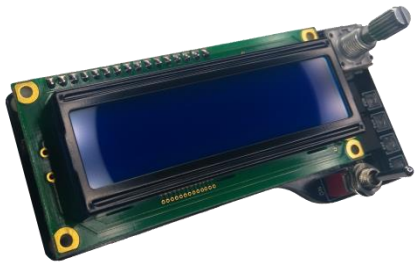
LENTARK

MOSFET / IGBT DRIVER

PS105F6A-07W21

FEATURES



- ∏ Easy-To-Use Interface.
- ∏ User-Friendly Design.
- ∏ Wide Input Supply Voltage Operating Range: 9V-18V
- ∏ High Peak Output Current: 6A
- ∏ Low Output Impedance: 2.5Ω
- ∏ Low Output Voltage Swing: 0-25mV
- ∏ High Capacitive Load Drive Capability: 10.000 pF
- ∏ High-Speed Charging: 28 ns - 2.500 pF Load - 12V Charge
- ∏ Wide Output Frequency Operating Range: 3 Hz – 1 MHz

APPLICATIONS

- ∏ P & N Channel MOSFET, IGBT Switching.
- ∏ H Bridge & Half Bridge Drivers.
- ∏ Switch-Mode Power Supplies.
- ∏ High Voltage Transformer And Pulse Transformer Drivers .
- ∏ Class D Switching Amplifiers.
- ∏ R,L And/Or C Load Control.
- ∏ Hobby.

GENERAL DESCRIPTION

PS105F6A-07W21 is a MOSFET and IGBT driver device with 9-18V working voltage and two outputs with maximum current capacity of 6A(Peak). One of the two outputs is inverted and the other is non-inverted. With Amplifier modules and driver design used in circuit board, the capacitive load on the gate terminals of MOSFETs and IGBTs quickly charges with a six amperage peak current. (12V - 28 ns. - 2,5 nF). In this way, higher current levels can be controlled without switching distortions at higher frequencies.

The control mechanism is very useful and user friendly. All the control operations are carried out with an rotary encoder at the upper right of the circuit board. Each change is saved in the internal memory of the device. For detailed information on how to use control procedures, see **Description With Image**.

DESCRIPTION WITH IMAGE

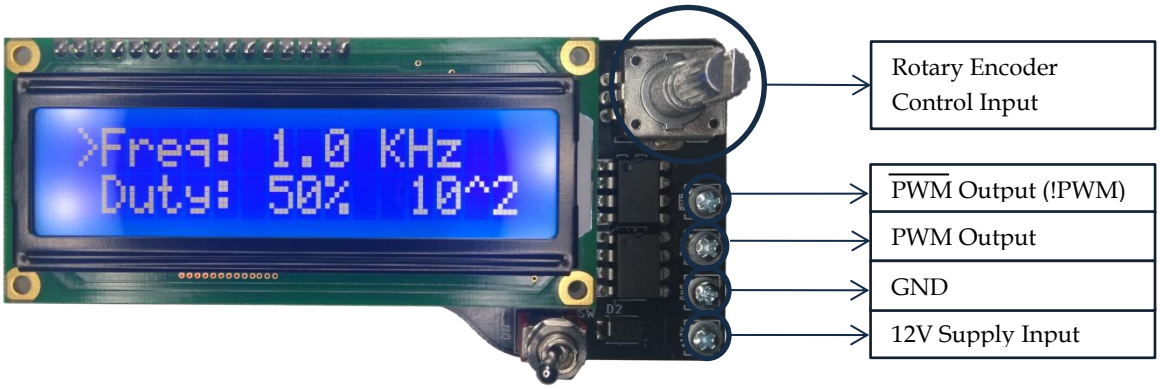
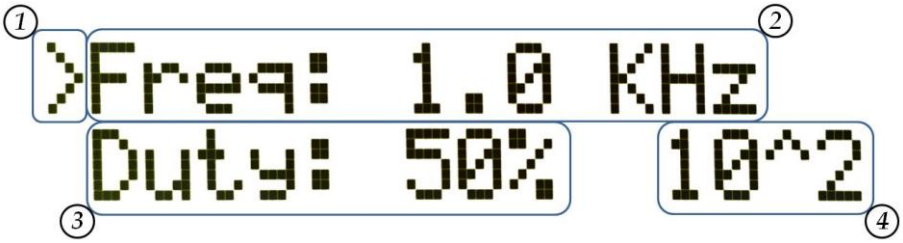


Image 1: *Display of Pin inputs / outputs and control input*

Pin	*Description*	*Note*
Rotary Encoder Control Input	It is used to select the configuration and to change its value.	1-) Pressing on: Selects the next configuration. 2-) Turn clockwise: Increases the value of the selected configuration. 3-) Turn counterclockwise: Reduces the value of the selected configuration.
12V	9-18V Supply Input	Nominal 12V
GND	GND	–
!PWM Output	Inverted PWM Output.	Ideal for Half-Bridge and Full-Bridge applications .
PWM Output	Desired PWM Output .	–

Table 1: *Pin Configurations*

The PWM outputs and supply inputs has been prepared M2 (2 mm diameter) wide according to the requirements of the applications. In this way, it can also be used in applications without Solder. See **Technical Drawing** for physical information of device and pin outputs.



No.	*Description*	*Note*
1	The Selected Configuration Indicator	You can select other configurations by pressing the angular reader with your finger.
2	Frequency Value	1-) Bring the selected configuration indicator over the value you want to change, 2-) Then turn the angular reader clockwise or vice versa.
3	Duty Cycle Value	
4	Increase & Decrease Sensitivity	

Table 2: *Introduction Of Display*

For each change made on the Display, the device starts a series of mathematical operations and is shown on the display in 50 ms by calculating the configuration closest to the desired value to the resolution values of the device. For more information on resolution values, see **Electrical Specifications**.

Note: Each change is saved in the internal memory of the device. thus, it does not require reconfiguration on each run.
Note: You can change the display brightness with precision-tuned resistance on the left side of the circuit board below the display.

ELECTRICAL SPECIFICATIONS

Π 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 3: *Electirical Specifications*

Conditions: Unless Otherwise Noted, $T_O = +25^oC$ and $9V \leq V_{IN} \leq 18V$.						
Parameters	**Sym**	**Min**	**Typ**	**Max**	**Units**	**Condition**
Input						
Input Voltage	V_{IN}	9	12	18	V	DC
Input Current	I_{IN}	–	0,2	0,3	A	$f = 1\ KHz$
		–	0,3	0,5		$f = 1\ MHz$
Output						
Output Voltage, High	$V_{OUT,HIGH}$	$V_{IN} - 0{,}025$	V_{IN}	$V_{IN} + 0{,}025$	V	DC
Output Voltage, Low	$V_{OUT,LOW}$	0	0	0,025	V	DC
Output Resistance, High	$R_{OUT,HIGH}$	–	2,1	2,8	Ω	$V_{IN} = 18V$
Output Resistance, Low	$R_{OUT,LOW}$	–	1,5	2,5	Ω	$V_{IN} = 18V$
Peak Output Current	I_{PK}	–	6	–	A	$V_{IN} = 18V$
Latch-Up Protection Withstand Reverse Current	I_{REV}	–	>1.5	–	A	Duty: %2 $f \geq 3\ KHz$
Output Frequency	f_O	0,003	300	1000	**KHz**	$V_{IN} = 12V$
Frequency Resolution [KHz]		17	20	30	$750 \leq f_O \leq 1.000$	
		7	10	17	$500 \leq f_O \leq 750$	
		1	5	7	$200 \leq f_O \leq 500$	
		0,3	0,5	1	$100 \leq f_O \leq 200$	
		0,07	0,18	0,30	$50 \leq f_O \leq 100$	
		0,003	0,020	0,076	$10 \leq f_O \leq 50$	
		0,001	0,002	0,003	$5 \leq f_O \leq 10$	
		0,001	0,001	0,001	$0{,}004 \leq f_O \leq 5$	
Switching						
Rise Time	t_R	–	28	50	ns	C_L = 2,5 nF
Fall Time	t_F	–	28	50	ns	$V_{IN} = 12V$
Output Power Dissapation	W_{PD}	–	300	730	mW	**Note 1**

Note1: Power consumption is directly related to Total Gate Charge[Q_g] and Total Input Capacitance[pF] of the MOSFETs and/or IGBTs group to be controlled. See: **Figure 1, 2, 3 and 4**.

Note: Application areas with intense magnetic and electric field changes, it will be useful for both your application and device that the device and the trigger signal are not exposed to harmful effects of the environment, the surface prepared for assembly is grounded and the transmit the signal via a grounded cable.

MAXIMUM RATINGS AND SAFE OPERATION AREA

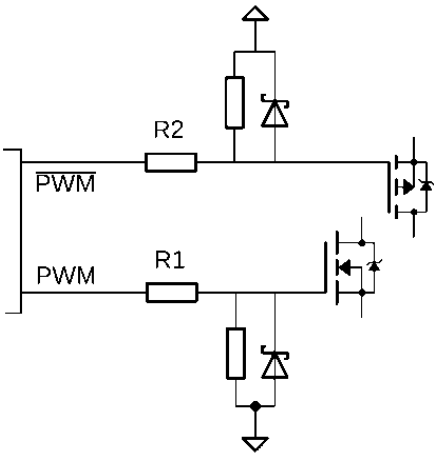


Diagram 1: *Sample Test Circuit*

Information: The C_{iis}, Input Capacitance, mentioned in the test results presented below is the Total Input Capacitance of the MOSFETs and IGBTs used at V_{GS}=0, V_{DS}=±25V, f=1.0MHz. Q_g, Total Gate Charge, The Total Gate Charge of the MOSFETs and IGBTs used at V_{GS} =±10V, I_D=0.8I_{Dmax} V_{DS}=0.8V_{DSmax}.

Warning: MOSFETs and IGBTs that will be used in a way that does not exceed the maximum output power of the device should be placed in accordance with the mentioned characteristics **[Note1]** of the appropriate gate resistance. Operating the device outside the safe area as shown in the illustration may cause the device to overheat and to cause permanent damage.

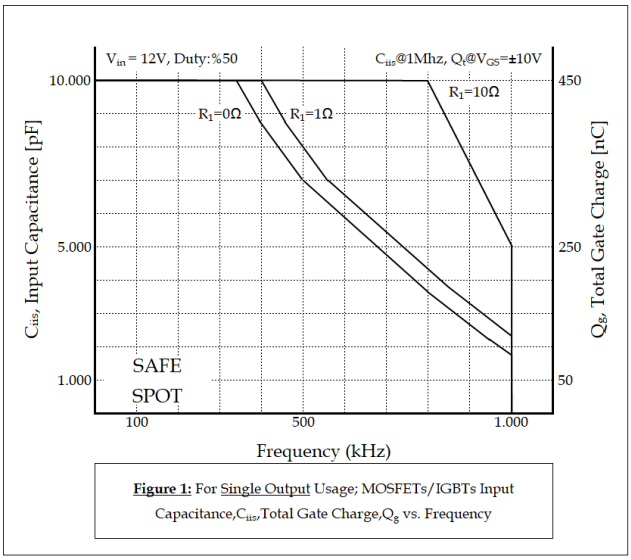


Figure 1: For Single Output Usage; MOSFETs/IGBTs Input Capacitance,C_{iis},Total Gate Charge,Q_g vs. Frequency

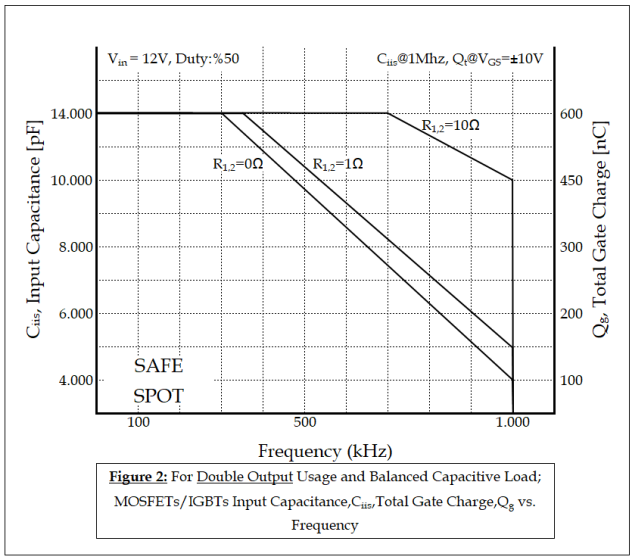


Figure 2: For Double Output Usage and Balanced Capacitive Load; MOSFETs/IGBTs Input Capacitance,C_{iis},Total Gate Charge,Q_g vs. Frequency

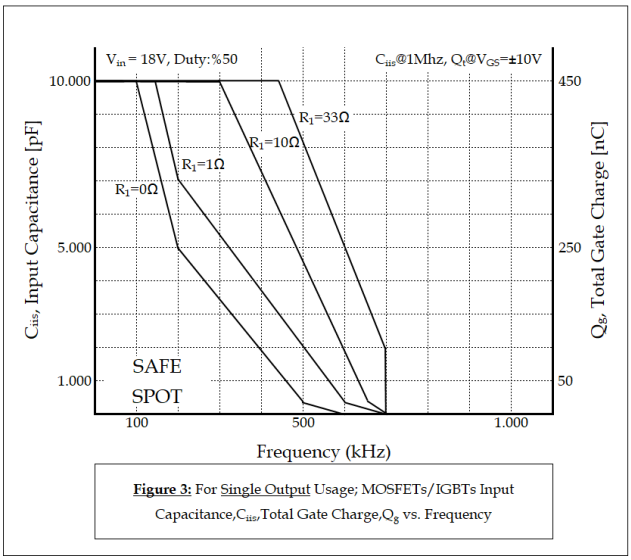


Figure 3: For Single Output Usage; MOSFETs/IGBTs Input Capacitance,C_{iis},Total Gate Charge,Q_g vs. Frequency

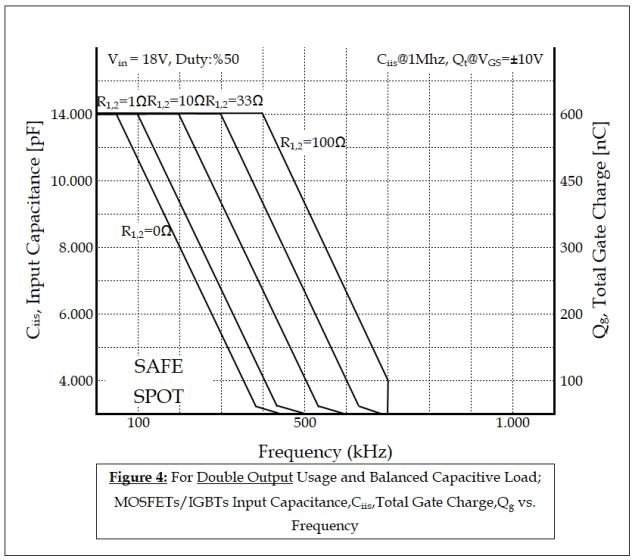


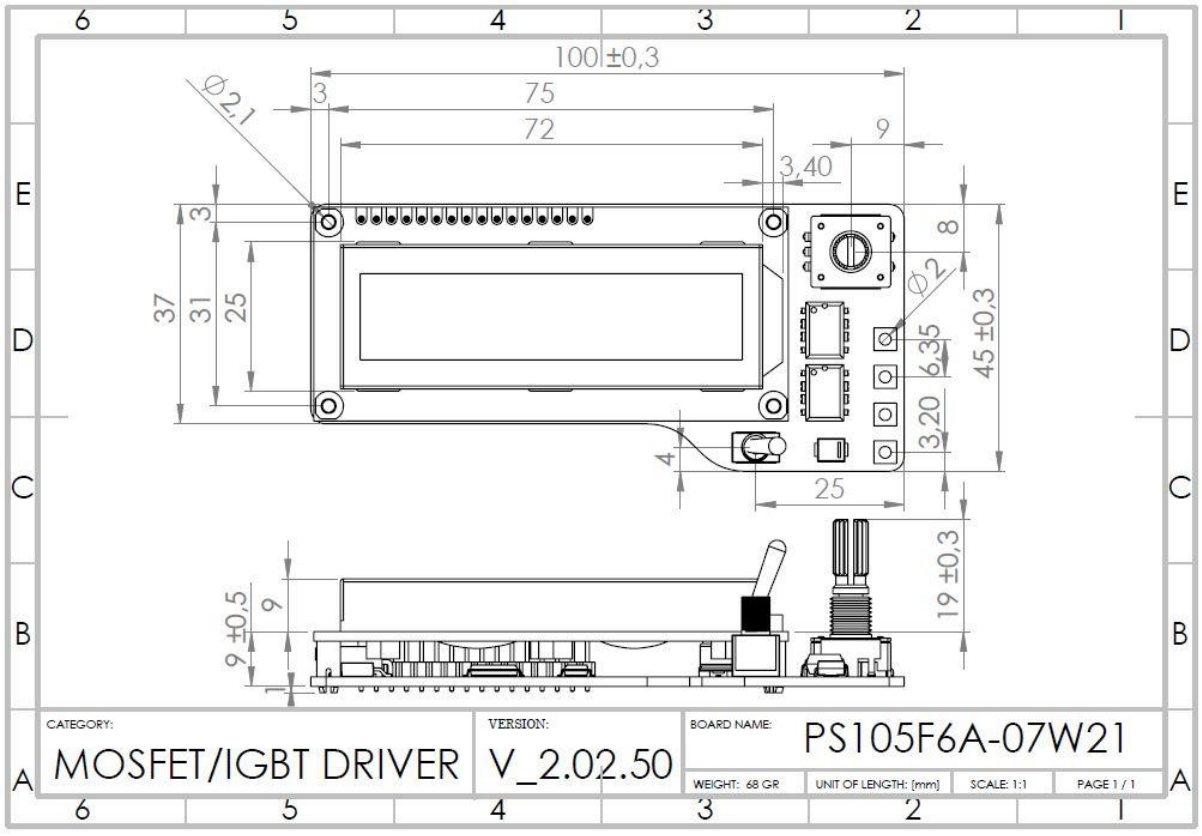
Figure 4: For Double Output Usage and Balanced Capacitive Load; MOSFETs/IGBTs Input Capacitance,C_{iis},Total Gate Charge,Q_g vs. Frequency

PRODUCT CODE

LA - MID - P S 105F 6A - 07W 21

PRODUCT CATEGORY	SİGNAL TYPE	SİGNAL CONTROL	MAX. FREQUENCY	MAX. INSTANT CURRENT	POWER DIS. OF EACH OUTPUTS	OUTPUTS
MID = MOSFET/ IGBT DRIVER PC = PWM-CORE	P = PWM U = Triangle T = Sawthooth	S = Standart P = + Phase Shift O = + Ofset Match	xyzF = xy* 10^z Hertzs	xA = x Amps	xy = x,y Watts	xy = x Total Out. y Inverted Out.

TECHNICAL DRAWING



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