

## Current Limiting Resistor for LED Backlight

The LED backlight arrays should not be connected directly to the 5V supply.

The correct supply voltage for the LED backlight array is 4.2V.

In addition, this backlight power supply needs to be current limited.

Excessive current can dramatically shorten the LED lifetime (MTBF = 100K hr).

You can use a regulated, current limited power supply for the backlight.

In most applications, a simple current limiting series resistor will work fine.  
Connect the resistor in series between the anode and the Vdd supply line.

The recommended resistor values below are for a 5V supply, to drop LED voltage to 4.2V.  
In all cases below, 0.5W, 10% resistors are adequate.

*Note: The 40x4 module, MSC-C404DGLY-10W, has a built-in current limiting resistor.  
This model should be connected directly to the 5V supply.*

Format	Part Number	Dimensions (mm)	Series Resistor	Typical LED Current (mA)	Maximum LED Current (mA)
8x1	MTP-C81DPSY-2W	100.0 x 42.0 x 12.5	3.9 ohm	200	300
16x1	MSC-C161DGLY-1W	80.0 x 36.0 x 15.8	5.6 ohm	150	200
16x2	MSC-C162DGLY-2W	80.0 x 36.0 x 15.8	5.6 ohm	150	200
16x2	MSC-C162DGLY-3W	122.0 x 44.0 x 15.8	3.3 ohm	280	480
16x2	MSC-C162DGLY-4W	84.0 x 44.0 x 12.0	5.6 ohm	150	200
16x4	MSC-C164DGLY-2W	87.0 x 60.0 x 15.8	3.3 ohm	230	400
20x2	MSC-C202DGLY-1W	116.0 x 37.0 x 15.8	3.9 ohm	200	300
20x4	MSC-C204DGLY-1W	98.0 x 60.0 x 15.8	3.3 ohm	230	400
24x2	MSC-C242DGLY-1W	118.0 x 36.0 x 15.8	3.0 ohm	280	480
40x2	MSC-C402DGLY-1W	182.0 x 33.5 x 16.3	3.0 ohm	280	480
40x4	MSP-C404DGLY-10W	190.0 x 54.0 x 16.3	(none)	500	900