperatures: -40°C to 85°C



Ultra wide temperature

BL-5

Mechanical Data

Item	Standard Value	Unit
Module Dimension	84.5 x 19.28	mm
Active Area	73.52 x 11.52	mm
Dot Size	0.62 x 0.67	mm
Character Size	3.22 x 5.57	mm

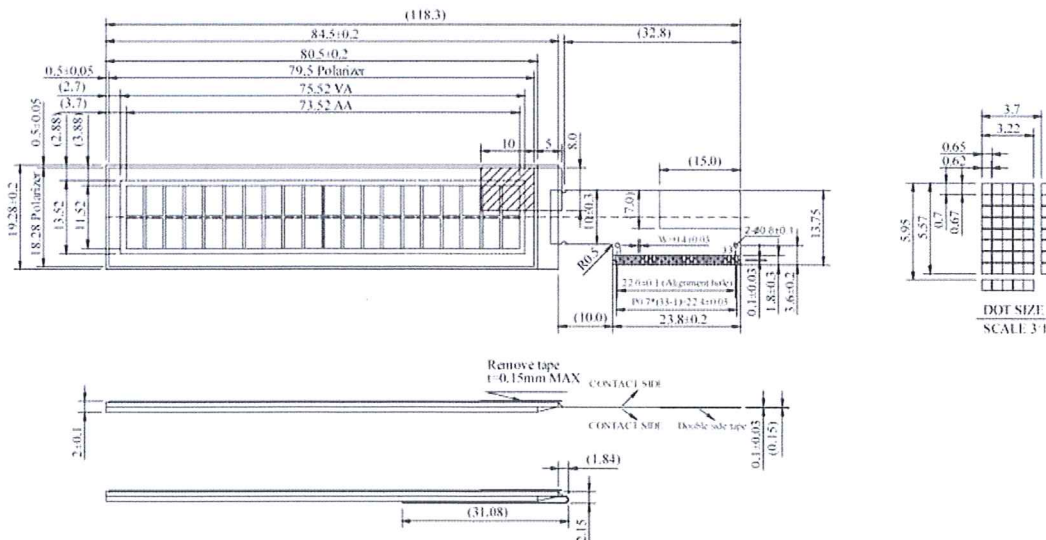
Electronic Characteristics

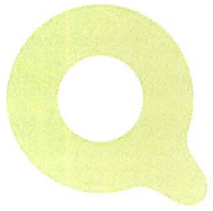
Item	Symbol	Condition	Value	Unit
Input Voltage	Vdd	Vdd = +5.0V	5.0(Typ.)	V
Supply Current	Idd	Vdd = +5.0V	300(Typ.)	uA
Life Time (Yellow)		150 cd/m ²	50,000	hrs
Life Time (White)		120 cd/m ²	30,000	hrs
Life Time (Green)		120 cd/m ²	40,000	hrs

Pin Assignment

Pin	Symbol	I/O	Description
1	N.C	-	Reserved Pin
2	VSL	P	Voltage output Low Level for SEG Signal
3	VSS	P	Ground
4	REGVDD	I	5V I/O Regulator Configuration
5	SHLC	I	Scanning Direction for COM Signal
6	SHLS	I	Mapping Direction for SEG Signal
7	VDD	P	Power Supply for logic Circuit
8	VDDIO	P	Power Supply for Interface logic Level
9~11	BS0~2	I	Communicating Protocol Selection
12	GPIO	I/O	General Purpose Input /Output
13	CS#	I	Chip Select
14	RES#	I	Power Reset for Controller and Driver
15	D/C#	I	Data/ Command Control
16	R/W#(WR#)	I	Read/ Write Select or Write
17	E(RD#)	I	Read /Write Enable or Read
18~25	D0~D7	I/O	Host Data Input/ Output Bus
26	IREF	I	Current Reference for Brightness Adjustment
27~28	ROM0~1	I	Built-in Character ROM Selection
29~30	OPRO~1	I	Character ROM/RAM Management
31	VCOMH	P	Voltage Output High Level for COM signal
32	VCC	P	Power Supply for Panel
33	NC	-	Reserved Pin

Dimension





Q-NITTO

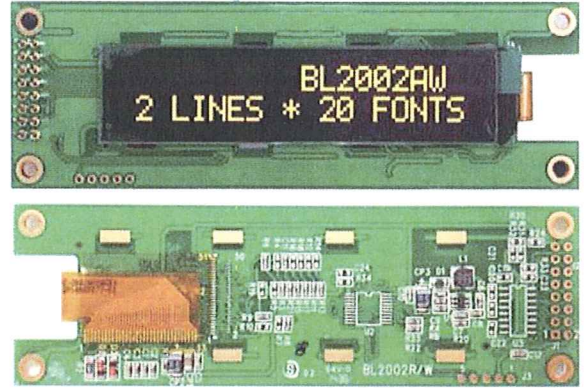
BL2002AW



BL-6

Feature

1. COG with SMT
2. 5V single power supply with built-in positive voltage
3. 5x8 dots format display
4. Built-in controller : US2066
5. Color: white, yellow, green
6. Support MCU Interfaces:
 - o 4 / 8-bit 6800/8080-series parallel interface
 - o Serial Peripheral Interface
 - o I²C Interface (Up to 400kbit/s)
7. 256-step contrast control
8. 3 sets of CGROM
(ROM A / B / C – hardware/software selectable)
9. Operating temperatures: -40°C to 85°C
10. Option: +3.3V single power supply



Mechanical Data

Item	Standard Value	Unit
Module Dimension	116.0 x 37.0	mm
Active Area	75.52 x 13.52	mm
Dot Size	0.62 x 0.67	mm
Character Size	3.22 x 5.57	mm

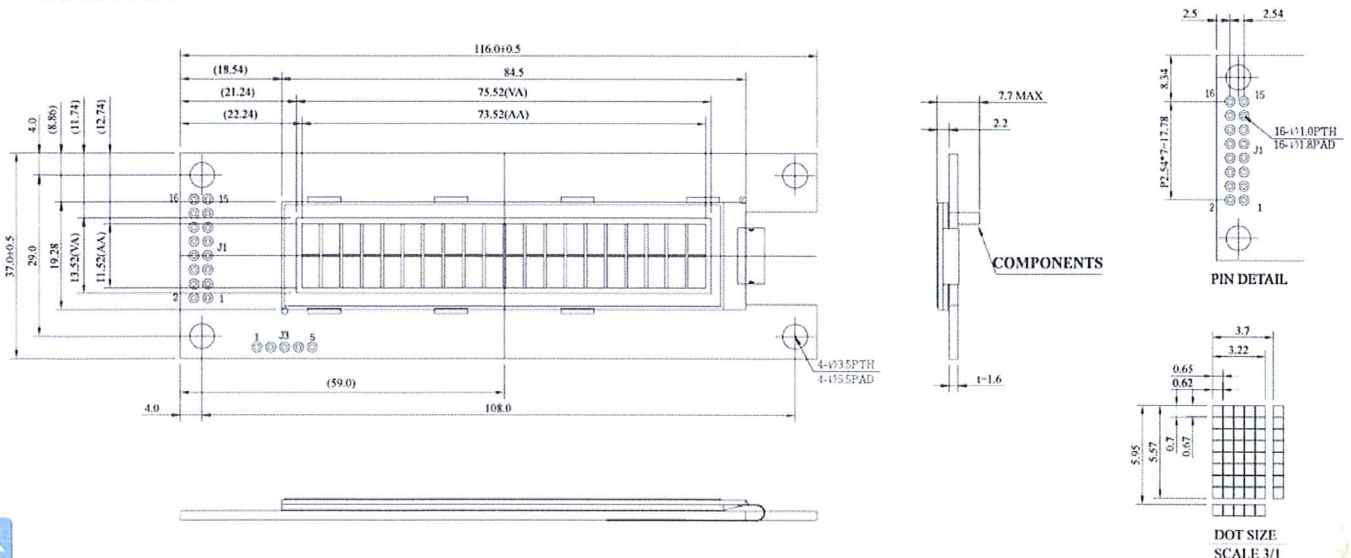
Electronic Characteristics

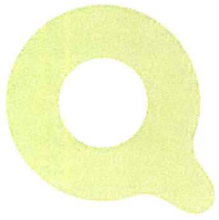
Item	Symbol	Condition	Typical Value	Unit
Input Voltage	Vdd	Vdd =+ 5.0V	5.0	V
Supply Current	Idd	Vdd =+ 5.0V	150.0	mA
Life Time (Yellow)		150cd/m ²	50,000	hrs

Pin Assignment

Pin	Symbol	Level	Description
1	GND	0V	Ground
2	VDD	5.0V	Supply voltage for logic .
3	NC	-	-
4	RS	H/L	H: DATA, L: Instruction code
5	R/W	H/L	H: Read (MPU→Module) L: Write (MPU←Module)
6	E	H→L	Chip enable signal
7~14	DB0~7	H/L	Data bit 0~7
15	NC	-	-
16	NC	-	-

Dimension





Q-NITTO

BL2004A1



Feature

1. COG package
2. 5V power supply
3. 5x8 dots format display
4. Built-in controller : US2066
5. Color: white, yellow, green
6. Support MCU Interfaces:
 - o 4 / 8-bit 6800/8080-series parallel interface
 - o Serial Peripheral Interface
 - o I²C Interface (Up to 400kbit/s)
7. 256-step contrast control
8. 3 sets of CGROM
(ROM A / B / C – hardware/software selectable)
9. Operating temperatures: -40°C to 85°C



BL-7

Ultra wide temperature

Mechanical Data

Item	Standard Value	Unit
Module Dimension	84.5 x 27.5	mm
Active Area	70.42 x 20.82	mm
Dot Size	0.57 x 0.57	mm
Character Size	2.97 x 4.77	mm

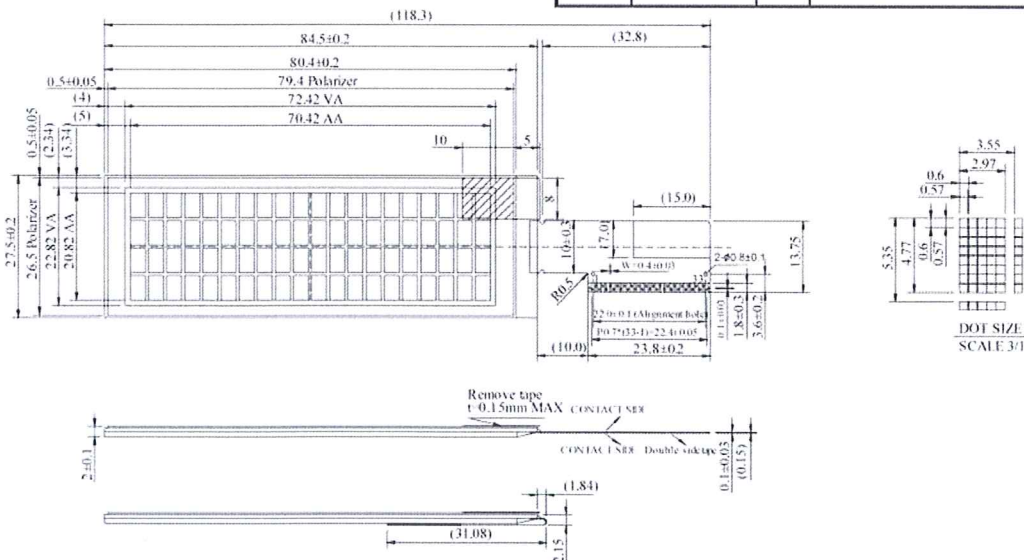
Electronic Characteristics

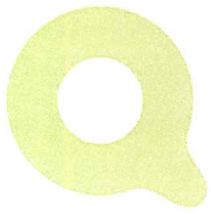
Item	Symbol	Condition	Value	Unit
Input Voltage	Vdd	Vdd = +5.0V	5.0(Typ.)	V
Supply Current	Idd	Vdd = +5.0V	300(Typ.)	uA
Life Time (Yellow)		120 cd/m ²	40,000	hrs
Life Time (White)		100 cd/m ²	15,000	hrs
Life Time (Green)		120 cd/m ²	30,000	hrs

Pin Assignment

Pin	Symbol	I/O	Description
1	N.C	-	Reserved Pin
2	VSL	P	Voltage output Low Level for SEG Signal
3	VSS	P	Ground
4	REGVDD	I	5V I/O Regulator Configuration
5	SHLC	I	Scanning Direction for COM Signal
6	SHLS	I	Mapping Direction for SEG Signal
7	VDD	P	Power Supply for logic Circuit
8	VDDIO	P	Power Supply for Interface logic Level
9~11	BS0~2	I	Communicating Protocol Selection
12	GPIO	I/O	General Purpose Input /Output
13	CS#	I	Chip Select
14	RES#	I	Power Reset for Controller and Driver
15	D/CH	I	Data/ Command Control
16	R/W#(WR#)	I	Read/ Write Select or Write
17	E(RD#)	I	Read /Write Enable or Read
18~25	D0~D7	I/O	Host Data Input/ Output Bus
26	IREF	I	Current Reference for Brightness Adjustment
27~28	ROM0~1	I	Built-in Character ROM Selection
29~30	OPRO~1	I	Character ROM/RAM Management
31	VCOMH	P	Voltage Output High Level for COM signal
32	VCC	P	Power Supply for Panel
33	NC	-	Reserved Pin

Dimension





Q-NITTO

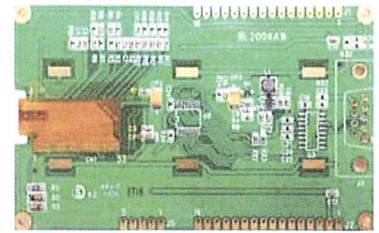
BL2004AW



BL-8

Feature

1. COG with SMT
2. 5V single power supply with built-in positive voltage
3. 5x8 dots format display
4. Built-in controller : US2066
5. Color: white, yellow, green
6. Support MCU Interfaces:
 - o 4 / 8-bit 6800/8080-series parallel interface
 - o Serial Peripheral Interface
 - o I²C Interface (Up to 400kbit/s)
7. 256-step contrast control
8. 3 sets of CGROM
(ROM A / B / C – hardware/software selectable)
9. Operating temperatures: -40°C to 85°C
10. Option: +3.3V single power supply



Mechanical Data

Item	Standard Value	Unit
Module Dimension	98.0 x 60.0	mm
Active Area	72.42 x 22.82	mm
Dot Size	0.57 x 0.57	mm
Character Size	2.97 x 4.77	mm

Electronic Characteristics

Item	Symbol	Condition	Typical Value	Unit
Input Voltage	Vdd	Vdd =+ 5.0V	5.0	V
Supply Current	Idd	Vdd =+ 5.0V	200.0	mA
Life Time (Yellow)		120cd/m ²	40,000	hrs

Pin Assignment

Pin	Symbol	Level	Description
1	GND	0V	Ground
2	VDD	5.0V	Supply voltage for logic.
3	NC	-	-
4	RS	H/L	H: DATA, L: Instruction code
5	R/W	H/L	H: Read (MPU→Module) L: Write (MPU←Module)
6	E	H→L	Chip enable signal
7~14	DB0~7	H/L	Data bit 0~7
15	NC	-	-
16	NC	-	-

Dimension

