INTRODUCTION

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NEC products are classified into the following three quality grades:

"Standard", "Special", "Specific"

The ***"Specific"*** quality grade applies only to applications developed based on a customer designated "quality assurance program" for a specific application. The recommended applications of a product depend on its quality grade, as indicated below. Customers must check the quality grade of each application before using it in a particular application.

Standard: Computers, office equipment, communications equipment, test and measurement equipment, audio and visual equipment, home electronic appliances, machine tools, personal electronic equipment and industrial robots

Special: Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)

Specific: Military systems, aircraft, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems (medical equipment, etc.) and any other equipment

The quality grade of this product is ***"Standard"*** unless otherwise specified in this document. If customers intend to use this product for applications other than those specified for ***"Standard"*** quality grade, they should contact NEC Corporation sales representative in advance.

Anti-radioactive design is not implemented in this product.

CONTENTS

CONTENTS

1. OUTLINE

1.1 STRUCTURE AND PRINCIPLE

NL6448BC33-46 module is composed of the amorphous silicon thin film transistor liquid crystal display (a-Si TFT LCD) panel structure with driver LSIs for driving the TFT (Thin Film Transistor) array and a backlight unit.

The a-Si TFT LCD panel structure is injected liquid crystal material into a narrow gap between the TFT array glass substrate and a color-filter glass substrate.

Color (Red, Green, Blue) data signals from a host system (e.g. PC, signal generator, etc.) are modulated into best form for active matrix system by a signal processing board, and sent to the driver LSIs which drive the individual TFT arrays.

The TFT array as an electro-optical switch regulates the amount of transmitted light from the backlight assembly, when it is controlled by data signals. Color images are created by regulating the amount of transmitted light through the TFT array of red, green and blue dots.

1.2 APPLICATIONS

- Industrial PC
- Display terminal for control system

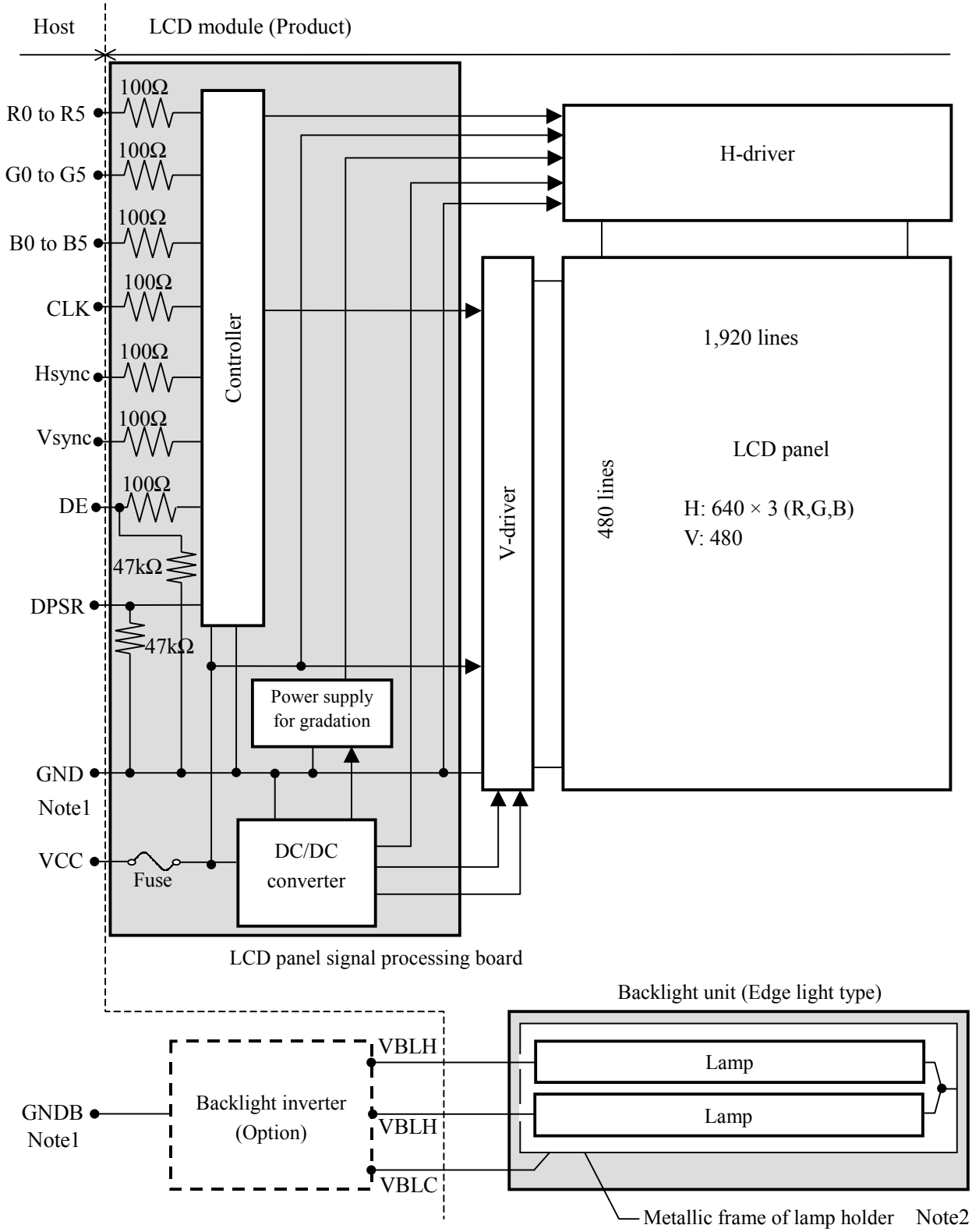
1.3 FEATURES

- High luminance
- Wide viewing angle
- High contrast
- 6-bit digital RGB signals
- Reversible-scan direction
- Edge light type
- Replaceable lamp for backlight unit (Inverter less)
- Acquisition product for UL/c-UL (File number: E170632)

2. GENERAL SPECIFICATIONS

Display area	211.2 (W) × 158.4 (H) mm (typ.)
Diagonal size of display	26.4 cm (10.4 inches)
Drive system	a-Si TFT active matrix
Display color	262,144 colors
Pixel	640 (H) × 480 (V) pixels
Pixel arrangement	RGB (Red dot, Green dot, Blue dot) vertical stripe
Dot pitch	0.1100 (W) × 0.3300 (H) mm
Pixel pitch	0.3300 (W) × 0.3300 (H) mm
Module size	243.0 (W) × 185.1 (H) × 11.0 (D) mm (typ.)
Weight	530 g (typ.)
Contrast ratio	300:1 (typ.)
Viewing angle	*At the contrast ratio 10:1* • Horizontal: Left side 70° (typ.), Right side 70° (typ.) • Vertical: Up side 45° (typ.), Down side 55° (typ.)
Designed viewing direction	*At DPSR: normal scan* • Viewing direction without image reversal: up side (12 o'clock) • Viewing direction with contrast peak: down side 5° to 10° (6 o'clock) • Viewing angle with optimum grayscale (γ=2.2): normal axis
Polarizer surface	Non matt treatment
Polarizer pencil-hardness	3H (min.) [by JIS K5400]
Color gamut	*At LCD panel center* 43 % (typ.) [against NTSC color space]
Response time	6 ms (typ.)
Luminance	*At 5.0mArms / lamp* 350 cd/m^2 (typ.)
Signal system	6-bit digital signals for data of RGB colors, Dot clock (CLK), Data enable (DE), Horizontal synchronous signal (Hsync), Vertical synchronous signal (Vsync)
Power supply voltage	LCD panel signal processing board: 3.3V or 5.0V
Backlight	Edge light type: 2 cold cathode fluorescent lamps (Replaceable parts • Lamps for backlight unit: Type No. 104LHS35) (Recommended inverter (Option) • Inverter: Type No. 104PW161)
Power consumption	*At maximum luminance and checkered flag pattern* 6.2 W (typ.)

3. BLOCK DIAGRAM



Note1: GND and GNDB (Backlight inverter ground) should be connected together in customer equipment.
Note2: The metallic frame of lamp holder is used to a transmission line for VBLC.