Solid State Relay

multicomp PRO

RoHS Compliant

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^{11}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

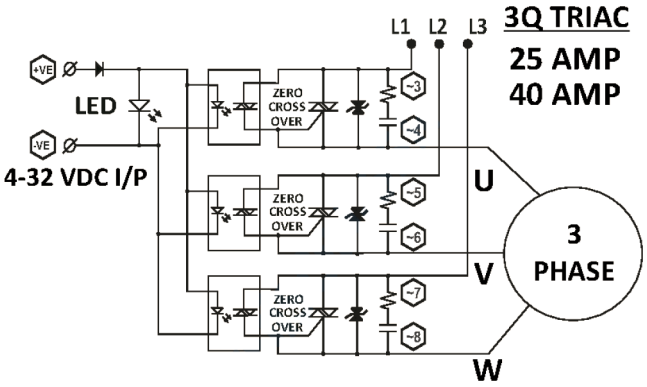
General Specification

Max Barrier Layer Temperature (T_{max})	: < 125°C
Ambient Temperature Range (T_{amb})	: 0-85°C
SSR Storage Temperature Range (T_{st})	: -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	ZDA
Control Voltage Range	V	4-32V DC
Input Frequency Range	Hz	--
Control Supply Current Consumption	mA	15-40mA
Input Impedance (Current Regulator Circuit Impedance)	Ω	0.3kΩ - 1kΩ
Minimum Turn ON Voltage	V DC	3.5V DC
Turn OFF Voltage	V DC	< 3.5V DC
Control Input Status Indication	-	Green LED Indication
Maximum Turn ON Time	ms	< 1/2 Cycle (10 ms)
Maximum Turn ON Time	ms	< 1/2 Cycle (10 ms)

3 PH AC to AC I/P SSR Block Diagram



Output Technical Specifications @ 25°C Unless Specified

Parameters	Symbol	Unit	25Amp	40Amp
Operating Voltage Range	V_{AC}	V_{RMS}	24-480V AC - 3Q, TRIAC	24-480V AC B & B SCR
Operating Frequency Range	f	Hz	47-63 Hz	
Peak Inverse Voltage	PIV	V_{PK}	800	1200
Max. Surge Voltage With Stand Capacity (<1 Second)	V_{Surge}	V_{RMS}	2700V_{RMS} (3800V_{PK})	
Rated Operational Current AC51a @ 20°C (Resistive Load)	I_T	Amp	25	40
Rated Operational Current AC53a @ 55°C (Inductive Load-Motor)	I_T	Amp	4.8	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	2, 2 hp	3 hp
	kW	kW	1.49	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	260	460
	I_{TSM} @60 Hz		273	490
Max. I^2t for Fusing @ t=10 mS (50Hz)	I^2t	A^2S	340	1060
Max. I^2t for Fusing @ t=8.33 mS (60Hz)	I^2t	A^2S	305	996
Max. Peak ON-state voltage Drop	V_{TM}	V_{RMS}	≤1.2	
Minimum Isolation Resistance between Input Terminals (~,~) to Output Terminals (L1,L2,L3,U,V,W) @ 500V DC	Ω	GΩ	50	
Isolation Voltage Input Terminals (+1,-2) to Output Terminals (L1,L2,L3,U,V,W) for 1 Minute	V_{ISO}	kV	6	
Isolation Voltage Input & Output Terminals (+1,-2,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	

Parameters	Symbol	Unit	25Amp	40Amp
Max. Rate of Rise OFF-State Voltage	dV/dt	V/µS	400	1000
Max. Rate of Rise OFF-State Current	di/dt	A/µS	50	
Max. Peak Repetitive Forward OFF-State Voltage	V_{DRM}	V	800	1200
Max. Peak Repetitive Forward OFF-State current	I_{DRM}	mA	0.05	0.1
Max. Peak repetitive reverse off-state Voltage	V_{RRM}	V	800	1200
Max. Peak repetitive reverse off-state current	I_{RRM}	mA	0.05	0.1
Max. DC Gate Trigger Voltage	V_{GT}	V	1.2	1.5
Max. DC Gate Trigger Current	I_{GT}	mA	50	
Turn OFF Time	t_q	µS	20	50
Maximum Latching Current	I_L	mA	100	150
Maximum Holding Current	I_H	mA	75	
Thermal Resistance R^e (Junction to case)	$R^e_{(j-c)}$	°C/W	1.2	1.1
OFF State SSR Leakage Current @ Rated Voltage & Frequency (Snubber Leakage)	I_{leak}	mA	<2mA	
SCCR Current Rating	I_{SCCR}	kA	--	
SSR Weight - 905 Model	W	gm	350	

Part Number Table

Description	Part Number
3 Phase Solid state Relay, 4 to 32V DC, 24 to 480V AC, 25A	MP-3PH ZDA 48 25 01
3 Phase Solid state Relay, 4 to 32V DC, 24 to 480V AC, 40A	MP-3PH ZDA 48 40 01