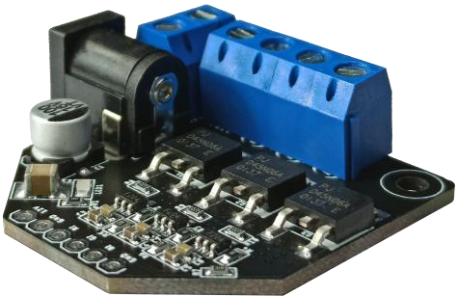
RGB DRIVER
DRV-RGB-12V5A

FEATURES



- Unique Color Signal Input Properties:
  - Inputs: RI, GI and BI
  - Switching Voltage Range: 3V – 12V
  - Switching Frequency Range: 0 – 50 KHz
  - Capacitive Load: 25 pF
- Multiple Supply Options:
  - Klemens Inputs: 12V – 5A
  - Adapter Input: 12V – 2A
  - Pin Input/Output: 12V – 0.5A

APPLICATIONS

- RGB LED Strip Applications.
- Hobby Applications.

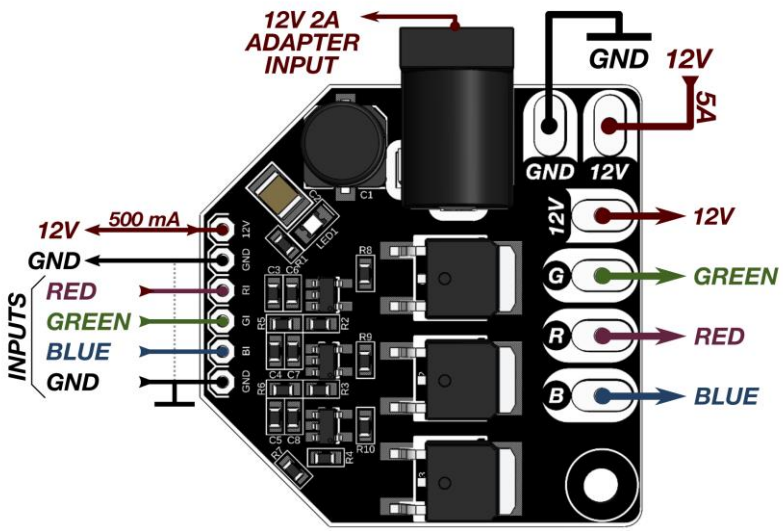
GENERAL DESCRIPTION

The DRV-RGB-12V5A is an RGB LED strip driver. It has 12V operating voltage and 5A maximum current capability. It stands out with its unique input features. These are; weak signal inputs allocated for each color [RI, GI, BI], the ability to apply the switching signal in a wide voltage range [3V – 12V], the ability to select the switching frequency in a wide range [0 – 50 KHz], the inputs have a low capacitive load value [25 pF], there are multiple supply options.

DRV-RGB driver boards are designed modularly to adapt to applications where higher current levels are required to be controlled. With its low input load feature, for applications exceeding 5 amperes, the maximum current level can be easily increased by connecting multiple DRV-RGB circuit boards in parallel.

When choosing the supply input that you will use in the RGB driver card, it is important to consider the current level that the RGB strip LEDs you want to run will sink from the energy source. In this case, terminal input for applications up to 5 amps, adapter jack input for applications up to 2 amps can be used. In order to be used in applications close to the maximum current level, extra solder ways are reserved on the back of the board that can keep the copper circuit paths long-lasting and reduce the effects of thermal deformation. By adding solder to this area, the thermal properties of the device can be improved.

INPUT/OUTPUT DESCRIPTION



		Description	*Notes*
INPUT	*12V*	12V 5A DC Power Input.	Supply Option 1.
	ADPT IN	12V 2A Adapter Input. (Optional)	Supply Option 2.
	RI	Red Signal Input.	Electrical signals to be provided for red, green and blue colors from the external circuit board are applied to these inputs. The reference voltages of these electrical signals must be connected to GND.
	GI	Green Signal Input.	
	BI	Blue Signal Input.	
	GND	Low Voltage Reference.	
OUTPUT	*12V*	12V LED Strip Output.	These signal outputs can be directly connected to 12V RGB strip LED. The current carrying capacity of the connected cables should be considered.
	R	Red Signal Output.	
	G	Green Signal Output.	
	B	Blue Signal Output.	

Table 1: *Input / Output Descriptions.*

Example Application Scheme

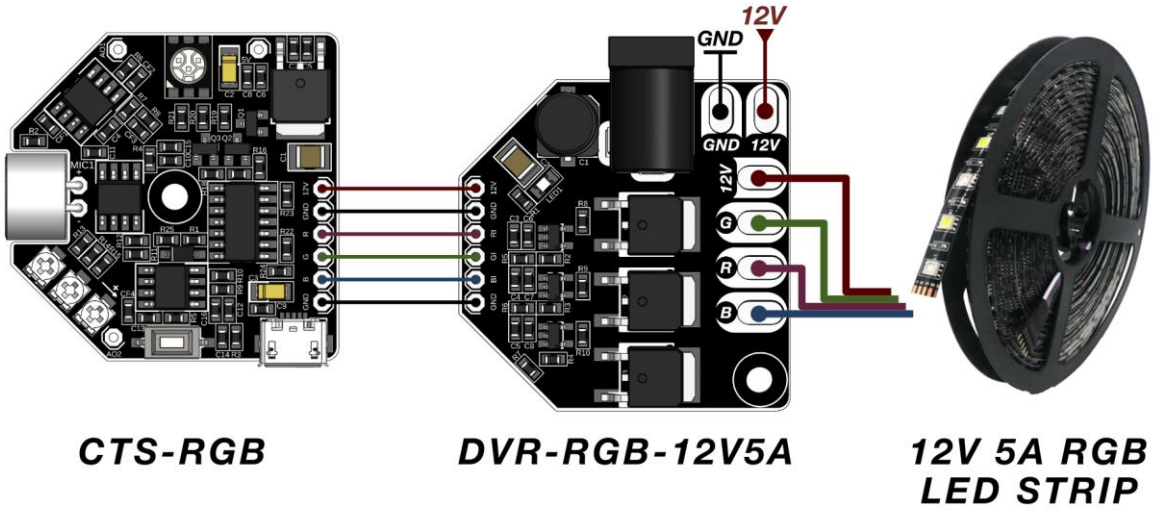


Figure 1: ***Showing Connection of CTS-RGB Module to DVR-RGB-12V5A Module.***

ELECTRICAL SPECIFICATIONS

∏ Pushing the device to operate above the "Max." listed in the table below may cause the device to overheat and to take up permanent damage. It is inconclusive that the device will function beyond the operating limits as set out in this technical document. Prolonged exposure to work under "maximum" rating conditions may affect device reliability.

Table 2: *Electrical Specifications.*

Conditions: Unless Otherwise Noted, $T_O = +25^oC$, $V_{supply} = 12V$.								
Parameters		**Sym**	**Min**	**Typ**	**Max**	**Units**	**Condition**	
Input								
Supply Voltage		V_{12V}	11.8	12	12.2	V	Bk. **Table 1**	
Continuous Input Current		$I_{C,12V,Klemens}$	–	–	5	A		DC
		$I_{C,12V,Adapter}$	–	–	2	A		
		$I_{C,12V,Pin}$	–	–	500	mA	1 mm Pin	
RI, GI and BI Signal Inputs	High Input Voltage	$V_{RGB,IH}$	2.4	5	14	V		
	High Input Current	$I_{RGB,IH}$	2	–	520	µA		
	Low Input Voltage	$V_{RGB,IL}$	0	0.2	1.6	V		
	Low Input Current	$I_{RGB,IL}$	1	–	95	µA		
	Switching Frequency	$f_{RGB,I}$	0	2	50	KHz	12V High Input	
	Capacitive Load	$C_{in,Load}$	–	–	25	pF	For Each Input	
	Rise Time	$t_{R,I}$	–	50	–	ns		
	Fall Time	$t_{F,I}$	–	42	–	ns		
	Rise Delay	$t_{D1,I}$	–	–	52	ns	5V High Input	
	Fall Delay	$t_{D2,I}$	–	–	60	ns	5V High Input	
Output								
12V Pin, Continuous Output Cur.		$I_{C,12V,Pin}$	–	–	500	mA	**Note 1**	
12V Klemens, Continuous Cur.		$I_{C,12V,Klemens}$	–	–	5A	A		
R, G and B Signal Outputs	Continuous Current	$I_{C,RGB}$	–	–	-1.8	A		
	Switching Frequency	$f_{RGB,O}$	–	$f_{RGB,I}$	–	KHz		
	D-S On-Resistance	$R_{DS,on}$	–	12	15	mΩ		
	Power Dissipation	P_D	1.6	–	2.5	W	**Note 2**	

Note 1 **:** 12V pin (1mm) is placed close to RI, GI, BI inputs to feed an external circuit board. It can also be used as a 12V supply input. However, considering the current transmission capacity, it is more appropriate to choose wide ports as 12V supply input.

Note 2 **:** Specified for only one of the switching components used in G, R and B outputs. Under continuous current condition 2.5W [@ 25 ° C] and 1.6W [@ 70 ° C].

Suggestions and Information

∏ DRV-RGB driver boards are designed modularly in order to adapt to applications where control of higher current levels is required. With its low input load feature, for applications exceeding 5 amperes, the maximum current level can be easily increased by connecting multiple DRV-RGB circuit boards in parallel.

∏ In order to use the driver card in applications close to the maximum current level, extra solder paths are reserved on the back of the card to keep the copper circuit paths long-lasting and reduce the effects of thermal deformation. By adding solder to this area, the thermal properties of the device can be improved.

PRODUCT CODE

MIS - DVR - RGB - 12V 5A

CATEGORY

GD : Gate Drivers
PC : Pwm-Cores
MM : Mini-Multimeters
DD : DC-DC Converters
MIS : Miscellaneous

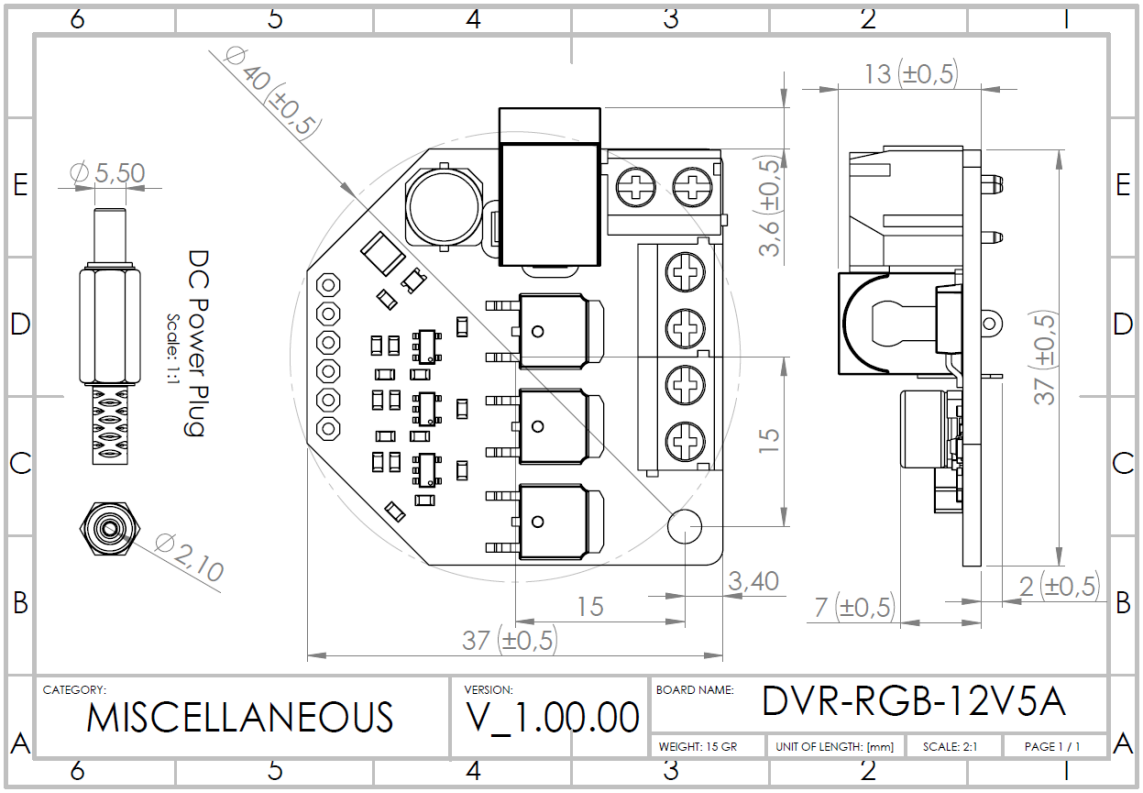
GROUP: DVR : Driver.
CTS : Control with Sounds.
MUA : Micro USB Adapter.
RGB : RGB LED.

FUNCTION: RGB: RGB Driver.

OPR. VOLTAGE: xV : 12 Volt Operating Voltage.

MAX. CUR.: xA : 5 Ampere Max. Current.

TECHNICAL DRAWING



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