

### Features

- Zero Voltage Turn-On .
- Rating from 25 Amp to 50 Amp @25°C 24-480V AC.
- Short Circuit Current Rating As Per UL508A.
- Short Circuit Protected SSR up to 15 Amp per phase current by help of suitable “B” curve MCB.
- No need to use semiconductor Fuse due to short circuit protected SSR.
- With easy open & lock IP 20 protection Flaps on O/P Terminals.
- Fire Retardant Plastic as per UL94 VO GRADE.
- New improved SEMS Screw - Washers input & Output terminals.
- High resistance to aggressive chemicals and dust due to special Potting.
- Logic compatibility, Fast switching, Low coupling capacitance.
- No electromechanical or acoustical noise
- Long life cycle . Up to 10<sup>11</sup>cycles
- No contact arcing, low electromagnetic interference, high surge capability
- SSRs can be provided as surface-mount technology {SMT}parts, which means lower cost and easier SMT printed-circuit board manufacture

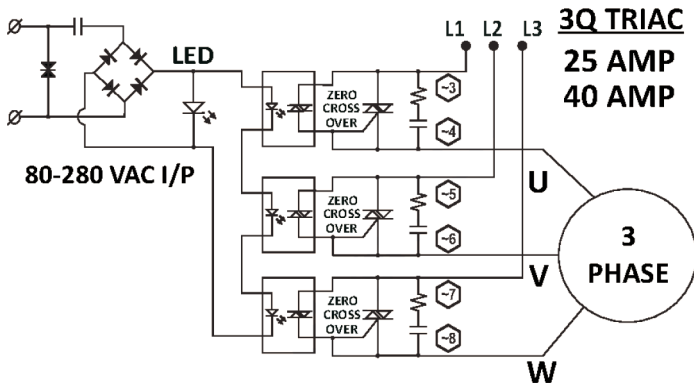
### General Specification

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 = 0.5 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	: Aluminium
SSR Weight	: ≤ 390 grams
Control Input Electrical Wire Size (Max.)	: Up to 2.1 sq mm (14 AWG)
Power Output Electrical Wire Size ( Max.)	: Up to 25 sq mm (3 AWG)

### Input Technical Specifications

Parameters	Unit	ZAA
Control Voltage Range	V	80 to 280V AC
Input Frequency Range	Hz	47-63Hz
Control Supply Current Consumption	mA	5-20mA
Input Impedance (Current Regulator Circuit Impedance)	Ω	16kΩ
Minimum Turn ON Voltage	V AC	78V AC
Turn OFF Voltage	V AC	< 78V AC
Control Input Status Indication	-	Green LED Indication
Maximum Turn ON Time	ms	20mS
Maximum Turn ON Time	ms	20mS

## 3 PH AC to AC I/P SSR Block Diagram



Output Technical Specifications @ 25°C Unless Specified

Parameters	Symbol	Unit	40Amp
Operating Voltage Range	$V_{AC}$	$V_{RMS}$	24-480V AC - 3, TRIAC
Operating Frequency Range	f	Hz	47-63 Hz
Peak Inverse Voltage	PIV	$V_{PK}$	800
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	40
Rated Operational Current AC53a @ 55°C (Inductive Load-Motor)	$I_T$	Amp	7.8
Maximum Load Short Circuit Protection Current @ 55°C	$I_{sc}$	Amp	--
"B" Curve D.P. MCB Rating for Short Circuit Protection	MCB	Amp	--
Maximum 3 Phase Motor Rating	hp	hp	3hp
	kW	kW	2.23
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	$A_P$	420
	$I_{TSM}$ @60 Hz		441
Max. $I^2t$ for Fusing @ $t=10$ mS (50Hz)	$I^2t$	$A^2S$	880
Max. $I^2t$ for Fusing @ $t=8.33$ mS (60Hz)	$I^2t$	$A^2S$	795
Max. Peak ON-state voltage Drop	$V_{TM}$	$V_{RMS}$	$\leq 1.2$
Minimum Isolation Resistance between Input Terminals (~,~) to Output Terminals (L1,L2,L3,U,V,W) @ 500V DC	$\Omega$	G $\Omega$	50
Isolation Voltage Input Terminals (~,~) to Output Terminals (L2,U,V,W) for 1 Minute	$V_{iso}$	kV	6
Isolation Voltage Input & Output Terminals (~,~,L1,L2,L3,U,V,W) to Body Isolation for 1 Minute	$V_{iso}$	kV	4
Phase to Phase Isolation between terminals (L1,L2,L3) to (U,V,W) for 1 Minute	$V_{iso}$	kV	4
Max. Rate of Rise OFF-State Voltage	dV/dt	V/ $\mu$ S	500
Max. Rate of Rise OFF-State Current	di/dt	A/ $\mu$ S	50

Parameters	Symbol	Unit	40Amp
Max. Peak Repetitive Forward OFF-State Voltage	V <sub>DRM</sub>	V	800
Max. Peak Repetitive Forward OFF-State current	I <sub>DRM</sub>	mA	0.05
Max. Peak repetitive reverse off-state Voltage	V <sub>RDM</sub>	V	800
Max. Peak repetitive reverse off-state current	I <sub>RDM</sub>	mA	0.05
Max. DC Gate Trigger Voltage	V <sub>GT</sub>	V	1.5
Max. DC Gate Trigger Current	I <sub>GT</sub>	mA	50
Turn OFF Time	t <sub>q</sub>	μS	35
Maximum Latching Current	I <sub>L</sub>	mA	100
Maximum Holding Current	I <sub>H</sub>	mA	60
Thermal Resistance R <sup>θ</sup> (Junction to case)	R <sup>θ(j-c)</sup>	°C/W	1.1
OFF State SSR Leakage Current @ Rated Voltage & Frequency (Snubber Leakage)	I <sub>leak</sub>	mA	<2mA
SCCR Current Rating	I <sub>SCCR</sub>	kA	--
SSR Weight - 905 Model	W	gm	350

## Part Number Table

Description	Part Number
3 Phase Solid state Relay, 80-280V AC, 24-480V AC, 40A	MP-3PH ZAA 48 40 28

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