

UV - Photodetector with integrated amplifier

JIC 117
JIC 118
JIC 119

characteristics :

- ◆ spectral range 210 ... 390 nm
- ◆ active area 0,055 mm²
- ◆ responsivity, decadic staggering 1,2/12/120 mV/nW
- ◆ extra sensor pin for external adjustment of gain and bandwidth
- ◆ single supply voltage
- ◆ sensor assembly isolated to ground
- ◆ hermetically welded TO5-metal/glass package
- ◆ components are in conformity with RoHS and WEEE

applications :

- ◆ selective UV-measurement
- ◆ control of sterilization lamps
- ◆ flamedetection and flamecontrol
- ◆ control of irradiancy in varnish and adhesive hardening

absolute maximum ratings:

operating voltage	+5,5	V
operating temperature range	-25 °C ... +85	°C
storage temperature range	-40 °C ... +100	°C
soldering temperature (5s)	300	°C

technical data :

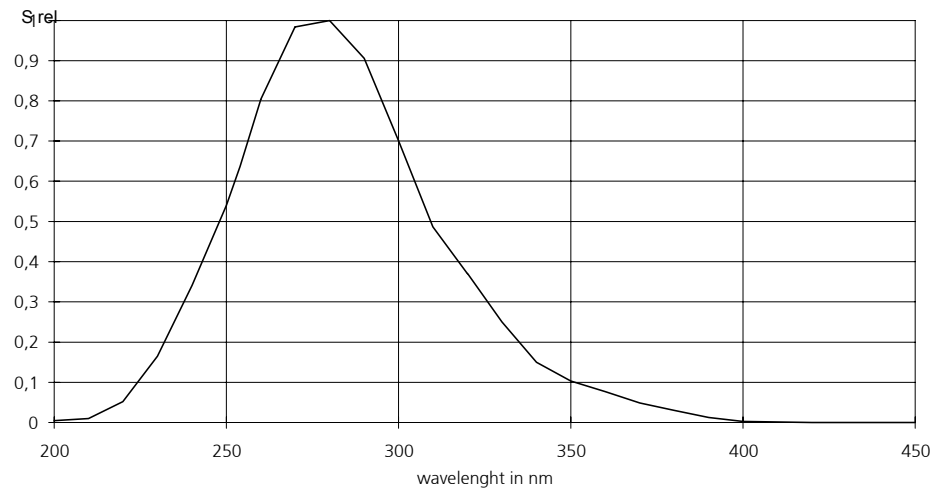
common test conditions, as not otherwise specified: $T_A = 25\text{ °C}$, $V_S = +5\text{ V}$
 typ. values, maximum values in brackets

parameters	test condition	JIC 117	JIC 118	JIC 119	unit
feed back resistor		10	100	1.000	M Ω
dark offset voltage	$E = 0\text{ lx}$	± 1	± 2	± 3	mV
noise voltage	$B = 1\text{ kHz}$	1			mV _{rms}
max. of spectral responsivity	$\lambda = 280\text{ nm}$	1,2	12	120	mV/nW
risetime		20	100	700	μs
bandwidth	- 3 dB	15	3	0,5	kHz
saturation voltage	$R_L = 2\text{ k}\Omega$	+ 4,95 (+ 4,8)			V
shortcurrent		± 50			mA
operation voltage		+ 2,7...+ 5			V
current consumption		750 (1100)			μA

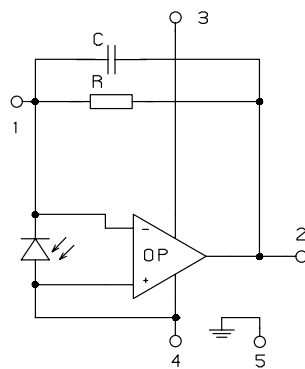
rev. 1 (03/2006)

JIC 117, 118, 119

relative spectral responsivity

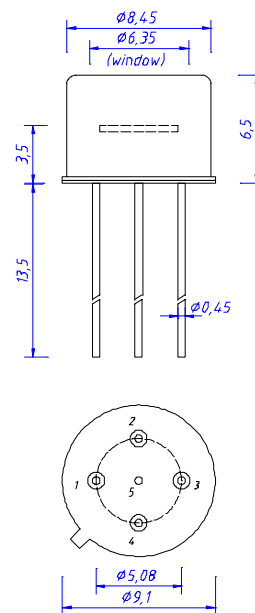


pin configuration



- 1 R_f
- 2 Out
- 3 V_s
- 4 GND
- 5 Case

package dimensions



application hints:

- If an external resistor for reduction of gain is used, please make sure that length of connectors is as short as possible to reduce noise and capacitive interference.
- If internally adjusted gain is used only, please cut pin „1“.

UV - Photodetector with integrated amplifier

JIC 137
JIC 138
JIC 139

- characteristics :**
- ◆ spectral range 210 ... 390 nm
 - ◆ active area 0,22 mm²
 - ◆ responsivity, decadic staggering 1,2/12/120 mV/nW
 - ◆ extra sensor pin for external adjustment of gain and bandwidth
 - ◆ single supply voltage
 - ◆ sensor assembly isolated to ground
 - ◆ hermetically welded TO5-metal/glass package
 - ◆ components are in conformity with RoHS and WEEE

- applications :**
- ◆ selective UV-measurement
 - ◆ control of sterilization lamps
 - ◆ flamedetection and flamecontrol
 - ◆ control of irradiancy in varnish and adhesive hardening

absolute maximum ratings:

operating voltage	+5,5	V
operating temperature range	-25 °C ... +85	°C
storage temperature range	-40 °C ... +100	°C
soldering temperature (5s)	300	°C

technical data :

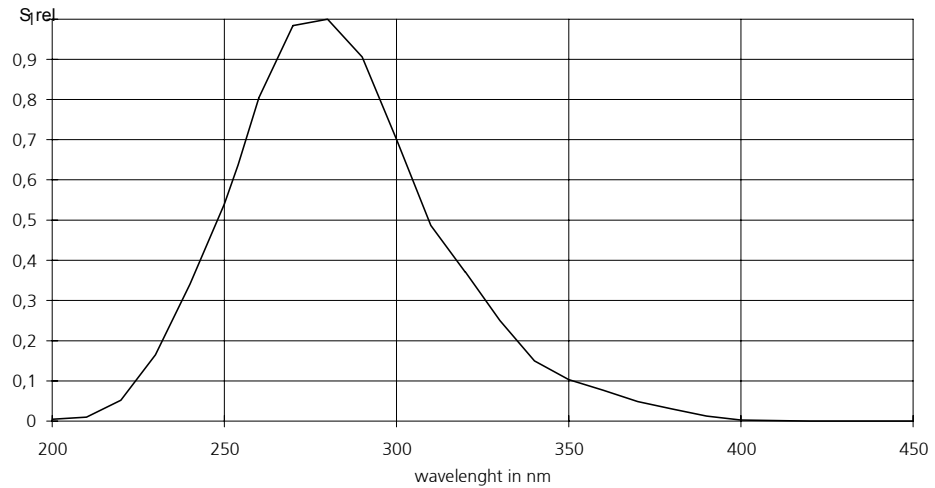
common test conditions, as not otherwise specified: $T_A = 25\text{ °C}$, $V_S = +5\text{ V}$
 typ. values, maximum values in brackets

parameters	test condition	JIC 137	JIC 138	JIC 139	unit
feed back resistor		10	100	1.000	MΩ
dark offset voltage	E = 0 lx	± 1	± 2	± 3	mV
noise voltage	B = 10 kHz	0,5	1	2	mV _{rms}
max. of spectral responsivity	$\lambda = 280\text{ nm}$	1,2	12	120	mV/nW
risetime		30	150	600	μs
bandwidth	- 3 dB	10	2	0,5	kHz
saturation voltage	$R_L = 2\text{ k}\Omega$	+ 4,95 (+ 4,8)			V
shortcurrent		± 50			mA
operation voltage		+ 2,7...+ 5			V
current consumption		750 (1100)			μA

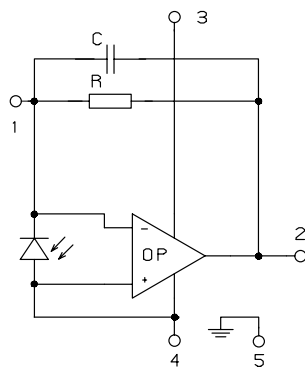
rev. 1 (03/2006)

JIC 137, 138, 139

relative spectral responsivity

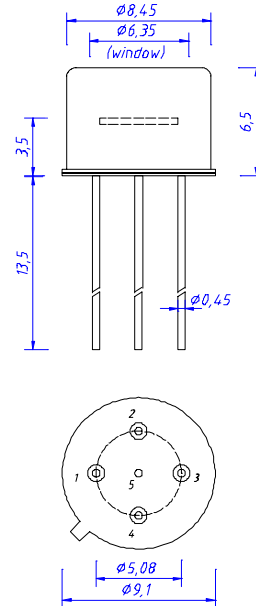


pin configuration



- 1 R_f
- 2 Out
- 3 V_s
- 4 GND
- 5 Case

package dimensions



application hints:

- If an external resistor for reduction of gain is used, please make sure that length of connectors is as short as possible to reduce noise and capacitive interference.
- If internally adjusted gain is used only, please cut pin „1“.

UV - Photodetector with integrated amplifier

JIC 157
JIC 158
JIC 159

- characteristics :**
- ◆ spectral range 210 ... 390 nm
 - ◆ active area 0,965 mm²
 - ◆ responsivity, decadic staggering 1,2/12/120 mV/nW
 - ◆ extra sensor pin for external adjustment of gain and bandwidth
 - ◆ single supply voltage
 - ◆ sensor assembly isolated to ground
 - ◆ hermetically welded TO5-metal/glass package
 - ◆ components are in conformity with RoHS and WEEE

- applications :**
- ◆ selective UV-measurement
 - ◆ control of sterilization lamps
 - ◆ flamedetection and flamecontrol
 - ◆ control of irradiancy in varnish and adhesive hardening

absolute maximum ratings:

operating voltage	+5,5	V
operating temperature range	-25 °C ... +85	°C
storage temperature range	-40 °C ... +100	°C
soldering temperature (5s)	300	°C

technical data :

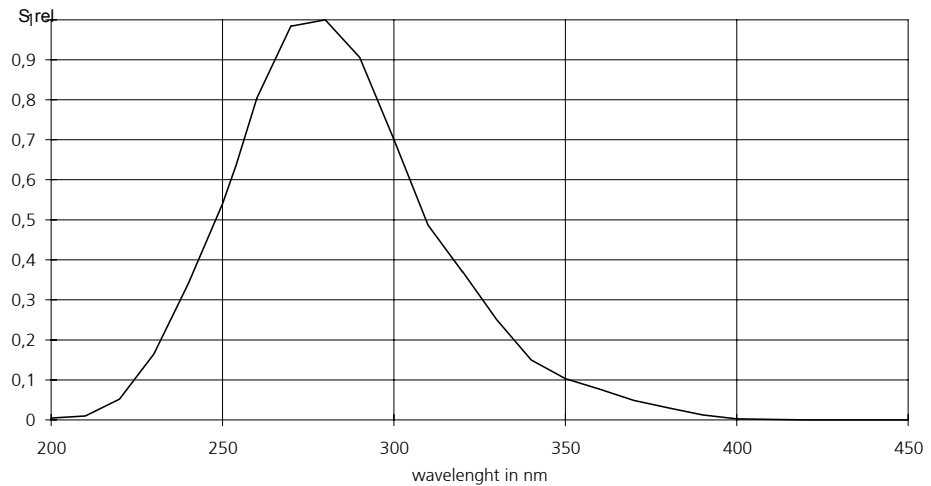
common test conditions, as not otherwise specified: $T_A = 25\text{ °C}$, $V_S = +5\text{ V}$
typ. values, maximum values in brackets

parameters	test condition	JIC 157	JIC 158	JIC 159	unit
feed back resistor		10	100	1.000	M Ω
dark offset voltage	$E = 0\text{ lx}$	± 1	± 2	± 3	mV
noise voltage	$B = 10\text{ kHz}$	0,5	1	2	mV _{rms}
max. of spectral responsivity	$\lambda = 280\text{ nm}$	1,2	12	120	mV/nW
risetime		30	150	600	μs
bandwidth	- 3 dB	10	2	0,5	kHz
saturation voltage	$R_L = 2\text{ k}\Omega$	+ 4,95 (+ 4,8)			V
shortcurrent		± 50			mA
operation voltage		+ 2,7...+ 5			V
current consumption		750 (1100)			μA

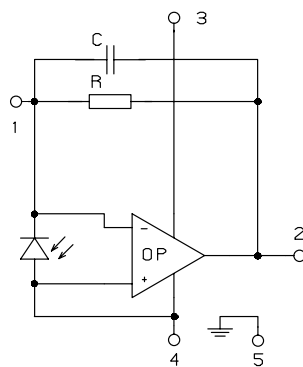
rev. 1 (03/2006)

JIC 157, 158, 159

relative spectral responsivity

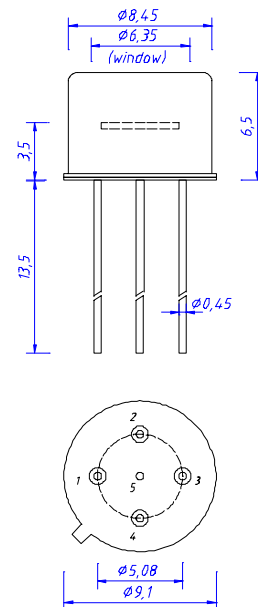


pin configuration



- 1 R_f
- 2 Out
- 3 V_s
- 4 GND
- 5 Case

package dimensions



application hints:

- If an external resistor for reduction of gain is used, please make sure that length of connectors is as short as possible to reduce noise and capacitive interference.
- If internally adjusted gain is used only, please cut pin „1“.

UV - Photodiode with integrated amplifier

JIC 129 L

- characteristics :**
- ◆ SiC-Photodiode with integrated current/voltage converter
 - ◆ very high UV-responsivity
 - ◆ enlargement of effective chiparea by integrated lense
 - ◆ very low visible and IR responsivity
 - ◆ extra sensor pin for external adjustment of gain and bandwidth
 - ◆ single supply voltage
 - ◆ low current consumption
 - ◆ sensor assembly isolated to ground
 - ◆ components are in conformity with RoHS and WEEE

- applications :**
- ◆ selective UV-measurements
 - ◆ flamedetection and -control
 - ◆ control of UV-lamps in water and surface disinfection
 - ◆ control of UV-lasers
 - ◆ control of irradiance in varnish and adhesive hardening

absolute maximum ratings :

- ◆ supply voltage +5,5 V
- ◆ operating temperature range -25 °C ... +85 °C
- ◆ storage temperature range -40 °C ... +100 °C
- ◆ welding temperature (5s) 300 °C

technical data :

common test conditions, as not otherwise specified: $T_A = 25\text{ °C}$, $V_S = +5\text{ V}$

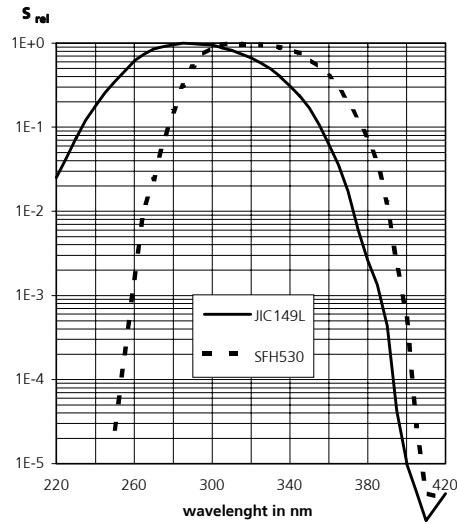
parameters	test condition	min.	typ.	max.	unit
active area ¹⁾			2,75		mm ²
feedback resistor		0,95	1,00	1,05	GΩ
dark offset voltage	E = 0 lx		± 0,5	± 2	mV
noise voltage	B = 1 kHz		0,1		mV _{rms}
Maximum of spectral responsivity	S = S _{max} λ = 285 nm		30		mV/nW
max. of spectral responsivity	λ = 310 nm	180	270	400	mV/ nW/mm ²
selectivity	S _{400-1200nm} / S _{310nm}		< 10 ⁻⁴		
rise time			20		ms
bandwidth	- 3 dB		15		Hz
opening angle	S=0,5*S _{max}		± 5		Grad
saturation voltage	R _L = 2 kΩ	+ 4,8	+ 4,95		V
short current			± 50		mA
operating voltage			+ 2,7...+ 5		V
current consumption			750 (1100)		μA

¹⁾ effektive active area because of focusing of light by the lense

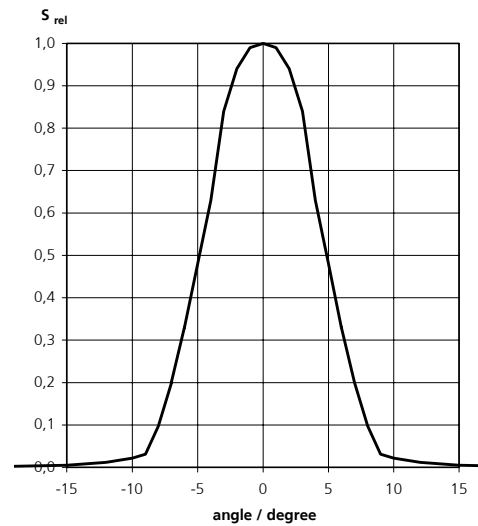
rev 1 (03/2006)

JIC 129 L

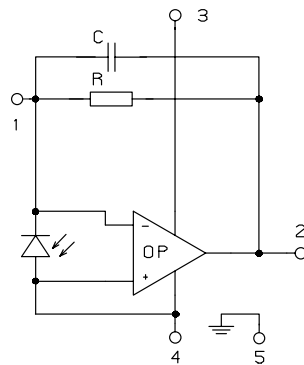
relative spectral responsivity



response characteristic

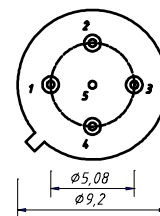
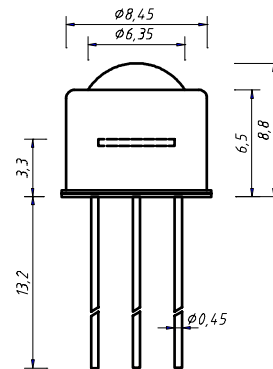


internal circuit



- 1 R_f
- 2 Out
- 3 V_s
- 4 GND
- 5 Case

package dimension



application hints:

- If an external resistor for reduction of gain is used, please make sure that length of connectors is as short as possible to reduce noise and capacitive interference.
- If internally adjusted gain is used only, please cut pin „1“.

UV - Photodiode with integrated amplifier

JIC 149 L JIC 149 L-1

- characteristics :**
- ◆ SiC-Photodiode with integrated current/voltage converter
 - ◆ very high UV-responsivity
 - ◆ enlargement of effective chip area by integrated lens
 - ◆ very low visible and IR responsivity
 - ◆ extra sensor pin for external adjustment of gain and bandwidth
 - ◆ single supply voltage
 - ◆ low current consumption
 - ◆ sensor assembly isolated to ground
 - ◆ replacement for SFH 530 (Osram), but with better characteristics
 - ◆ option „-1“ with higher bandwidth
 - ◆ components are in conformity with RoHS and WEEE

- applications :**
- ◆ selective UV-measurements
 - ◆ flamedetection and -control
 - ◆ control of UV-lamps in water and surface disinfection
 - ◆ control of UV-lasers
 - ◆ control of irradiancy in varnish and adhesive hardening

absolute maximum ratings :

- ◆ supply voltage +5,5 V
- ◆ operating temperature range -25 °C ... +85 °C
- ◆ storage temperature range -40 °C ... +100 °C
- ◆ welding temperature (5s) 300 °C

technical data :

common test conditions, as not otherwise specified: $T_A = 25\text{ °C}$, $V_S = +5\text{ V}$

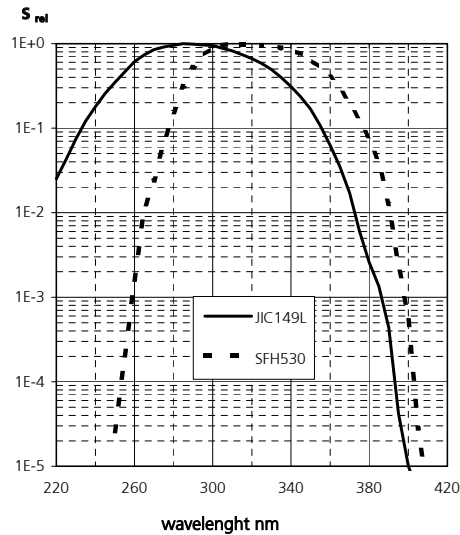
parameter	test condition	JIC149L	JIC149L-1	unit
active area ¹⁾		11	11	mm ²
feedback resistor		1,0	1,0	GΩ
dark offset voltage	E = 0 lx	± 0,5 (± 2)	± 0,5 (± 2)	mV
noise voltage	B = 1 kHz	0,1	0,5	mV _{rms}
maximum of spectral responsivity	S = S _{max} λ = 285 nm	30	30	mV/nW
spectral responsivity	λ = 310 nm	270 (180-400)	270 (180-400)	mV/ nW/mm ²
selectivity	S _{400-1200nm} / S _{310nm}	< 10 ⁻⁴	< 10 ⁻⁴	
rise time		20	0,6	ms
bandwidth	- 3 dB	15	500	Hz
opening angle	S=0,5*S _{max}	± 5	± 5	Grad
saturation voltage	R _t = 2 kΩ	+ 4,95	+ 4,95	V
short current		± 50	± 50	mA
operating voltage		+2,7...+5	+2,7...+5	V
current consumption		750 (1100)	750 (1100)	μA

¹⁾ effektive active area because of focusing of light by the lense

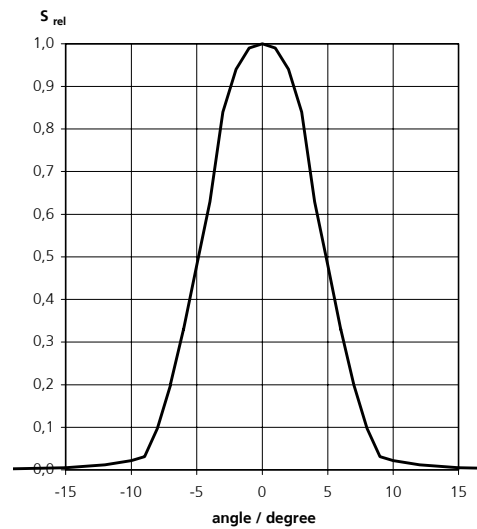
rev 1 (04/2008)

JIC 149 L, JIC 149 L-1

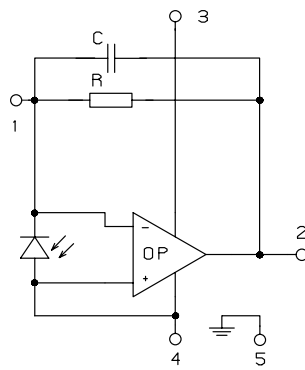
relative spectral responsivity



response characteristic

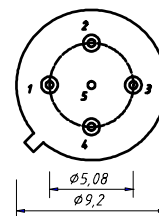
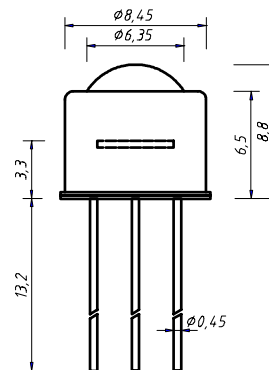


internal circuit



- 1 R_f
- 2 Out
- 3 V_s
- 4 GND
- 5 Case

package dimension



application hints:

- If an external resistor for reduction of gain is used, please make sure that length of connectors is as short as possible to reduce noise and capacitive interference.
- If internally adjusted gain is used only, please cut pin „1“.