

Terminology of Phototriac Coupler/AQ-H

	Term	Symbol	Description
Input side	LED forward current	I_F	Current that flows between the input terminals when the input diode is forward biased.
	LED reverse voltage	V_R	Reverse breakdown voltage between the input terminals.
	Peak forward current	I_{FP}	Maximum instantaneous value of the forward current.
	LED dropout voltage	V_F	Dropout voltage between the input terminals due to forward current.
Output side	Repetitive peak OFF-state voltage	V_{DRM}	Maximum voltage with repeatability that can be applied continuously between the output terminals.
	ON-state RMS current	$I_{T(RSM)}$	Effective current value, based on designated conditions, that can flow continuously between output terminals.
	Non-repetitive surge current	I_{TSM}	Maximum current, without repeatability, that is based on designated conditions. Normally this is expressed as the wave height value of one power frequency current sinusoidal cycle.
	Peak ON-state voltage	V_{TM}	Effective value of the voltage drop when a regulated load current flows between the output terminals when device is on.
	Peak OFF-state current	I_{DRM}	Current that flows to output when a regulated load voltage is applied between the output terminals when device is off.
Electrical Characteristics	Trigger LED current	I_{FT}	Current flow when LED current is augmented and output is on, when regulated power supply voltage and load has been connected between the output terminals.
	Holding current	I_H	Load current to maintain on state after output terminals have been turned on based on designated conditions.
	Critical rate of rise of OFF-state voltage	dv/dt	Output terminals do not go to the on state from the off state based on designated conditions.
	Zero-cross voltage	V_{ZC}	In the zero-cross method, when input is turned on, the maximum voltage value when the output terminals turn on.
	Turn on time	T_{on}	Delay time until the output switches on after a designated LED current is made to flow through the input terminals.
	I/O capacitance	C_{iso}	Capacitance between the input and output terminals.
	I/O isolation resistance	R_{iso}	Resistance between terminals (input and output) when a specified voltage is applied between the input and output terminals.

Terminology of SSR

	Term	Description
Input side	Control voltage	Input voltage necessary for normal SSR operation under the specified temperature conditions.
	Activation voltage	Threshold at which the output turns on as the control voltage is gradually increased with the specified voltage applied to the loaded output.
	Recovery voltage	Threshold at which the output turns off as the control voltage is gradually decreased with the specified voltage applied to the loaded output.
	Input impedance	Resistance of the current limiting resistor used in the SSR input side.
	Input current	Input current at which an input module SSR operates normally.
Load side	Max. load current	Maximum continuous current allowable across the SSR output terminals under the specified heat dissipation and ambient temperature conditions. AC current is specified in RMS units.
	Load voltage	Output supply voltage range in which the SSR operates normally. AC voltage is specified in RMS units.
	Non-repetitive surge current	Maximum non-repetitive load current allowable under the specified heat dissipation and ambient temperature conditions. In general, it is given by the peak value of a single cycle of sinusoidal commercial AC current.
	“OFF-state” leakage current	Current that flows in the SSR output circuit when the specified supply voltage is applied to the output with no control voltage applied to the input.
	“ON-state” voltage drop	Output voltage drop caused by a specified load current supplied to the SSR output which is turned on by a specified input control voltage. AC voltage is specified in RMS units.
	On resistance	Resistance value (R_{on}) between the output terminals when the designated continuous load current (I_L) is electrified through the output terminals. Obtained using the equation below from continuous load current (I_L) and dropout voltage $V_{DS(on)}$ between the output terminals $R_{on} = V_{DS(on)}/I_L$
	Min. load current	Minimum load current at and above which the SSR operates normally under the specified temperature conditions. AC load current is specified in RMS units.
	Repetitive peak voltage, max.	Maximum repetitive voltage which can be continuously applied across the SSR output terminals. In general, a voltage of more than 400 V AC is used for 100 V AC applications, and more than 600 V AC for 200-250 V AC applications, to absorb supply voltage variations or on/off surges.
	Critical turn-off voltage rise ratio	SSRs may turn on if a turn-off voltage with a steep rising edge is applied. This phenomenon is called “dv/dt turn on.” Critical turn-off voltage rise ratio refers to the maximum turn-off voltage rise ratio at and below which the SSR remains turned off.
	Max. power dissipation	Allowable power dissipation between the output terminals.
Electrical Characteristics	Operate time, max.	Time until the SSR output turns on after the specified control voltage is applied to the input.
	Release time, max.	Time until the SSR output turns off after the specified control voltage is removed from the input.
	Insulation resistance	Resistance measured with a specified voltage applied across the input and output, or across the input or output and frame ground.
	Breakdown voltage	Maximum voltage below which no dielectric breakdown occurs when applied for 1 minute across the same test points as those used for insulation resistance testing.
	Vibration resistance	Functional: The device sustains no damage and meets the specifications if it is exposed to vibration with its magnitude not exceeding this threshold during transit or installation. Destructive: Closed contacts of a relay remain closed for the specified time period if it is exposed to vibration with its magnitude not exceeding this threshold during operation.
	Shock resistance	Functional: The device sustains no damage and meets the specifications if it is exposed to physical impact with its magnitude not exceeding this threshold during transit or installation. Destructive: Closed contacts of a relay remain closed for the specified time period if it is exposed to physical impact with its magnitude not exceeding this threshold during operation.
	Ambient temperature	Ambient temperature range over which the SSR operates normally under the specified heat dissipation and load current conditions.
	Storage temperature	Ambient temperature range over which an SSR can be safely stored for extended periods without sustaining damage or performance degradation.
	Maximum switching frequency	Maximum switching frequency at which a SSR can operate normally when applying the specified pulse input to the input terminal