

RoHS  
Compliant

## Features

- Product Temperature withstand 150°C.
- "19.5 & 22.5 MM SLIM Height" SSR Design.
- "31 MM Height" Inbuilt "C-56" Heat sink SSR Design.
- With easy open & lock IP 20 protection Flaps on I/P & O/P Terminals.
- Zero Voltage Turn-On SSR.
- Rating from 16 Amp to 200 Amp @25°C 24-600V AC.
- Short Circuit Protected SSR up to 115 Amp per phase current by help of suitable "B cule MCB.
- No need to use semiconductor Fuse due to short circuit protected SSR.
- Fire Retardant Plastic as per UL94 VO GRADE.
- New improved SEMS Screw -Washers input & Output terminals.
- Improved Direct Bonded Copper (DBC) for higher Amp Relays.
- High resistance to aggressive chemicals and dust due to special Potting.
- Logic compatibility, Fast switching, Low coupling capacitance
- Inbuilt transient voltage suppressor.

## Advantages Of SSR Over Contractor / Mechanical

- Zero Voltage Turn-On
- High resistance to shock, vibration and abrasion
- High resistance to aggressive chemicals and dust
- No electromechanical or acoustical noise
- Logic compatibility
- Low coupling capacitance
- Long life cycle . Up to 10<sup>11</sup> cycles
- Increased system temperature accuracy
- Improved system reliability because SSRs have no moving parts or contacts to degrade
- No contact arcing, low electromagnetic interference, high surge capability
- Solid state Relays offer a very fast response time with absolutely NO contact bounce
- SSRs are typically smaller than EMRs, conserving valuable real estate in printed-circuit board applications
- SSRs can be provided as surface-mount technology (SMT)parts, which means lower cost and easier SMT printed-circuit board manufacture
- Do not generate electrical noise

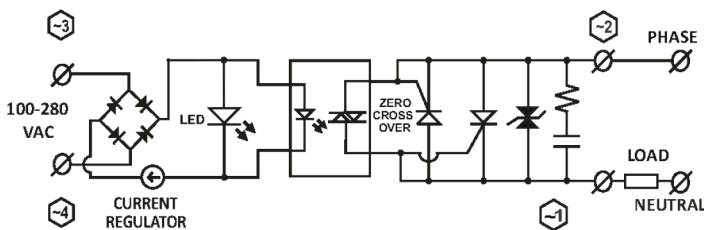
## General Specification

Max Barrier Layer Temperature (T <sub>max</sub> )	: < 125°C
Ambient Temperature Range (T <sub>amb</sub> )	: 0-85°C
SSR Storage Temperature Range (T <sub>st</sub> )	: -40°C to 80°C
Input Terminal Screw Torque Range	: T = 1.6 N.m (Max.)
Output Terminal Screw Torque Range	: T = 2.5 N.m (Max.)
Power Factor COSφ @ Max. Load @ 480V AC	: >0.55
Housing Material	: UL-94 V0 Grade
Base Plate	: 5mm Aluminium, 2mm Copper, C-56 Heat Sink
SSR Weight	: ≤ 120 grams
Control Input Electrical Wire Size (Max.)	: Up to 2.1 sq mm (14 AWG)
Power Output Electrical Wire Size ( Max.)	: Up to 33.6 sq mm (2 AWG)

## Input Technical Specifications

Parameters	Unit	ZAA
Control Voltage Range	V	100-280V DC
Input Frequency Range	Hz	47-63Hz
Control Supply Current Consumption	mA	4-12 mA
Input Impedance (Current Regulator Circuit Impedance)	$\Omega$	1k $\Omega$ -2.5k $\Omega$
Minimum Turn ON Voltage	V AC	100V AC
Turn OFF Voltage	V AC	< 95V AC
Control Input Status Indication	-	Green LED Indication
Maximum Turn ON Time	ms	<20ms
Maximum Turn ON Time	ms	<20ms

## Block Diagram RDA- Random On DC TO AC



## Output Technical Specifications @ 25°C Unless Specified

Parameters	Symbol	Unit	50Amp
Operating Voltage Range	$V_{AC}$	$V_{RMS}$	24-600V AC Back To Back SCR
Operating Frequency Range	f	Hz	47-63 Hz
Peak Inverse Voltage	PIV	$V_{PK}$	1600
Max. Surge Voltage With Stand Capacity (<1 Second)	$V_{Surge}$	$V_{RMS}$	2700 $V_{RMS}$ (3800 $V_{PK}$ )
Rated Operational Current AC51a @ 20°C (Resistive Load)	$I_T$	Amp	50
Maximum Load Short Circuit Protection Current @ 55°C	$I_{sc}$	Amp	15
"B" Curve D.P. MCB Rating for Short Circuit Protection	--	Amp	16
NON Repetitive Surge Peak ON-State Current @ Rated $V_{RRM}$ applied for 1/2 Cycle $t=10$ ms / $t=8.33$ ms (50 Hz/60 Hz)	$I_{TSM}$ @50 Hz	AP	800
	$I_{TSM}$ @60 Hz	AP	840

# Solid State Relay

Max. I <sup>2</sup> t for Fusing @ t=10 mS (50Hz)	I <sup>2</sup> t	A <sup>2</sup> S	3000
Max. I <sup>2</sup> t for Fusing @ t=8.33 mS (60Hz)	I <sup>2</sup> t	A <sup>2</sup> S	2750
Max. Peak ON-state voltage Drop at Full Control	V <sub>TM</sub>	V <sub>RMS</sub>	≤1.2
Minimum Isolation Resistance between Input Terminals (+3,-4) to Output Terminals (~1,~2) @ 500V DC	Ω	GΩ	50
Isolation Voltage Input Terminals (+3,-4) to Output Terminals (-1,-2)for 1 Minute (ZAA type)	V <sub>ISO</sub>	kV	8
Isolation Voltage Input & Output Terminals (+3,-4,-1,-2) to Body Isolationfor 1 Minute	V <sub>ISO</sub>	kV	6
Max. Rate of Rise OFF-State Voltage	dV/dt	V/μS	600
Max. Rate of Rise OFF-State Current	di/dt	A/μS	100
Max. Peak Repetitive Forward OFF-State Voltage	I <sub>DRM</sub>	V	1200
Max. Peak Repetitive Forward OFF-State current	I <sub>DRM</sub>	mA	0.1
Max. Peak repetitive reverse off-state Voltage	V <sub>RRM</sub>	V	1200
Max. Peak repetitive reverse off-state current	I <sub>RRM</sub>	mA	0.1
Max. DC Gate Trigger Voltage	V <sub>GT</sub>	V	1.5
Max. DC Gate Trigger Current	I <sub>GT</sub>	mA	8.8
Turn OFF Time	t <sub>q</sub>	μS	120
Maximum Latching Current	I <sub>L</sub>	mA	160
Maximum Holding Current	I <sub>H</sub>	mA	150
Thermal Resistance Re (Junction to case )	R <sup>θ</sup> (j-c)	°C/W	0.35
OFF State SSR Leakage Current @ Rated Voltage & requency (Snubber Leakage)	I <sub>leak</sub>	mA	For 230V AC < 1.5 mA
			For 440V AC < 3 mA
SCCR Current Rating (less than 100 1S)	I <sub>SCCR</sub>	kA	10 kA
Weight	W	gm	≤110

## Part Number Table

Description	Part Number
Solid State Relay With Snubber, 100-280V AC, 24 to 480V AC, 50A	MP-ZAA 60 50 28 AL5

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