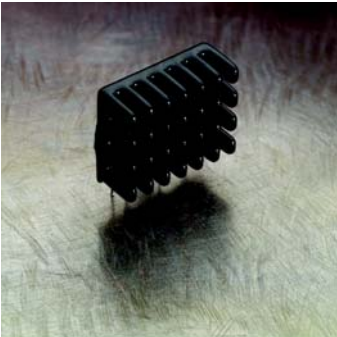


## SPF Series

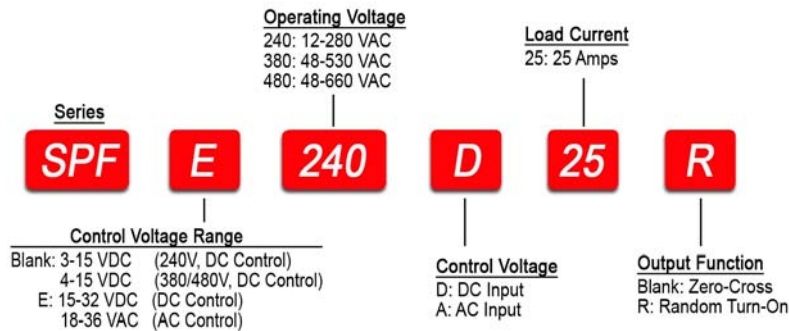


- SIP SSR
- Ratings to 25A (forced air) @ 480 VAC
- SCR output for heavy industrial loads
- AC or DC control
- Zero-crossing (resistive loads) or random-fire (inductive loads) output

### PRODUCT SELECTION

| Control Voltage | 25A        | 25A        | 25A        |
|-----------------|------------|------------|------------|
|                 | SPF240D25  |            |            |
| 4-15 VDC        |            | SPF380D25  | SPFE480D25 |
| 15-32 VDC       | SPFE240D25 | SPFE380D25 | SPFE480D25 |
| 18-36 VAC       | SPFE240A25 |            |            |
| 90-140 VAC      | SPF240A25  |            |            |

### AVAILABLE OPTIONS



### OUTPUT SPECIFICATIONS (1)

| Description                                                            |                                    |                                    |                                    |
|------------------------------------------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Operating Voltage (47-63Hz) [Vrms]                                     | 12-280                             | 48-530                             | 48-660                             |
| Transient Overvoltage [Vpk]                                            | 600                                | 1200                               | 1200                               |
| Maximum Off-State Leakage Current @ Rated Voltage [mA <sub>rms</sub> ] | 0.1                                | 0.1                                | 0.1                                |
| Minimum Off-State dv/dt @ Maximum Rated Voltage [V/μsec] (2)           | 500                                | 500                                | 500                                |
| Maximum Load Current [A <sub>rms</sub> ](3)                            | Forced Air 25<br>Convection Air 10 | Forced Air 25<br>Convection Air 10 | Forced Air 25<br>Convection Air 10 |
| Minimum Load Current [A <sub>rms</sub> ]                               | 0.06                               | 0.06                               | 0.06                               |
| Maximum Surge Current (16.6ms) [A <sub>pk</sub> ]                      | 250                                | 250                                | 250                                |
| Maximum On-State Voltage Drop @ Rated Current [V <sub>pk</sub> ]       | 1.6                                | 1.6                                | 1.6                                |
| Maximum I <sup>2</sup> t for fusing (8.3 msec) [A <sup>2</sup> sec]    | 260                                | 260                                | 260                                |
| Minimum Power Factor (with Maximum Load)                               | 0.5                                | 0.5                                | 0.5                                |

## INPUT SPECIFICATIONS (1)

| Description                             | SPF240D25 | SPF380D/480D | SPFExxxD25 | SPF240A25  | SPFE240A25 |
|-----------------------------------------|-----------|--------------|------------|------------|------------|
| Control Voltage Range                   | 3-15 VDC  | 4-15 VDC     | 15-32 VDC  | 90-140 VAC | 18-36 VAC  |
| Maximum Turn On Voltage                 | 3.0 VDC   | 4.0 VDC      | 15.0 VDC   | 90.0 Vrms  | 18.0 Vrms  |
| Minimum Turn-Off Voltage                | 1.0 VDC   | 1.0 VDC      | 1.0 VDC    | 10.0 Vrms  | 2.0 Vrms   |
| Typical Input Current @ Nominal Voltage | 15 mAdc   | 15 mAdc      | 15 mAdc    | 10 mAdc    | 10 mAdc    |
| Nominal Input Impedance                 | 300 Ohm   | 240 Ohm      | 1500 Ohm   | 14.1 k Ohm | 2.1 k Ohm  |
| Maximum Turn-On Time [msec] (4)         | 1/2 Cycle | 1/2 Cycle    | 1/2 Cycle  | 10         | 10         |
| Maximum Turn-Off Time [msec]            | 1/2 Cycle | 1/2 Cycle    | 1/2 Cycle  | 40         | 40         |

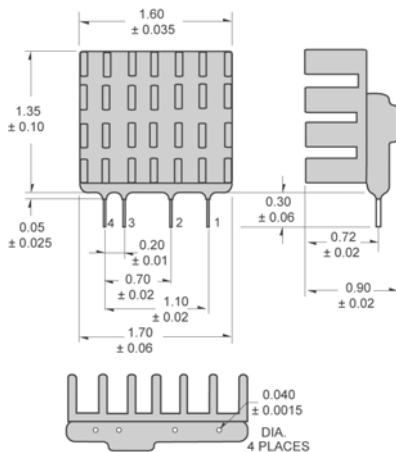
## GENERAL SPECIFICATIONS

| Description                                      | Parameters                 |
|--------------------------------------------------|----------------------------|
| Dielectric Strength, Input/Output/Base (50/60Hz) | 4000 Vrms                  |
| Minimum Insulation Resistance (@ 500 VDC)        | $10^9$ Ohm                 |
| Maximum Capacitance, Input/Output                | 8 pF                       |
| Ambient Operating Temperature Range              | -30 to 80°C                |
| Ambient Storage Temperature Range                | -30 to 125°C               |
| Weight (typical)                                 | 0.85 oz. (25g)             |
| Encapsulation                                    | Thermally Conductive Epoxy |

### GENERAL NOTES

- 1) All parameters at 25°C unless otherwise specified.
- 2) Off-State dv/dt test method per EIA/NARM standard RS-443,13.11.1
- 3) Heatsink temperature 85 °C Maximum.
- 4) Turn-On Time for Random Turn-On versions 0.1 msec (DC Control Models)

## MECHANICAL SPECIFICATIONS



All dimensions are in inches (millimeters)

AC CONTROL  
PIN 1: AC LOAD  
PIN 2: AC LOAD  
PIN 3: AC CONTROL  
PIN 4: AC CONTROL

DC CONTROL  
PIN 1: AC LOAD  
PIN 2: AC LOAD  
PIN 3: +DC CONTROL  
PIN 4: -DC CONTROL

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CE

Rev. 061608

## THERMAL DERATE INFORMATION

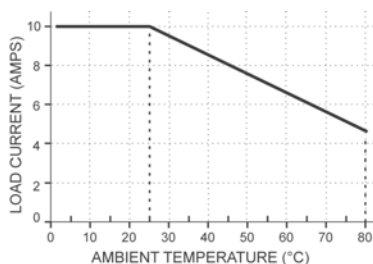


Fig.1 Convection Cooling

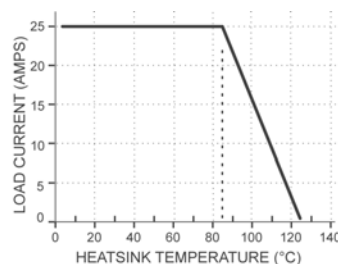


Fig.2 Forced Air Cooling

|  <b>DANGER / PELIGRO / DANGER /GEFAHR / PERICOLO / PERIGO</b>                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH.</b> <ul style="list-style-type: none"> <li>Disconnect all power before installing or working with this equipment.</li> <li>Verify all connections and replace all covers before turning on power.</li> </ul> <p>Failure to follow these instructions will result in death or serious injury.</p> | <b>RIESGO DE DESCARGA ELECTRICA O EXPLOSION.</b> <ul style="list-style-type: none"> <li>Desconectar todos los suministros de energia a este equipo antes de trabajar con este equipo.</li> <li>Verificar todas las conexiones y colocar todas las tapas antes de energizar el equipo.</li> </ul> <p>El incumplimiento de estas instrucciones puede provocar la muerte o lesiones serias.</p> | <b>RISQUE DE DESCARGE ELECTRIQUE OU EXPLOSION</b> <ul style="list-style-type: none"> <li>Eteindre toutes les sources d'énergie de cet appareil avant de travailler dessus de cet appareil</li> <li>Vérifier tous connections, et remettre tous couverts en place avant de mettre sous</li> </ul> <p>De non-suivi de ces instructions provoquera la mort ou des lésions sérieuses sérieuses.</p> | <b>GEFAHR EINES ELEKTRISCHE N SCHLAGES ODER EINER EXPLOSION.</b> <ul style="list-style-type: none"> <li>Stellen Sie jeglichen Strom ab, der dieses Gerät versorgt, bevor Sie an dem Gerät Arbeiten durchführen</li> <li>Vor dem Drehen auf Energie alle Anschlüsse überprüfen und alle Abdeckungen ersetzen.</li> </ul> <p>Unterlassung dieser Anweisungen können zum Tode oder zu schweren Verletzungen führen.</p> | <b>RISCHIO DI SCOSSA ELETTRICA O DELL'ESPLOSIONE.</b> <ul style="list-style-type: none"> <li>Spenda tutta l'alimentazione e che fornisce questa apparecchiatura prima del lavorare a questa apparecchiatura</li> <li>Verificare tutti i collegamenti e sostituire tutte le coperture prima della rotazione sull'alimentazione</li> </ul> <p>L'omissione di seguire queste istruzioni provocherà la morte o di lesioni serie</p> | <b>RISCO DE DESCARGA ELÉTRICA OU EXPLOÇÃO</b> <ul style="list-style-type: none"> <li>Desconectar o equipamento de toda a energia antes de instalar ou trabalhar com este equipamento</li> <li>Verificar todas as conexões e recolocar todas as tampas antes de religar o equipamento</li> </ul> <p>O não cumprimento destas instruções pode levar à morte ou lesões sérias.</p> |

|  <b>WARNING / AVERTISSEMENT / WARNUNG /ADVERTENCIA / AVVERTENZA / AVISO</b>                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE</b> <ul style="list-style-type: none"> <li>The product's side panels may be hot, allow time for product to cool before touching.</li> <li>Follow proper mounting instructions including torque values.</li> <li>Do not allow liquids or foreign objects to enter this product.</li> </ul> <p>Failure to follow this instruction can result in serious injury, or equipment damage.</p>                                                                        | <b>RISQUE DE DOMMAGE MATERIEL ET DE SURCHAUFFE DU BOITIER</b> <ul style="list-style-type: none"> <li>Les panneaux latéraux du produit peuvent être chauds. Laisser le produit refroidir avant de le toucher.</li> <li>Respecter les consignes de montage, et notamment les couples de serrage.</li> <li>Ne pas laisser pénétrer de liquide ni de corps étrangers à l'intérieur du produit.</li> </ul> <p>Le non-respect de cette directive peut entraîner, des lésions corporelles graves ou des dommages matériels.</p> | <b>GEFAHR VON MATERIALSCHÄDEN UND GEHÄUSEERHITZUNG</b> <ul style="list-style-type: none"> <li>Die Seitenwände können heiß sein. Lassen Sie das Produkt abkühlen, bevor Sie es berühren.</li> <li>Beachten Sie die Montageanweisungen, Führen Sie keine Flüssigkeiten oder Fremdkörper in das Produkt ein.</li> </ul> <p>Die Nichtbeachtung dieser Anweisung kann Körperverletzung oder Materialschäden zur Folge haben.</p>                             |
| <b>RIESGO DE DAÑOS MATERIALES Y DE SOBRECALENTAMIENTO DE LA UNIDAD</b> <ul style="list-style-type: none"> <li>Los paneles laterales del producto pueden estar calientes. Esperar que el producto se enfríe antes de tocarlo.</li> <li>Respetar las instrucciones de montaje, y en particular los pares de apretado.</li> <li>No dejar que penetren líquidos o cuerpos extraños en el producto.</li> </ul> <p>Si no se respetan estas precauciones pueden producirse graves lesiones, daños materiales.</p> | <b>RISCHIO DI DANNI MATERIALI E D'INVOLUCRO CALDO</b> <ul style="list-style-type: none"> <li>I pannelli laterali dell'apparecchio possono scottare; lasciar quindi raffreddare il prodotto prima di toccarlo.</li> <li>Seguire le istruzioni di montaggio corrette.</li> <li>Non far entrare liquidi o oggetti estranei in questo apparecchio.</li> </ul> <p>La mancata osservanza di questa precauzione può causare gravi rischi per l'incolumità personale o danni alle apparecchiature.</p>                           | <b>RISCO DE DANO MATERIAL E DE AQUECIMENTO</b> <ul style="list-style-type: none"> <li>Os painéis laterais do produto podem estar quentes; dê tempo ao produto para arrefecer antes de lhe tocar.</li> <li>Siga devidamente as instruções de montagem.</li> <li>Não permita a entrada de líquidos e de objectos estranhos no produto.</li> </ul> <p>A não observância destas precauções pode provocar a morte, ferimentos graves ou danos materiais.</p> |

## 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                                     |

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            |