



High-power heat for the semiconductor industry

Philips infrared halogen lamps



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PHILIPS

Combining high power and efficiency

Heating is a critical process in the manufacturing of semiconductor devices. We offer a wide range of infrared halogen lamps as heat sources for use in the key steps of silicon wafers production. Philips infrared lamps can answer the demanding new generation of processes used in the waferfabs thanks to their quality and long lifetime.

Heat transfer is operated by direct radiation from the lamp to the wafer. As both the lamp tube and the chamber are in quartz, they are transparent to short waves infrared, there are no losses of energy from the filament of the lamp to the wafer.

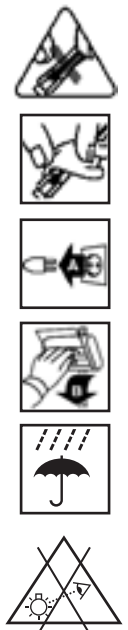
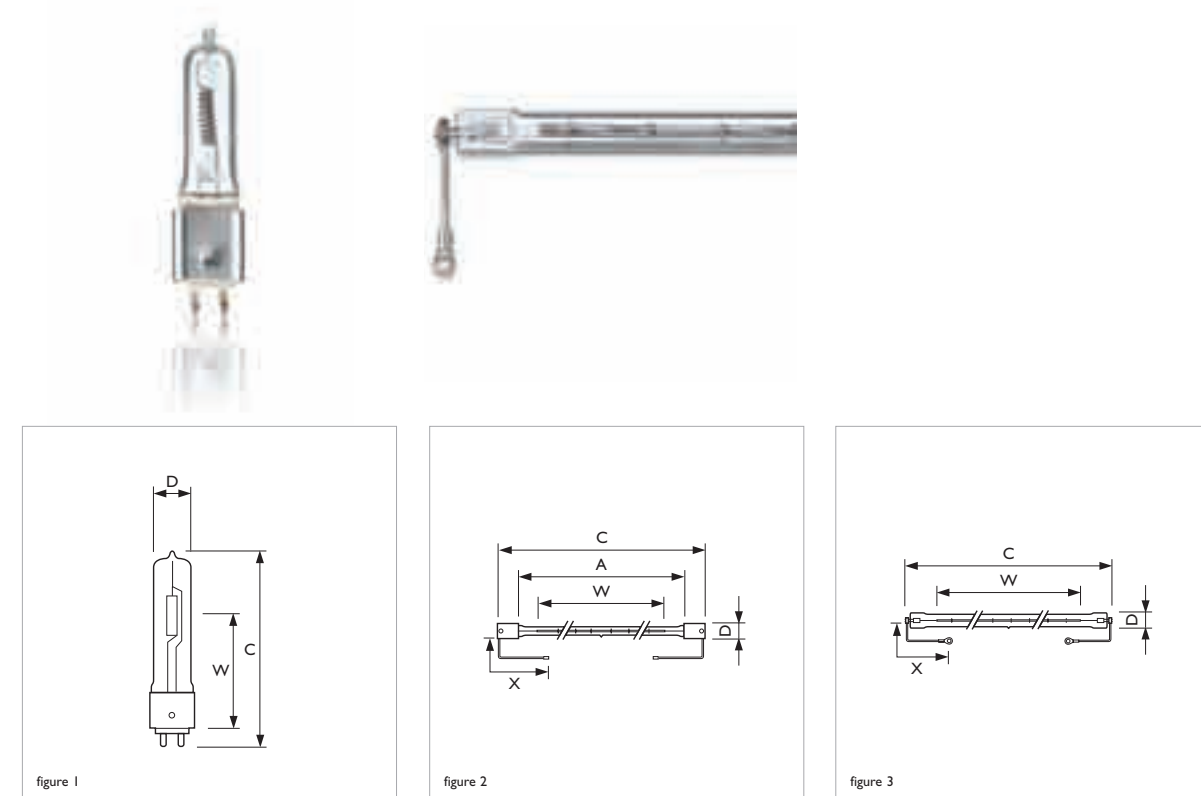
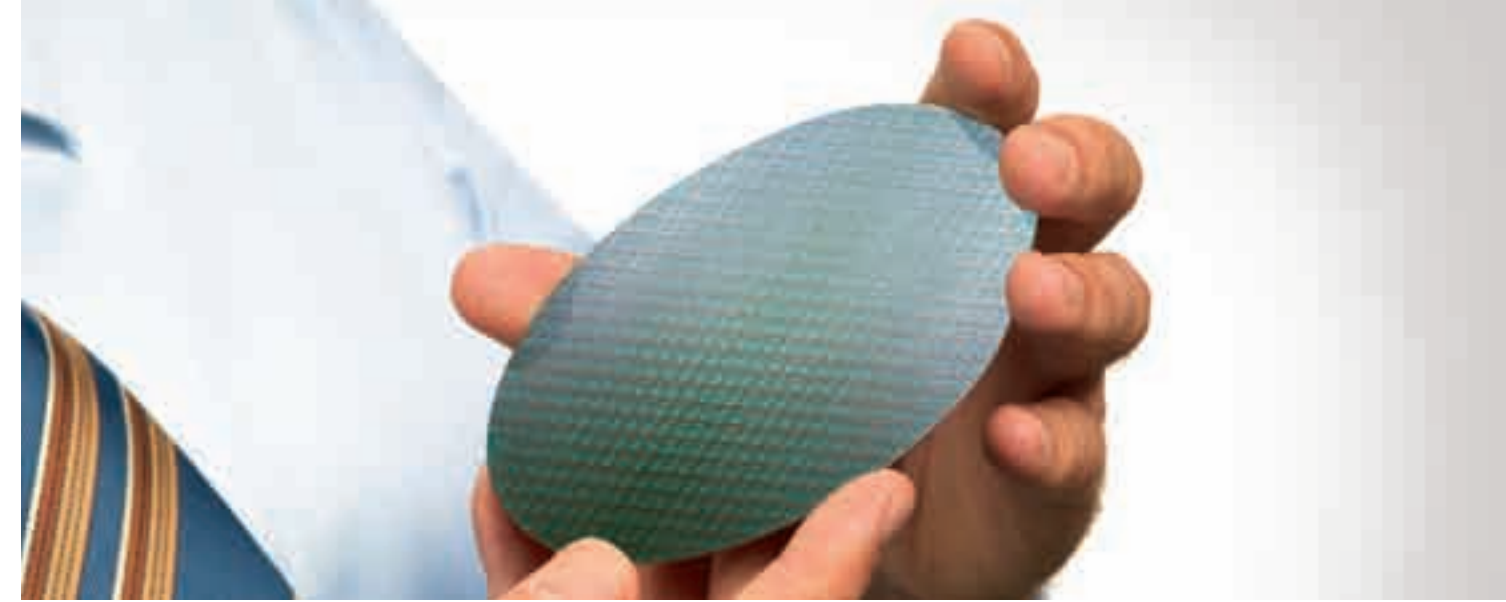
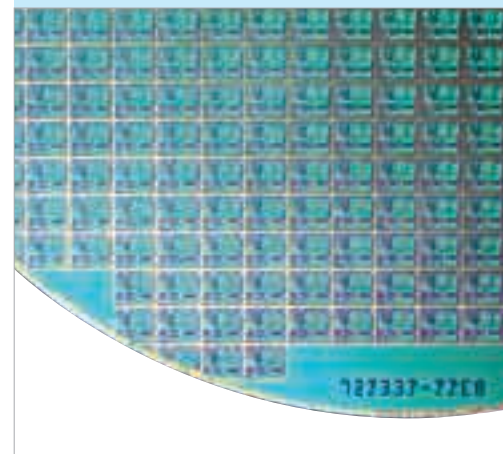
The lamps are halogen type so there is no blackening of the bulb and as a consequence no depreciation of infrared emission during the lifetime. In combination with reflectors, infrared radiation is evenly distributed to the wafer.

The ability to easily vary the heat intensity provides valuable operating flexibility. Wafer temperature can be modulated accurately and allow design of high demanding processes. Rapid thermal responses: full emitted power is reached within hundreds of milliseconds. Power of the lamp is fully controllable; radiative power can be adjusted from 0 to 100% instantly.

Lamps for precisely controllable semi-conductor heating	
Features	Benefits
Instant heat	Full emitted power within milliseconds after switch-on
Fully dimmable	Silicon wafer temperature can be modulated precisely and accurately over a wide range
Halogen technology	No blackening of the bulb and so no depreciation infrared emission during life time

Applications

- Epitaxy
- CVD (Chemical Vapor Deposit)
- RTP (Rapid Thermal Process)
- Ion implant annealing
- Etching
- Strip removal



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Type	Lamp Wattage (W)	Voltage (V)	Fig.	Cap/ Base	Total lamp length (mm) C	Heating length (mm) W	Diameter (mm) D	Finish	Burning position	Average lamp life (h)	Colour temp. (K)	Cable (mm)	Cable connection	I2nc	EOC	US Product Number
13941Z	1.500	235	2	SK15	352	274	11,0	Clear	Horizontal	1.000	2900	1200	Splice	9245.268.43916	871150049600325	-
13136V	4.600	400	1	V	303	242	12,0	Clear	Horizontal	1.000	2900	35	Ring	9238.508.49104	871150049156525	256545
13138V	6.000	480	1	V	303	236	12,0	Clear	Horizontal	1.000	3000	35	Ring	9245.340.51704	871150049826725	291237
14131V	6.000	480	1	V	350	284	11,0	Clear	Horizontal	1.000	3000	35	Ring	9245.514.51704	871150005581125	-
14118V	6.850	480	3	V	303	242	12,0	Clear	Horizontal	1.000	3000	35	Ring	9245.412.51704	871150050141725	291708
14166V	6.000	480	1	V	350	284	12,0	Clear	Universal	1.000	3000	35	Ring	9245.689.51704	-	-
14167V	6.000	480	1	V	303	236	11,0	Clear	Horizontal	1.000	3000	150	Ring	9245.697.51704	-	-
6990P metal	1000	120	3	G95	104	60	19,0	Clear	Universal	1.000	3000	-	-	9245.208.36328	871150018495525	291070
140302P ceramic	1000	120	3	G95	104	60	19,0	Clear	Universal	1.000	3000	-	-	9245.382.36328	871150049866325	-