M SERIES OUTPUT MODULES

- AC Modules have High Current Thyristors with 100 Amp Surge Capability
- Plug into mounting boards for 0.6" modules
- Zero or Random Turn-On Available in AC Modules
- 4kV Optical isolation (1500 VAC Isolation for FET DC Output Modules)
- UL Recognized, CSA Certified, CE Compliant
- Industry standard packaging and Color Coding Black (AC Output) Red (DC Output)

SPECIFICATIONS (1)

Input

Part Number	M-OAC5	M-OAC5A	M-OAC5AH	M-OAC5AR	M-OAC5R
Nominal Voltage [VDC]	5.0	5.0	5.0	5.0	5.0
Minimum Voltage [VDC] (2)	2.75	2.75	2.75	2.75	2.75
Maximum Voltage [VDC]	8.0	8.0	8.0	8.0	8.0
Drop-out Voltage [VDC]	1.0	1.0	1.0	1.0	1.0
Maximum Current [mA] (3)	20	20	20	20	20
Resistance [Ohms] (4)	220	220	220	220	220
Output					
Nominal Line Voltage	120 VAC	240 VAC	240 VAC	240 VAC	120 VAC
Minimum Line Voltage	12 VAC	24 VAC	24 VAC	24 VAC	12 VAC
Maximum Line Voltage	140 VAC	280 VAC	280 VAC	280 VAC	140 VAC
Max Off-State Voltage (5)	400 Vpeak	600 Vpeak	600 Vpeak	600 Vpeak	400 Vpeak
Max Off-State Leakage (6)	0.1mArms	0.1mArms	0.1mArms	0.1mArms	0.1mArms
Static Off-State dv/dt (7)	200 V/usec	200 V/usec	200 V/usec	200 V/usec	200 V/usec
Maximum Rated On-State Current (8)	3.5 Arms	3.5 Arms	5.0 Arms	3.5 Arms	3.5 Arms
Minimum On-State Current	50 mArms	50 mArms	50 mArms	50 mArms	50 mArms
Max Surge Current (9)	100 Apeak	100 Apeak	100 Apeak	100 Apeak	100 Apeak
On-State Voltage Drop or Resistance (10)	1.6 V	1.6 V	1.6 V	1.6 V	1.6 V
Maximum Turn-On Time [msec] (13)	8.33	8.33	8.33	0.1	0.1
Maximum Turn-Off Time [msec] (13)	8.33	8.33	8.33	8.33	8.33
Input/Output Isolation Voltage (14)	4000 Vrms	4000 Vrms	4000 Vrms	4000 Vrms	4000 Vrms
Input/Output Capacitance	8 pF	8 pF	8 pF	8 pF	8 pF
Operating Temperature Range	-30 to 80°C	-30 to 80°C	-30 to 80°C	-30 to 80°C	-30 to 80°C
Storage Temperature Range	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C
Line Frequency Range	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz
Weight	1.1 oz. (31.2g)	1.1 oz. (31.2g)	1.1 oz. (31.2g)	1.1 oz. (31.2g)	1.1 oz. (31.2g)

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SPECIFICATIONS (1)

Input

Part Number	M-OAC24	M-OAC24A	M-ODC5	M-ODC5A	M-ODC5F
Nominal Voltage [VDC]	24	24	5.0	5.0	5.0
Minimum Voltage [VDC] (2)	18	18	2.75	2.75	2.75
Maximum Voltage [VDC]	32	32	8.0	8.0	8.0
Drop-out Voltage [VDC]	1.0	1.0	1.0	1.0	1.0
Maximum Current [mA] (3)	13	13	18	18	18
Resistance [Ohms] (4)	2000	2000	250	250	250

Output

Nominal Line Voltage	120 VAC	240 VAC	5-48 VDC	5-150 VDC	5-48 VDC
Minimum Line Voltage	12 VAC	24 VAC	3.0 VDC	3.0 VDC	3.0 VDC
Maximum Line Voltage	140 VAC	280 VAC	60 VDC	250 VDC	60 VDC
Max Off-State Voltage (5)	400 Vpeak	600 Vpeak	60 VDC	250 VDC	60 VDC
Max Off-State Leakage (6)	0.1mArms	0.1mArms	10 uA	10 uA	10 uA
Static Off-State dv/dt (7)	200 V/usec	200 V/usec	N/A	N/A	N/A
Maximum Rated On-State Current (8)	3.5 Arms	3.5 Arms	3.0 A	1.0 A	3.0 A
Minimum On-State Current	50 mArms	50 mArms	10 mA	10 mA	10 mA
Max Surge Current (9)	100 Apeak	100 Apeak	5.0 A	5.0 A	5.0 A
On-State Voltage Drop or Resistance (10)	1.6 V	1.6 V	1.5 V	1.5 V	1.5 V
Maximum Turn-On Time [msec] (13)	8.33	8.33	0.1	0.1	0.025
Maximum Turn-Off Time [msec] (13)	8.33	8.33	0.75	0.75	0.05
Input/Output Isolation Voltage (14)	4000 Vrms	4000 Vrms	4000 Vrms	4000 Vrms	4000 Vrms
Input/Output Capacitance	8 pF	8 pF	8 pF	8 pF	8 pF
Operating Temperature Range	-30 to 80°C	-30 to 80°C	-30 to 80°C	-30 to 80°C	-30 to 80°C
Storage Temperature Range	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C
Line Frequency Range	47 to 63 Hz	47 to 63 Hz	DC	DC	DC
Weight	1.1 oz. (31.2g)	1.1 oz. (31.2g)	1.1 oz. (31.2g)	1.1 oz. (31.2g)	1.1 oz. (31.2g)

SPECIFICATIONS (1)

Input

Part Number	M-ODC5MA	M-ODC5MC	M-ODC5ML	M-ODC24	M-ODC24A
Nominal Voltage [VDC]	5.0	5.0	5.0	24	24
Minimum Voltage [VDC] (2)	2.75	2.75	2.75	18	18
Maximum Voltage [VDC]	8.0	8.0	8.0	32	32
Drop-out Voltage [VDC]	1.0	1.0	1.0	1.0	1.0
Maximum Current [mA] (3)	18	18	18	13	13
Resistance [Ohms] (4)	250	250	250	2000	2000

Output

Nominal Line Voltage	5-150 VDC	5-90 VDC	5-48 VDC	5-48 VDC	5-150 VDC
Minimum Line Voltage	1.0 VDC	1.0 VDC	50 VDC	60 VDC	250 VDC
Maximum Line Voltage	200 VDC	100 VDC	50 VDC	60 VDC	250 VDC
Max Off-State Voltage (5)	200 VDC	100 VDC	50 VDC	60 VDC	250 VDC
Max Off-State Leakage (6)	10 uA	10 uA	10 uA	10 uA	10 uA
Static Off-State dv/dt (7)	N/A	N/A	N/A	N/A	N/A
Maximum Rated On-State Current (8)	3.0 A	5.0 A	1.0 A	3.0 A	1.0 A
Minimum On-State Current	1.0 mA	1.0 mA	10 mA	10 mA	10 mA
Max Surge Current (9)	10 A	10 A	10 A	5.0 A	5.0 A
On-State Voltage Drop or Resistance (10)	0.25 Ohms	0.10 Ohms	0.05 Ohms	1.5 V	1.5 V
Maximum Turn-On Time [msec] (13)	1.0	1.0	1.0	0.1	0.1
Maximum Turn-Off Time [msec] (13)	0.05	0.05	0.05	0.75	0.75
Input/Output Isolation Voltage (14)	1500 Vrms	1500 Vrms	1500 Vrms	4000 Vrms	4000 Vrms
Input/Output Capacitance	8 pF	8 pF	8 pF	8 pF	8 pF
Operating Temperature Range	-30 to 80°C	-30 to 80°C	-30 to 80°C	-30 to 80°C	-30 to 80°C
Storage Temperature Range	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C
Line Frequency Range	DC	DC	DC	DC	DC
Weight	1.1 oz. (31.2g)	1.1 oz. (31.2g)	1.1 oz. (31.2g)	1.1 oz. (31.2g)	1.1 oz. (31.2g)

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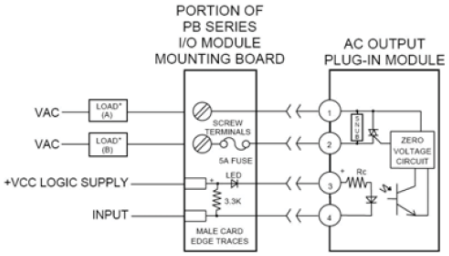
Sensata Technologies

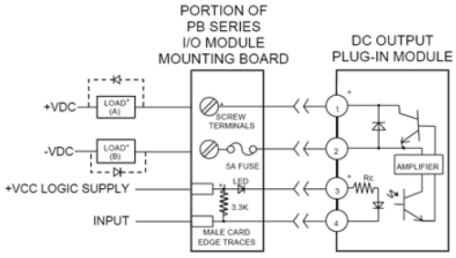
General Notes:

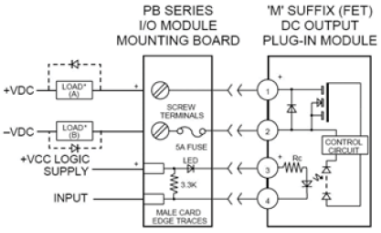
(1) Specifications apply to an ambient temperature of -30 to 80°C unless otherwise noted.
(2) Whitout external LED status indicator Add 1.7 volts for external LED if utilized.
(3) At nominal input voltage, without external LED status indicator.
(4) + / - 10% at 25°C.
(5) Maximum 1 minute duration for OAC modules when applied as a DC voltage rather than a peek AC voltage.
(6) At maximum line voltage, 25°C for OAC modules, and 80°C for ODC modules.
(7) Minimum DV/DT per EIA/NARM RS433, method RS397, DV/DT raitings do not apply to DC output models.
(8) At 40°C derate OAC modules 58 mA/°C to 80°C derate ODC, ODCxMC and ODCxML modules 50mA/°C to 80°C CSA rating of OAC modules is 3.0 Arms at 40°C.
(9) At 25°C for 1 second maximum duration: 1 AC cycle for AC modules, 1 second for DC modules.
(10) At maximum rated on-state current and 25°C.
(11) At maximum line voltage, maximum rated output current, nominal input voltage and 25°C switching speed of OAC modules is based upon 60 Hz line frequency
(12) At 25°C for 1 second maximum duration.
(13) 1/3 HP at 240 VAC 1/8 HP at 120 VAC.
(14) At 25°C for 1 second maximum duration.

EQUIVALENT CIRCUIT DIAGRAMS / MECHANICAL SPECIFICATIONS

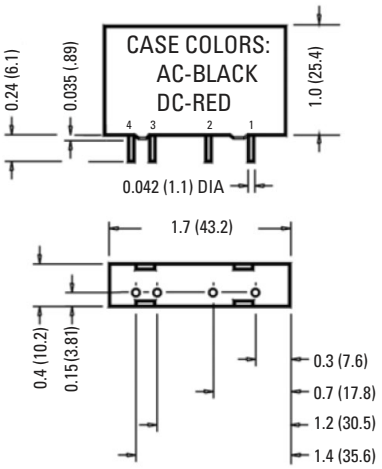


* LOAD MAY BE WIRED IN LOCATION A OR B





* LOAD MAY BE WIRED IN LOCATION A OR B
DC INDUCTIVE LOADS MUST BE DIODE SUPPRESSED



UNLESS OTHERWISE SPECIFIED
DIMENSIONS: INCHES (MILLIMETERS)
TOLERANCE: ±0.020 (±0.50)

AGENCY APPROVALS

E46203 38595

Rev. 042017

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DANGER / PELIGRO / DANGER /GEFAHR / PERICOLO / 危险

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH.

- Disconnect all power before installing or working with this equipment.
- Verify all connections and replace all covers before turning on power.

Failure to follow these instructions will result in death or serious injury.

RIESGO DE DESCARGA ELECTRICA O EXPLOSION.

- Desconectar todos los suministros de energia a este equipo antes de trabajar con este equipo.
- Verificar todas las conexiones y colocar todas las tapas antes de energizer el equipo.

El incumplimiento de estas instrucciones puede provocar la muerte o lesiones serias.

RISQUE DE DESCHARGE ELECTRIQUE OU EXPLOSION

- Eteindre toutes les sources d'énergie de cet appareil avant de travailler dessus de cet appareil
- Vérifier tous connections, et remettre tous couverts en olace avant de mettre sous

De non-suivi de ces instructions provoquera la mort ou des lésions sérieuses sérieuses.

GEFAHR EINES ELEKTRISCHE N SCHLAGES ODER EINER EXPLOSION.

- Stellen Sie jeglichen Strom ab, der dieses Gerät versorgt, bevor Sie an dem Gerät Arbeiten durchführen
- Vor dem Drehen auf Energie alle Anschlüsse überprüfen und alle Abdeckungen ersetzen.

Unterlassung dieser Anweisungen können zum Tode oder zu schweren Verletzungen führen.

RISCHIO DI SCOSSA ELETTRICA O DELL'ESPLOSIONE.

- Spenga tutta l'alimentazione che fornisce questa apparecchiatura prima di lavorare a questa apparecchiatura
- Verificare tutti i collegamenti e sostituire tutte le coperture prima dell'accensione

L'omissione di queste istruzioni provocherà la morte o lesioni serie

存在电击、爆炸或电弧闪烁危险

- 在操作此设备之前请先关闭电源。

若不遵守这些说明，可能会导致严重的人身伤害甚至死亡。

WARNING / AVERTISSEMENT / WARNUNG /ADVERTENCIA / AVVERTENZA / 警告

RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE

- The product's side panels may be hot, allow the product to cool before touching.
- Follow proper mounting instructions including torque values.
- Do not allow liquids or foreign objects to enter this product.

Failure to follow these instructions can result in serious injury, or equipment damage.

RISQUE DE DOMMAGE MATERIEL ET DE SURCHAUFFE DU BOITIER

- Les panneaux latéraux du produit peuvent être chauds. Laisser le produit refroidir avant de le toucher.
- Respecter les consignes de montage, et notamment les couples de serrage.
- Ne pas laisser pénétrer de liquide ni de corps étrangers à l'intérieur du produit.

Le non-respect de cette directive peut entraîner, des lésions corporelles graves ou des dommages matériels.

GEFAHR VON MATERIALSCHÄDEN UND GEHÄUSEERHITZUNG

- Die Seitenwände können heiß sein. Lassen Sie das Produkt abkühlen, bevor Sie es berühren.
- Beachten Sie die Montageanweisungen,
- Führen Sie keine Flüssigkeiten oder Fremdkörper in das Produkt ein.

Die Nichtbeachtung dieser Anweisung kann Körperverletzung oder Materialschäden zur Folge haben.

RIESGO DE DAÑOS MATERIALES Y DE SOBRECALENTAMIENTO DE LA UNIDAD

- Los paneles laterales del producto pueden estar calientes. Esperar que el producto se enfríe antes de tocarlo.
- Respetar las instrucciones de montaje, y en particular los pares de apretado.
- No dejar que penetren líquidos o cuerpos extraños en el producto.

Si no se respetan estas precauciones pueden producirse graves lesiones, daños materiales.

RISCHIO DI DANNI MATERIALI E D'INVOLUCRO CALDO

- I pannelli laterali dell'apparecchio possono scottare; lasciar quindi raffreddare il prodotto prima di toccarlo.
- Seguire le istruzioni di montaggio corrette.
- Non far entrare liquidi o oggetti estranei in questo apparecchio.

La mancata osservanza di questa precauzione può causare gravi rischi per l'incolumità personale o danni alle apparecchiature.

材料损坏和高温外壳的危险性

- 产品的一侧面板可能很热，在其冷却前请不要触碰。
- 遵照正确的安装说明，包括扭矩值。
- 请勿让液体及其他异物进入本产品。

如不能正确执行这些操作说明，极有可能造成严重人体伤害或者设备的损坏。

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ANNEX - ENVIROMENTAL INFORMATION

The environmental information disclosed in this annex including the EIP Pollution logo are in compliance with People's Republic of China Electronic Industry Standard SJ/T11364 – 2006, Marking for Control of Pollution Caused by Electronic Information Products.

Part Name	Toxic or hazardous Substance and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr (VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Semiconductor die	X	O	O	O	O	O
Solder	X	O	O	O	O	O

附件 - ☒保信息

此附件所标示的包括电子信息产品污染图标的环保信息符合中华人民共和国电子行业标准 SJ/T11364 - 2006, 电子信息产品污染控制标识要求。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
半导体芯片	X	O	O	O	O	O
焊接点	X	O	O	O	O	O

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