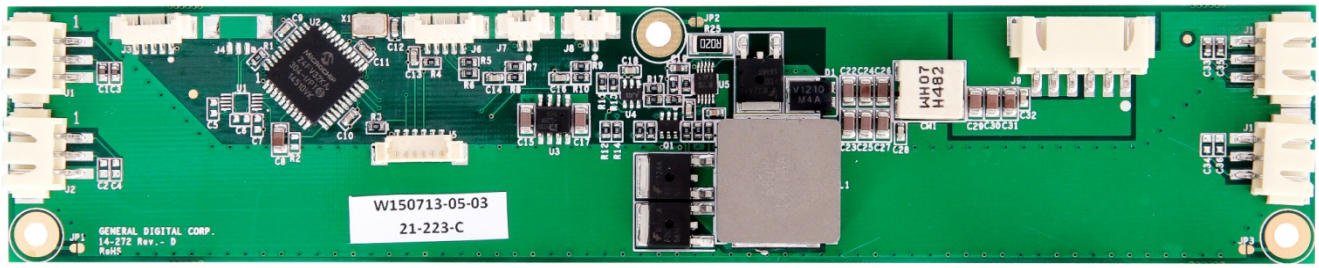

Overview

The 21-223-C is a dual channel LED driver intended for SR (Sunlight Readable)/NVIS backlights in LCD displays. The LED driver utilizes a constant current buck controller with SR and NVIS channel current levels that can be set to independently in firmware. The 21-223-C features a thermistor sensor input to monitor LED rail temperature prevent overheating. Brightness levels are controlled via a simple yet reliable analog input and two logic signals to control enable and SR/NVIS selection.

The 21-223-C can be modified with firmware updates to meet the requirements of many different applications. Firmware modifications are as follows:

- Three operating modes: SR Only Mode, SR/Night Mode, SR/NVIS Mode
- LED output: PWM dimmed LED outputs.
- LED current: Current can be adjusted independently for the SR and NVIS rail
- Configurable overtemp variables
- Polarities of all inputs can be changed independently
- Enable and Day/NVIS signals can be discreet logic or pushbutton
- Adjustable analog dimming input voltage range
- RS-232 and I^2C command set

Electrical Characteristics

Absolute Maximum Ratings				
Parameter	**Symbol**	**Minimum**	**Maximum**	**Units**
Input Voltage	Vin	-0.3	30.0	VDC
Input Pin	Vip	-0.3	5.5	VDC
Vref Output Current	Iref	-	10.0	mA
Operating Temperature	Top	-40	85	°C

Electrical Characteristics						
Parameter	**Condition**	**Symbol**	**Minimum**	**Typical**	**Maximum**	**Units**
Input Voltage	Normal Operation	Vin	12.0	-	28.0	VDC
LED Output Voltage		Vled	-	-	Vin - 2	VDC
LED Output Current	Max Brightness	Iled	-	-	4	ADC

Connector Information

Connector J1 - LED OUT		
JST/S3B-XH-SM4-TB (mates with JST/XHP-3)		
Pin	**Description**	**Notes**
1	SR ANODE	(Vin - 2V), 3A MAX[Note 1]
2	NVIS ANODE	(Vin - 2V), 3A MAX[Note 1]
3	GND	

Connector J2 - LED OUT		
JST/S3B-XH-SM4-TB (mates with JST/XHP-3)		
Pin	**Description**	**Notes**
1	SR ANODE	(Vin - 2V), 3A MAX[Note 1]
2	NVIS ANODE	(Vin - 2V), 3A MAX[Note 1]
3	GND	

Connector J5 – RESERVED – LEAVE AS NO CONNECT		
Molex/053261-0671 (mates with Molex/51021-0600)		
Pin	**Description**	**Notes**
1	Vref	Connected to internal VCC (+5VDC)
2	RESERVED	
3	RESERVED	
4	RESERVED	
5	RESERVED	
6	GND	

Connector J6 - BACKLIGHT CONTROL		
Molex/053261-0571 (mates with Molex/51021-0500)		
Pin	**Description**	**Notes**
1	Vref	Connected to internal VCC (+5VDC) 10mA MAX
2	ENABLE	+5VDC-Enabled, 0VDC-Dissabled, Internally pulled up with 10kΩ resistor
3	SR/NVIS	+5VDC-SR, 0VDC-NVIS, Internally pulled up with 10kΩ resistor
4	Ain	0VDC to +5VDC analog input, 0VDC-0% brightness, +5VDC-100% brightness
5	GND	

Connector J7 - THERMISTOR IN TOP RAIL [Note 2]		
Molex/053261-0271 (mates with Molex/51021-0200)		
Pin	**Description**	**Notes**
1	THERMISTOR	0VDC to +5VDC analog input
2	GND	

Connector J8 - THERMISTOR IN BOTTOM RAIL [Note 2]		
Molex/053261-0271 (mates with Molex/51021-0200)		
Pin	**Description**	**Notes**
1	THERMISTOR	0VDC to +5VDC analog input
2	GND	

Connector J9 - POWER IN		
JST/S6B-XH-SM4-TB (mates with JST/XHP-6)		
Pin	**Description**	**Notes**
1	Vin	+12VDC to +28VDC
2	Vin	+12VDC to +28VDC
3	Vin	+12VDC to +28VDC
4	GND	
5	GND	
6	GND	

Connector J10 - LED OUT		
JST/S3B-XH-SM4-TB (mates with JST/XHP-3)		
Pin	**Description**	**Notes**
1	SR ANODE	(Vin - 2V), 3A MAX[Note 1]
2	NVIS ANODE	(Vin - 2V), 3A MAX[Note 1]
3	GND	

Connector J12 - LED OUT		
JST/S3B-XH-SM4-TB (mates with JST/XHP-3)		
Pin	**Description**	**Notes**
1	SR ANODE	(Vin - 2V), 3A MAX[Note 1]
2	NVIS ANODE	(Vin - 2V), 3A MAX[Note 1]
3	GND	

Note 1: The total LED OUT current for SR or NVIS may not exceed the maximum LED output current specified in the electrical characteristics table. Ambient temperature, input voltage, and output voltage can have negative impact on maximum output current.

Note 2: Leave as NO CONNECT if not needed. LED controller will ignore if no thermistor is present. Removing all thermistors from a sunlight readable display will disable over temperature protection.

Specifications subject to change without notice or obligation.