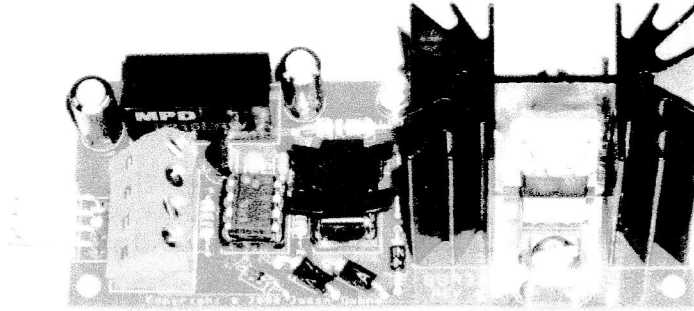


High Speed 3 Amp Solid-State Relay (SSR3A)



Key Features

- 6 ns Switching Speed
- 0 to 2 MHz input frequency
- 60 ns minimum pulse width
- Power and signal inputs isolated from sources.
- Easy replacement of IGBTs
(NO Resoldering Necessary!)

Electrical Specifications

Parameter	Test Conditions	Min	Typ	Max	Units
Supply Voltage	$f_{in} = 0 \text{ Hz}$	8	12	18	V
Supply Current	$0 \text{ Hz} \leq f_{in} \leq 2 \text{ MHz}$, $V_{in} = 12 \text{ V}$	50		230	mA
Supply Isolation Voltage		1.5			kV
Input Logic High	$V_{in} = 12 \text{ V}$	2.8	5	15	V
Input Logic Low	$V_{in} = 12 \text{ V}$	0	0	2.7	V
Logic Input Isolation Voltage			5		kV
Operating Frequency Range	$V_{in} = 12 \text{ V}$ (Note 1)	0		2	MHz
Minimum Pulse Width		60			ns
Operating Temperature		-40	20	85	°C
Output Switching Time	$8 \text{ V} \leq V_{in} \leq 15 \text{ V}$ (Note 2)		6		ns
Switch Voltage	(Note 3)			1500	V
Switch Current (Continuous)		0		4	A
Switch Current (Pulsed)	(Note 4)		10	30	A

NOTES

1. An external cooling fan will need to be used to cool the driver chip when switching at higher frequencies. Check driver heat sink temperature to determine when fan will be necessary. Frequencies higher than 2MHz can be achieved if IGBTs or MOSFETs with lower gate capacitances are used. See Application Notes section for more details.
2. Switching times are dependent on the load current and impedance. Stated switching Speed is specked based on prototype test with the STGF3NC120HD 1200V IGBTs.
3. Maximum voltage is determined by the IGBT/MOSFET used. The 1200V IGBTs that come standard with the board give it a 1200V standoff limit. The maximum recommended voltage is 1500V. Higher voltages may be used if the proper IGBTs/MOSFETs are found however PCB limitations will ultimately limit the standoff voltage.
4. The Pulsed current is highly dependent on the transistor used. For the 1200V IGBTs, the maximum pulsed current is 10A. However, the Circuit board itself can withstand currents as high as 30A for short periods of time. The User should observe trace and switch temperatures to empirically determine maximum allowable pulsed current.