GOLD ELECTRIC
Innovation and Service

Solid State Relay

DataSheet

SAP24 Series

Panel Mount

- Ratings from 10A to 90A @ 24-280 VAC
- 800 Volts transient overvoltage
- Removable IP 20 touch-safe cover
- Easy-to-use thermal pad
- Strengthened current design for heavy industrial loads
- Input LED status indicator
- UL/CE approved, RoHS/EMC compliant.
- Designed in according with the requirements of IEC 62314
- Zero-crossing (resistive loads) or instantaneous (inductive loads) output

PRODUCT SELECTION

Control Voltage	10A	25A	40A	50A	60A	75A	80A	90A
90-280 VAC	SAP2410A	SAP2425A	SAP2440A	SAP2450A	SAP2460A	SAP2475A	SAP2480A	SAP2490A
3-32 VDC	SAP2410D	SAP2425D	SAP2440D	SAP2450D	SAP2460D	SAP2475D	SAP2480D	SAP2490D

MODEL NAME DEFINITIONS

Rated Current
10: 10 Amps
25: 25 Amps
40: 40 Amps
50: 50 Amps
60: 60 Amps
75: 75 Amps
80: 80 Amps
90: 90 Amps

Control Type
A: 90-280 VAC
D: 3-32 VDC

Solid-State Relay

Style
P: Panel Mount

S	A	P	24	10	D	—	R

Output Type
A: AC Output

Output Voltage
24: 24-280 Vrms

Switch Type
Blank: Zero Voltage Turn-On
R: Instantaneous Turn-On

OUTPUT SPECIFICATIONS (1)

Description	10A	25A	40A	50A
Operating Voltage (47-63Hz) [Vrms]	24-280	24-280	24-280	24-280
Transient Overvoltage [Vpk]	800	800	800	800
Maximum Off-State Leakage Current @ Rated Voltage [mArms]	8	8	8	8
Minimum Off-State dv/dt @ Maximum Rated Voltage [V/µsec]	300	300	500	500
Maximum Load Current(2) [Arms]	10	25	40	50
Minimum Load Current [Arms]	0.15	0.15	0.15	0.15
Maximum 1 Cycle Surge Current (50/60Hz) [Apk]	153/160	392/410	477/500	573/600
Maximum On-State Voltage Drop @ Rated Current [Vrms]	1.15	1.15	1.15	1.15
Thermal Resistance Junction to Case (Rjc) [°C/W]	1.89	1.12	0.71	0.59
Maximum 1/2 Cycle I^2t for Fusing (50/60 Hz) [A^2 sec]	142/129	285/259	1770/1629	2124/1954
Minimum Power Factor (with Maximum Load)	0.5	0.5	0.5	0.5
Weight (typical) [Gram]	123	123	123	123

Solid State Relay

DataSheet

Description	60A	75A	80A	90A
Operating Voltage (47-63Hz) [Vrms]	24-280	24-280	24-280	24-280
Transient Overvoltage [Vpk]	800	800	800	800
Maximum Off-State Leakage Current @ Rat15ed Voltage [mArms]	8	8	8	8
Minimum Off-State dv/dt @ Maximum Rated Voltage [V/μsec]	500	500	500	500
Maximum Load Current(2) [Arms]	60	75	80	90
Minimum Load Current [Arms]	0.15	0.15	0.15	0.15
Maximum 1 Cycle Surge Current (50/60Hz) [Apk]	764/800	859/900	859/900	955/1000
Maximum On-State Voltage Drop @ Rated Current [Vrms]	1.15	1.15	1.15	1.2
Thermal Resistance Junction to Case (Rjc) [°C/W]	0.57	0.53	0.49	0.43
Maximum 1/2 Cycle I^2t for Fusing (50/60 Hz) [A^2 sec]	2442/2247	2808/2584	3230/2971	3714/3417
Minimum Power Factor (with Maximum Load)	0.5	0.5	0.5	0.5
Weight (typical) [Gram]	123	123	125	151

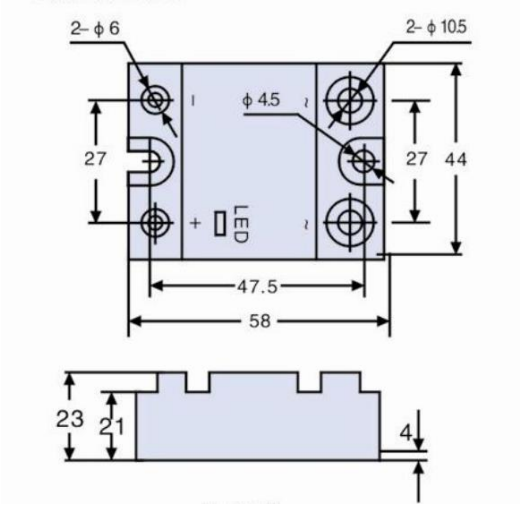
INPUT SPECIFICATIONS (1)

Description	SAP24xxA	SAP24xxD
Control Voltage Range	90-280 Vrms	3-32 VDC
Maximum Reverse Voltage	-	-32
Minimum Turn-On Voltage	90 Vrms	3.0 VDC
Minimum Turn-Off Voltage	10 Vrms	1.0 VDC
Minimum Input Current [mA]	5	7
Maximum Input Current [mA]	10	12
Nominal Input Impedance	Current Regulated	Current Regulated
Maximum Turn-On Time(3) [msec]	20	1/2 cycle
Maximum Turn-Off Time [msec]	30	1/2 cycle

GENERAL SPECIFICATIONS

Description	Parameters
Dielectric Strength, Input/Output/Base (50/60Hz)	4000 Vrms
Minimum Insulation Resistance (@ 500 V DC)	10^9 Ohm
Maximum Capacitance, Input/Output	8 pF
Ambient Operating Temperature Range	-40 to 80°C
Ambient Storage Temperature Range	-40 to 125 °C
Housing Material	UL E211125: 94 V-0
Terminal Material	Gilded
Baseplate Material	Aluminum (Except for 90A)
Humidity	85% non-condensing
LED Input Status Indicator	Red

MECHANICAL SPECIFICATIONS



Unit of Length： Millimeters

RECOMMENDED MODEL & HEATSINK

Choosing compatible current is critical in selecting a right model of solid state relay. Our engineers recommend SSR models according to actual applications and internal components of relay. For example, when solid state relay is used for electric heating, because of the cold resistance effect (the resistance value is 60% of heating wire value when it is in cold state), the SSR's current should be 1.67 times bigger than actual working current in order to prevent the over-current of solid state relay. The recommendations for the other types of application are provided in the similar reasons. Heatsink in the table are compatible (size and thermal parameters) with the corresponding SSRs.

Application to Electric Heating

Actual Load Current		0.15A-7A	0.15A-18A	0.15A-22A	0.15A-27A	0.15A-31A	0.15A-40A	0.15A-45A	0.15A-50A
Recommended Model(4)		SAP2410D	SAP2425D	SAP2440D	SAP2450D	SAP2460D	SAP2475D	SAP2480D	SAP2490D
Recommended Heatsink	Panel	X50	G60	G60	G80	G100	T80	T110	T110
	Din Rail	CX50	CH60	CH80	CH100	CH120			

Application to Single-Phase Motors

Actual Load Current		0.15A-2A	0.15A-5A	0.15A-7A	0.15A-8A	0.15A-10A	0.15A-12A	0.15A-14A	0.15A-15A
Recommended Model(4)		SAP2410D-R	SAP2425D-R	SAP2440D-R	SAP2450D-R	SAP2460D-R	SAP2475D-R	SAP2480D-R	SAP2490D-R
Recommended Heatsink	Panel	No Need	X75	x75	X75	X75	X75	X75	X75
	Din Rail	Clip	CR75	CR75	CR75	CR75	CR75	CR75	CR75

Application to Three-Phase Motors(5)

Actual Load Current	0.15A-2A	0.15A-5A	0.15A-6A	0.15A-7A	0.15A-8A	0.15A-11A	0.15A-12A	0.15A-13A
Recommended Model(4)	SAP2410D-R	SAP2425D-R	SAP2440D-R	SAP2450D-R	SAP2460D	SAP2475D	SAP2480D	SAP2490D
Recommended Panel Mount Heatsink(5)	No Need	G150	G150	G150	T150	T150	T150	T150

Application to Transformer Loads

Actual Load Current		0.15A-4A	0.15A-10A	0.15A-12A	0.15A-15A	0.15A-17A	0.15A-22A	0.15A-25A	0.15A-27A
Recommended Model(4)		SAP2410D-R	SAP2425D-R	SAP2440D-R	SAP2450D-R	SAP2460D-R	SAP2475D-R	SAP2480D-R	SAP2490D-R
Recommended Heatsink	Panel	No Need	X75	X75	G60	G60	G80	G80	G80
	Din Rail	Clip	CR75	CR75	CH60	CH60	CH60	CH80	CH80

Application to Solenoid Valves or Contactor Coils

Actual Load Current		0.15A-1.4A	0.15A-3.7A	0.15A-4.5A	0.15A-5.4A	0.15A-6.3A	0.15A-8.1A	0.15A-9A	0.15A-10A
Recommended Model(4)		SAP2410D-R	SAP2425D-R	SAP2440D-R	SAP2450D-R	SAP2460D-R	SAP2475D-R	SAP2480D-R	SAP2490D-R
Recommended Heatsink	Panel	No Need	No Need	No Need	X75	X75	X75	X75	X75
	Din Rail	Clip	Clip	Clip	CR75	CR75	CR75	CR75	CR75

GENERAL NOTES

(1) All parameters at 25°C and per section unless otherwise specified.
(2) Heat sinking required, for derating curves see next page.
(3) Turn-on time for random turn-on (-R) version is 0.1 msec.
(4) It is DC control as a default in the recommendation table, but it can be changed to AC control according to demand.
(5) Each Heatsink is suitable to assemble three solid state relays.

AGENCY APPROVALS

Designed in accordance with the requirements of IEC 62314

c UL us E256552 CE RoHS