

# › GN DC Series Panel Mount SSRs 3-60, 1-50, 1-100 & 1-200 VDC

- › Current rating 10, 15 and 30 Amps
- › Output voltage 3-60, 1-50, 1-100 and 1-200 VDC
- › Transistor and Mosfet Output
- › Available with or without IP20 touch-safe cover
- › LED Status Indicator
- › UL Approved, CE Compliant to EN60950-1
- › Improved SEMS screw and washer
- › Screw or Faston Terminals
- › Redesigned housing with anti-rotation barriers
- › DC control
- › Epoxy Free Design



IP00 Package,  
Screw Terminal

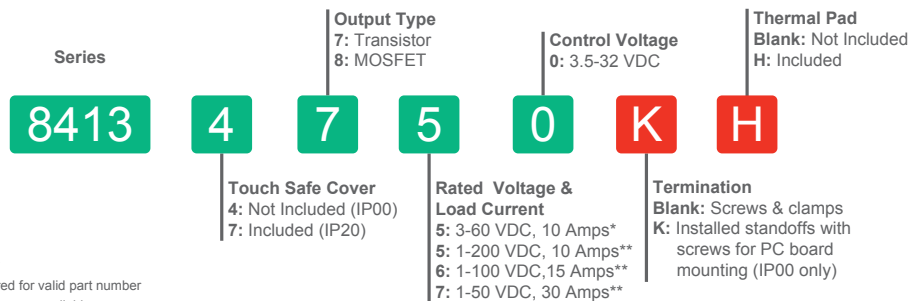


IP20 Package  
Screw Terminal

Previous version [click here](#)

## Specific characteristics

Designation	Input	Output	Current	Code
SSR, Transistor Output	3-32 VDC	3-60 VDC	10 Amp	84 134 750
SSR, Mosfet Output	3.5-32 VDC	1-200 VDC	10 Amp	84 134 850
SSR, Mosfet Output	3.5-32 VDC	1-100 VDC	15 Amp	84 134 860
SSR, Mosfet Output	3.5-32 VDC	1-50 VDC	30 Amp	84 134 870



- Required for valid part number
- For options only and not required for valid part number
- > Not all part number combinations are available.  
Contact Crouzet Technical Support for information on the availability of a specific part number.

\* With output type 7 only  
\*\* With output type 8 only

## Output Specification

Description	8413x750	8413x850	8413x860	8413x870
Recommended Operating Voltage [Vdc]	3-48	1-150	1-72	1-36
Absolute Maximum Rating [Vdc]	60	200	100	50
Maximum Off-State Leakage Current @ Rated Voltage [mArms]	1	0.1	0.1	0.5

Output Specifications (1)				
Description	8413x750	8413x850	8413x860	8413x870
Maximum Load Current [Adc] (2)	10	10	15	30
Minimum Load Current [mA]	10	0.1	0.1	0.1
Maximum Surge Current [Adc] (10msec)	15	50	50	72
Maximum On-State Voltage Drop @ Rated Current [Vpk]	1.4	2.1	0.8	0.8
Maximum On-State Resistance [RDS-ON][Ohms]	N/A	0.21	0.05	0.03
Thermal Resistance Junction to Case (Rjc) [°C/W]	2	1.25	2.1	1.5
Minimum Heat Sink for Rated Current @ 40°C [°C/W]	5	1.5	2	2
Maximum Pulse Wide Modulation Frequency [Hz] (3)	1500	2000	2500	1200

Input Specifications (1)		
Description	8413x750	8413x8xx
Control Voltage Range	3-32 VDC	3.5-32 VDC
Maximum Reverse Voltage	-32 VDC	-32 VDC
Minimum Turn-On Voltage	3 VDC	3.5 VDC (4)
Minimum Turn-Off Voltage	1 VDC	1 VDC
Minimum Input Current (for on-state)	9 mA	11 mA
Maximum Input Current [mA]	14.5 mA	15 mA
Nominal Input Impedance [Ohms]	Current Regulated	Current Regulated
Maximum Turn-On Time [µsec]	100	75
Maximum Turn-Off Time [µsec]	200	50

General Specifications (1)	
Description	Parameters
Dielectric Strength, Input to Output (50/60Hz)	3750 Vrms
Dielectric Strength, Input/Output to Ground (50/60Hz)	2500 Vrms
Minimum Insulation Resistance (@ 500 VDC)	10 <sup>9</sup> Ohms
Maximum Capacitance, Input/Output	8 pF
Ambient Operating Temperature Range (5)	-40 → +100 °C
Ambient Storage Temperature Range	-40 → +100 °C
Weight (typical)	2.46 oz (70 g)
Housing Material	UL94 V-0
Baseplate Material	Aluminum
Input Terminal Screw Torque Range (in-lbs/Nm)	13-15 / 1.5-1.7
Load Terminal Screw Torque Range (in-lbs/Nm)	18-20 / 2-2.2
SSR Mounting Screw Torque Range (in-lbs/Nm)	18-20 / 2-2.2
Input/Load Terminal Screw Torque Range (in-lbs/Nm) (6)	w/"K" option 8-10 / 0.9-1.13
Humidity	85% non-condensing
LED Input Status Indicator	Green
MTBF (Mean Time Between Failures) at 40°C ambient temperature (7)	21,395,130 hours (2,441 years)
MTBF (Mean Time Between Failures) at 60°C ambient temperature (7)	11,545,504 hours (1,317 years)

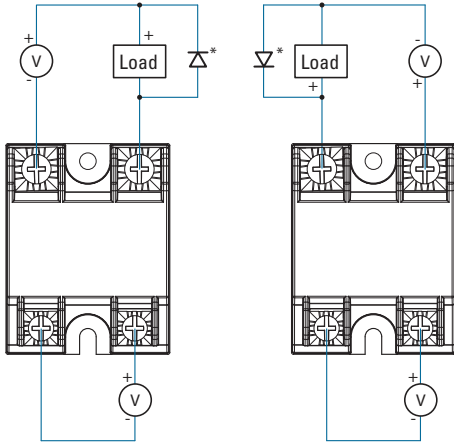
### General Notes

- 1) All parameters at Tc=25°C unless otherwise specified.
- 2) Heat sinking required, see derating curves.
- 3) 8VDC Minimum control voltage. Resistive loads only. Consider switching losses; at maximum frequency reduce to 75% output current.
- 4) Increase minimum voltage by 1V for operations from -20 to -40°C.
- 5) Maximum ambient temperature for 8413x750 is 80°C, decrease maximum control voltage 1.35V/°C above 80°C ambient temperature.
- 6) Option "K" is intended only for use in attaching a printed circuit board to the SSR or mounting the SSR to a printed circuit board (PCB thicknesses from 0.031 to 0.093 inches [0.79 to 2.36 mm]).
- 7) All parameters at 50% power rating and 100% duty cycle (contact Crouzet tech support for detailed report).

Diagrams

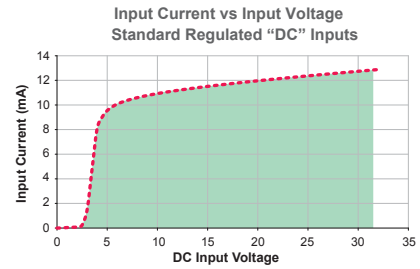
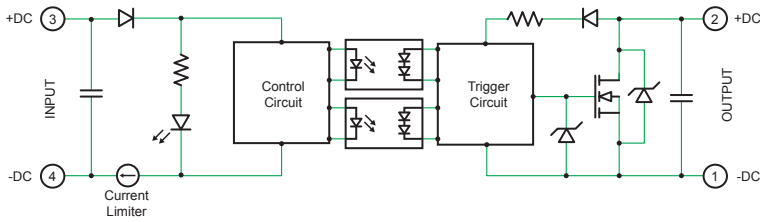
Wiring

\* Inductive loads must be diode suppressed.



Recommended Wire Sizes		
Terminals	Wire Size (Solid / Stranded)	Wire Pull-Out Strength (lbs)[N]
Input	24 AWG (0.2 mm <sup>2</sup> ) / 0.2 [minimum]	10 [44.5]
	2 x 12 AWG (3.3 mm <sup>2</sup> ) / 3.3 [maximum]	90 [400]
Output	20 AWG (0.5 mm <sup>2</sup> ) / 0.518 [minimum]	30 [133]
	2 x 10 AWG (5.3 mm <sup>2</sup> ) / 5.3	110 [490]
	2 x 8 AWG (8.4 mm <sup>2</sup> ) / 8.4 [maximum]	90 [400]

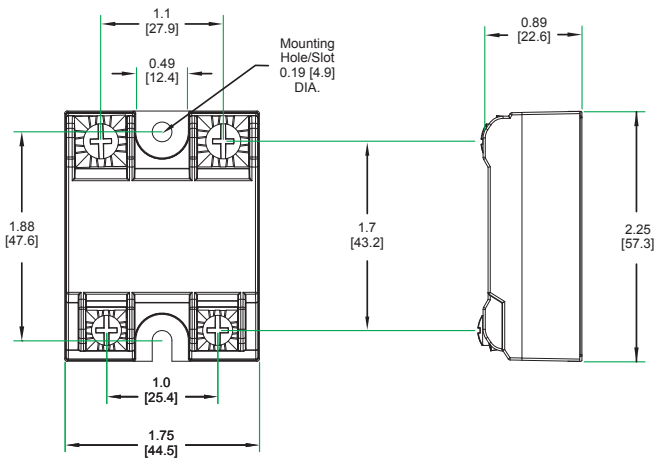
Equivalent Circuit Block



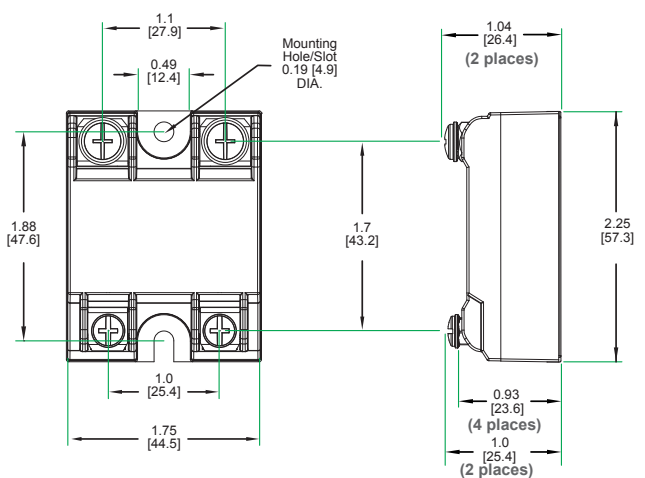
Dimensions in [mm]

Tolerances: ±0.02 in / 0.5 mm  
All dimensions are in: inches [millimeters]

Screw Termination

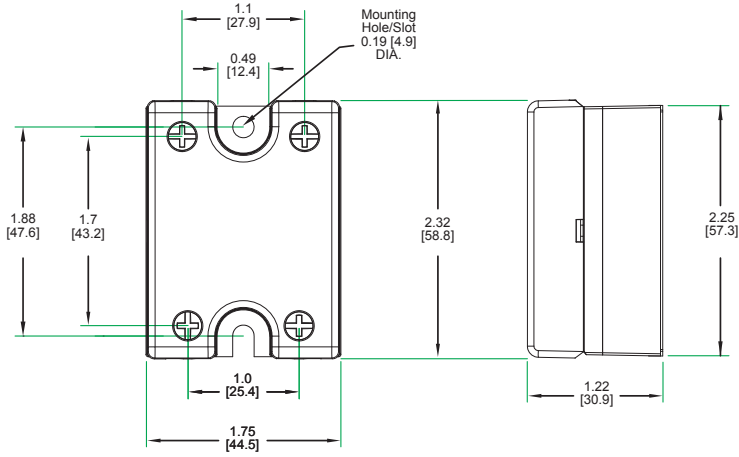


Hex Standoff Termination ("K" Option) (6)



Dimensions in [mm]

Screw Termination, IP20



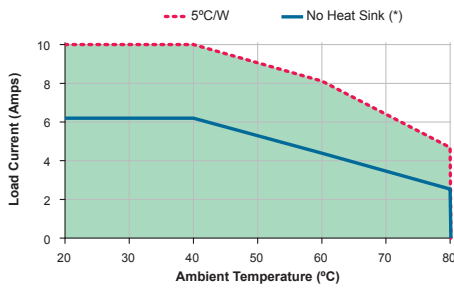
Tolerances: ±0.02 in / 0.5 mm  
All dimensions are in: inches [millimeters]

Curves

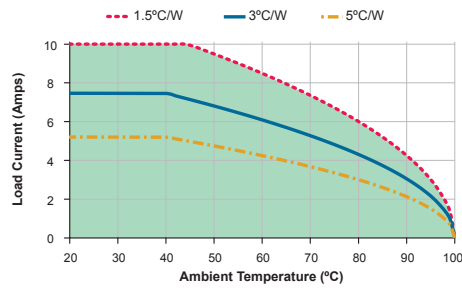
Thermal Derate Information

(\*) SSR metal base plate acting as heat sink, it must be exposed to free ambient air.

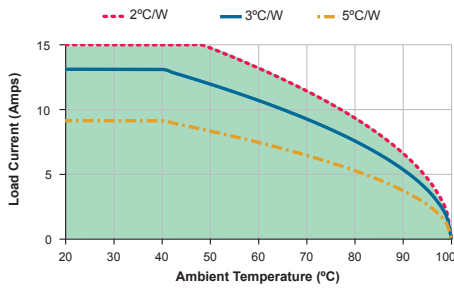
8413x750



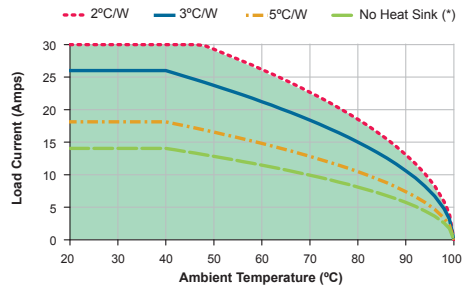
8413x850



8413x860

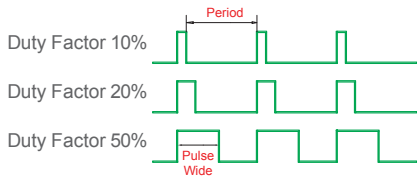
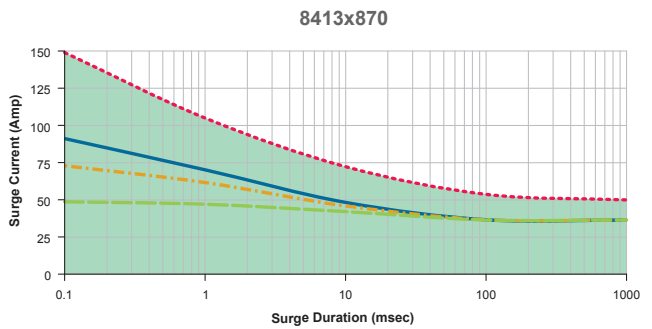
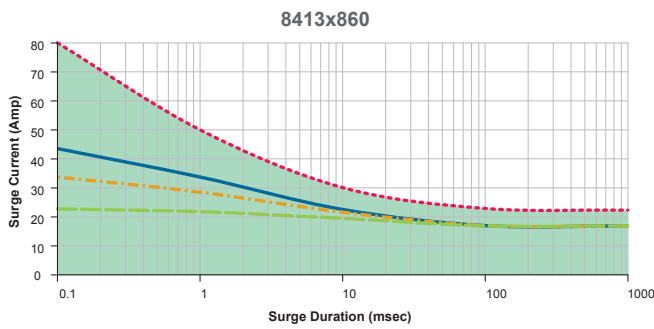
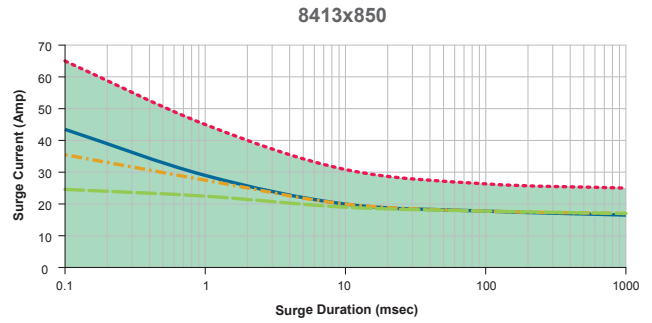
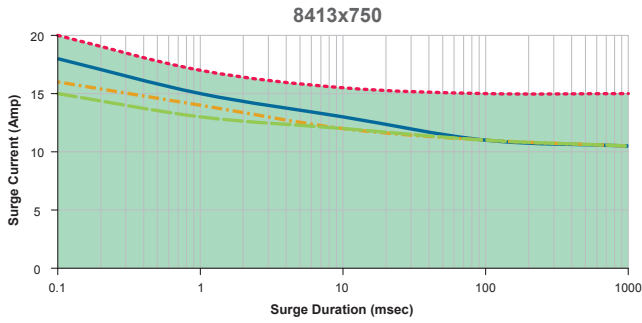


8413x870



Curves

Surge Current Information



For Pulse Wide Modulation applications select the curve according duty factor and pulse duration as following.

$$\text{Duty Factor} = \frac{\text{Pulse Wide}}{\text{Period}} \times 100 (\%)$$

- (i) for Single Surge Pulse  $T_c=40^\circ\text{C}; T_j 175^\circ\text{C}$
- (ii) for Repetitive Surge Pulse  $T_c=40^\circ\text{C}; T_j 130^\circ\text{C}$

Agency Approvals

> EN60950: Meets the requirements of sections 1.5: 1.7: 2.9: 2.10.5.3: 4.2: 4.5: 4.7:



GN DC Series has Environmental Product declarations type III conforming to ISO 14025.

Accessories

**New Accessories!**  
Protective Cover & Hardware Kits

**Protective Cover**  
Part number: **KS101**





Clear plastic cover compatible with all new S1 designs. Safety covers provide added protection from electric shock when installing or checking equipment.

**Hardware Kit**  
Part number: **HK4**



Bag with 2 square brass accessories and 2 screw 8-32 x 5/8 for output. Used to mount TMR1 lug terminals.

Recommended Accessories

Cover	Hardware Kit	Heat Sink Part No.	Thermal Resistance [°C/W]	 	
				Lug Terminal	Thermal Pad
KS101	HK1	HS501DR	5.0	TRM1	HSP-1
	HK4	HS301 / HS301DR	3.0	TRM6	HSP-2
		HS251	2.5		
		HS201 / HS201DR	2.0		
		HS202 / HS202DR	2.0		
		HS172	1.7		
		HS151 / HS151DR	1.5		
		HS122 / HS122DR	1.2		
		HS103 / HS103DR	1.0		
		HS101	1.0		
		HS073	0.7		
		HS072	0.7		
		HS053	0.5		
		HS033	0.36		
		HS023	0.25		

**⚠ DANGER / PELIGRO / DANGER /GEFAHR / PERICOLO / 危险**

<p><b>HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH.</b></p> <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><b>Failure to follow these instructions will result in death or serious injury.</b></p>	<p><b>RIESGO DE DESCARGA ELECTRICA O EXPLOSION.</b></p> <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><b>El incumplimiento de estas instrucciones puede provocar la muerte o lesiones serias.</b></p>	<p><b>RISQUE DE DESCARGE ELECTRIQUE OU EXPLOSION</b></p> <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><b>De non-suivi de ces instructions provoquera la mort ou des lésions sérieuses.</b></p>	<p><b>GEFAHR EINES ELEKTRISCHE N SCHLAGES ODER EINER EXPLOSION.</b></p> <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><b>Unterlassung dieser Anweisungen können zum Tode oder zu schweren Verletzungen führen.</b></p>	<p><b>RISCHIO DI SCOSSA ELETTRICA O DELL'ESPLOSIONE.</b></p> <ul style="list-style-type: none"> <li>• Spenga tutta l'alimentazione e che fornisca 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><b>L'omissione di seguire queste istruzioni provocherà la morte o di lesioni serie</b></p>	<p><b>存在电击、爆炸或电弧闪烁危险</b></p> <ul style="list-style-type: none"> <li>• 在操作此设备之前请先关闭电源。</li> </ul> <p><b>若不遵守这些说明，可能会导致严重的人身伤害甚至死亡。</b></p>
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**⚠ WARNING / AVERTISSEMENT / WARNUNG /ADVERTENCIA / AVVERTENZA / 警告**

<p><b>RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE</b></p> <ul style="list-style-type: none"> <li>• The product's side panels may be hot, allow the 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><b>Failure to follow these instructions can result in serious injury, or equipment damage.</b></p>	<p><b>RISQUE DE DOMMAGE MATERIEL ET DE SURCHAUFFE DU BOITIER</b></p> <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><b>Le non-respect de cette directive peut entraîner, des lésions corporelles graves ou des dommages matériels.</b></p>	<p><b>GEFAHR VON MATERIALSCHÄDEN UND GEHÄUSEERHITZUNG</b></p> <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><b>Die Nichtbeachtung dieser Anweisung kann Körperverletzung oder Materialschäden zur Folge haben.</b></p>
<p><b>RIESGO DE DAÑOS MATERIALES Y DE SOBRECALENTAMIENTO DE LA UNIDAD</b></p> <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><b>Si no se respetan estas precauciones pueden producirse graves lesiones, daños materiales.</b></p>	<p><b>RISCHIO DI DANNI MATERIALI E D'INVOLUCRO CALDO</b></p> <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><b>La mancata osservanza di questa precauzione può causare gravi rischi per l'incolumità personale o danni alle apparecchiature.</b></p>	<p><b>材料损坏和高温外壳的危险性</b></p> <ul style="list-style-type: none"> <li>• 产品的一侧面板可能很热，在其冷却前请不要触碰。</li> <li>• 遵照正确的安装说明，包括扭矩值。</li> <li>• 请勿让液体及其他异物进入本产品。</li> </ul> <p><b>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。</b></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

### 附件 - 环保信息

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

