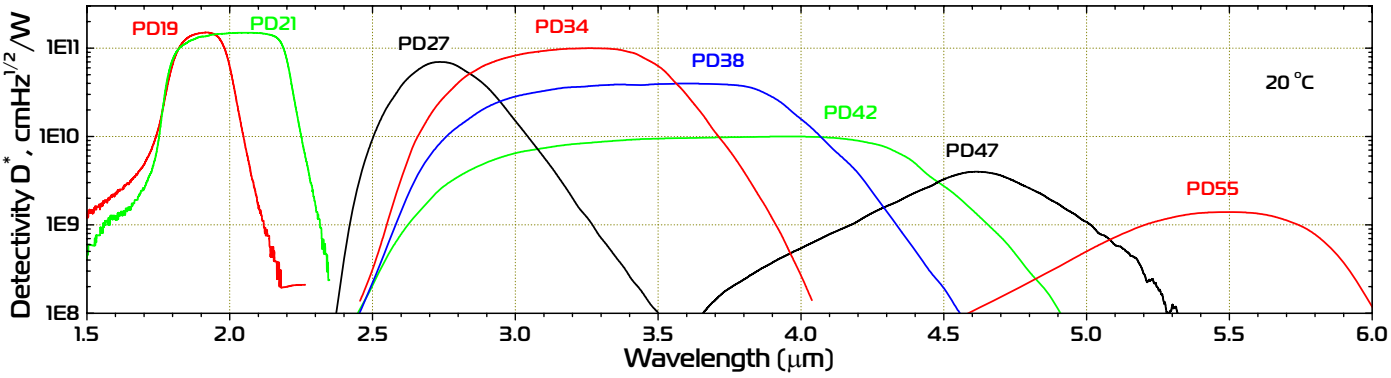
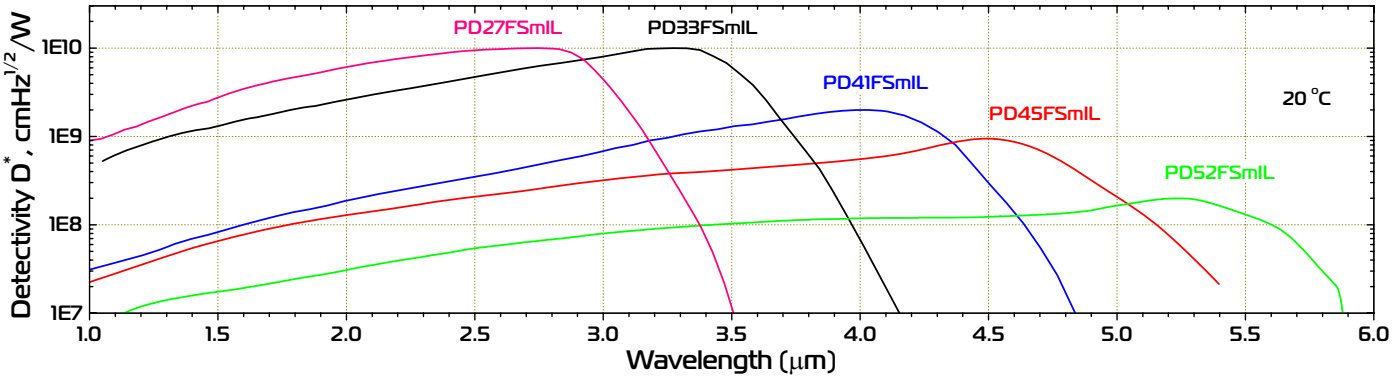
IOFFELED PHOTODIODES 2013

	Peak wavelength	Spectral range	Sensitive area	Angle of view	Package	Detectivity
	λ_{max}, мм	$\lambda_{0.1}$, μm	A, mm	FWHM, grad		D*, cmHz$^{1/2}$W^{-1}
PD19	1.9	1.8÷2.05	∅3	15	Sr, TO39, TO8	1.6E11
PD21	2.1	1.8÷2.25	∅3	15	Sr, TO39, TO8	1.6E11
PD27	2.7	2.5÷3.1	∅3	15	Sr, TO39, TO8	7E10
PD29	2.9	2.65÷3.3	∅3	15	Sr, TO39, TO8	4E10
PD34	3.35	2.8÷3.75	∅3	15	Sr, TO39, TO8	6E10
PD38	3.2÷3.7	2.6÷4.25	∅3	15	Sr, TO39, TO8	3E10
PD42NB	3.9÷4.0	3.15÷4.75	∅3	15	Sr, TO39, TO8	2E10
PD42WB	4.1÷4.2	2.75÷4.6	∅3	15	Sr, TO39, TO8	1.5E10
PD27FS	2.75	≤1÷3.2	0.35×0.35	140	TO18, TO39	0.5E10
PD27FSmIL	2.75	≤1÷3.2	∅1	60	TO18, TO39	1E10
PD33FS	3.3	1.5÷3.8	0.35×0.35	140	TO18, TO39	0.6E10
PD33FSmIL	3.3	1.5÷3.8	∅1	60	TO18, TO39	1.5E10
PD42FS	4.15	2.5÷4.65	0.35×0.35	140	TO18, TO39	1.5E9
PD42FSmIL	4.15	2.5÷4.65	∅1	60	TO18, TO39	3E9
PD52FS	5.2	≤2÷5.8	0.35×0.35	140	TO18, TO39	1E8
PD52FSmIL	5.2	≤2÷5.8	∅1	60	TO18, TO39	2E8

Back side illuminated Optically Immersed Photodiodes



Front side illuminated Photodiodes



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Back side illuminated Optically Immersed Photodiodes

Front side illuminated Photodiodes

Optically Immersed 1.9 μm Photodiode PD19Su, PD19Sr

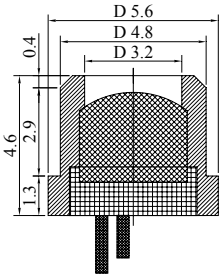
TE cooled Optically Immersed 1.9 μm Photodiode PD19TO8TEC

Peak wavelength	λ_{max}	μm	1.9	@22 °C
Current sensitivity at λ_{max}	$S_I(\lambda_{max})$	A/W	≥0.6	
Shunt Resistance	R_0	kOhm	≥20	
Detectivity	$D^*_{\lambda_{max}}$	$cmHz^{1/2}W^{-1}$	$\geq 1.6\times10^{11}$	
Voltage sensitivity	S_U	V/W	≥12 000	
Switching time	τ	ns	≤20 [1]	

Code	Sensitive area, mm	Weight, g	Optical components	Field of view, deg.	Optical axis deviation, deg.	Detectivity deviation in lot, %	Operation conditions, °C	Lifetime, hrs
PD19Su PD19Sr	∅ 3.2	~0.4	Si lens	~15	≤5	±25	-60÷+85 [2]	>80 000
PD19 TO8TEC		~10	Si lens and output sapphire window D=6mm				-60÷+85 [3]	

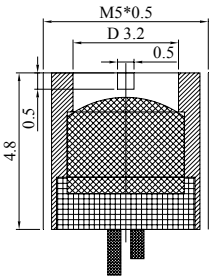
Product view

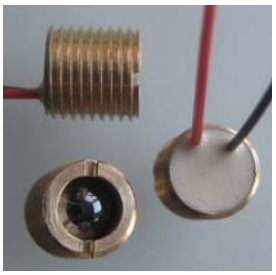
PD19Su



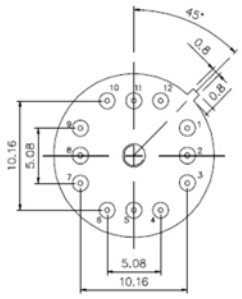
Pin assignment: red wire or long wire and red point on house - positive

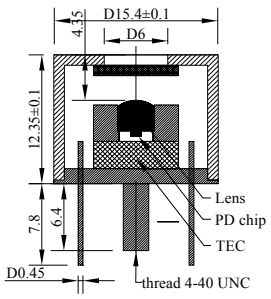
PD19Sr





Pin assignment: red wire or long wire and red point on house - positive





Pin assignment PD19TO8TEC12

1 TEC negative;
3 TEC positive;
4 PD negative;
6 PD positive;
7, 9 thermosensor;
11 ⊥ (House);
12 ⊥ (PD)

Features

- Original growth of narrow gap A3B5 semiconductor alloys onto n^+-GaSb substrate;
- Flip-chip design of PDs;
- Optical coupling through the use of chalcogenide glasses and Si lenses with antireflection coating
- Ambient and high temperature operation;
- No bias required;
- Operation from DC to VHF;
- Highest long term stability;
- High value of shunt resistance;

Photodiode could be equipped with preamplifier that is designed for conversion of PD photocurrent into a convenient output voltage and is adjusted for the particular PD taking into account the Ro value and frequency range. Other packages are available upon request. Angle of view is small and thus we recommend adjusting PD position regarding to the emission system before final evaluation/use of the devices. Data are valid for PD thermostabilized at 22°C. Heatsink is essential for TEC operation!

Notes

[1] - according to estimation

[2] - devices have passed through 15 thermo cycles : (20°C, 8 hrs) -transition period of 30 min – (+125°C, 8 hrs) without changes in specifications. Valid for devices produced since 01.2013

[3] - devices have passed through 15 thermo cycles : (-60°C, 30 min) - transition period of 30 min -(+85°C, 30 min) without changes in specifications. Valid for devices produced since 01.2013

Product specifications are subject to change without prior notice due to improvements or other reasons. Updated 06.05.13

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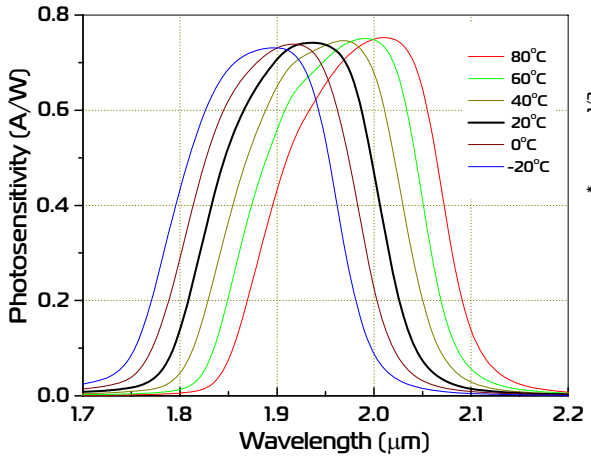
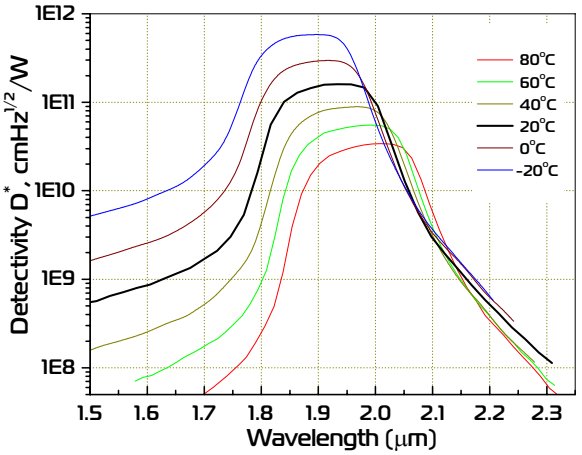
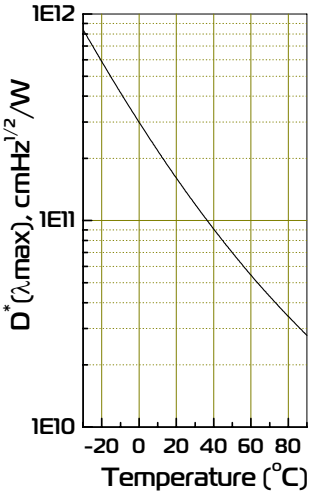
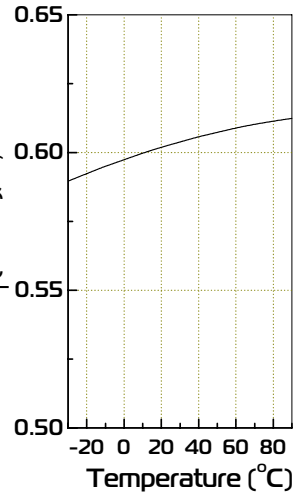
Spectral response

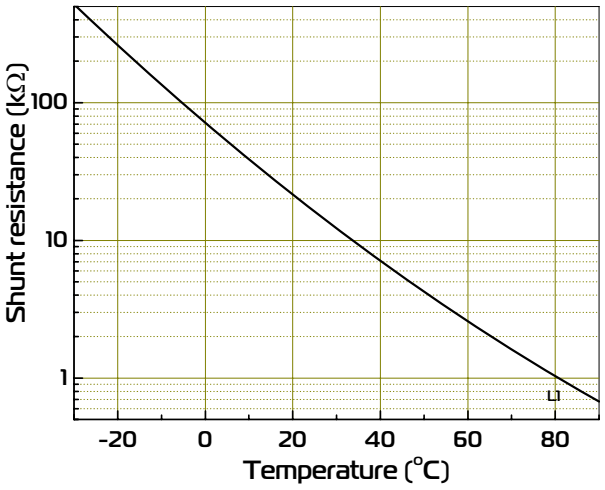




Detectivity, current sensitivity at λ_{max} and shunt resistance vs. temperature







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Optically Immersed 2.1 μm Photodiode PD21Su, PD21Sr

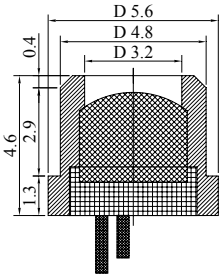
TE cooled Optically Immersed 2.1 μm Photodiode PD21TO8TEC

Peak wavelength	λ_{max}	μm	2.0÷2.1	@22 °C
Current sensitivity at λ_{max}	$S_I(\lambda_{max})$	A/W	≥0.6	
Shunt Resistance	R_0	kOhm	≥20	
Detectivity	$D^*_{\lambda_{max}}$	$cmHz^{1/2}W^{-1}$	$\geq 1.6\times10^{11}$	
Voltage sensitivity	S_U	V/W	≥12 000	
Switching time	τ	ns	≤20 [1]	

Code	Sensitive area, mm	Weight, g	Optical components	Field of view, deg.	Optical axis deviation, deg.	Detectivity deviation in lot, %	Operation conditions, °C	Lifetime, hrs
PD21Su PD21Sr	∅ 3.2	~0.4	Si lens	~15	≤5	±25	-60÷+85 [2]	>80 000
PD21 TO8TEC		~10	Si lens and output sapphire window D=6mm				-60÷+85 [3]	

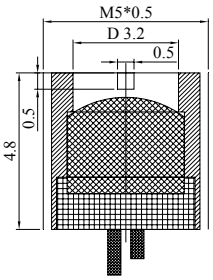
Product view

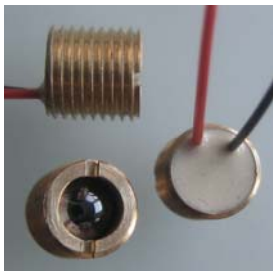
PD21Su



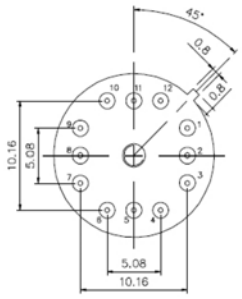
Pin assignment: red wire or long wire and red point on house - positive

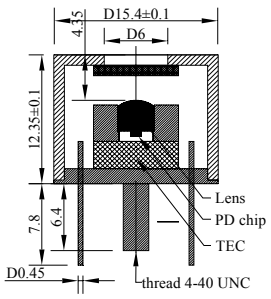
PD21Sr





Pin assignment: red wire or long wire and red point on house - positive





Pin assignment PD21TO8TEC12

1 TEC negative;
3 TEC positive;
4 PD negative;
6 PD positive;
7, 9 thermosensor;
11 ⊥ (House);
12 ⊥ (PD)

Features

- Original growth of narrow gap A3B5 semiconductor alloys onto n^+-GaSb substrate;
- Flip-chip design of PDs;
- Optical coupling through the use of chalcogenide glasses and Si lenses with antireflection coating
- Ambient and high temperature operation;
- No bias required;
- Operation from DC to VHF;
- Highest long term stability;
- High value of shunt resistance;

Photodiode could be equipped with preamplifier that is designed for conversion of PD photocurrent into a convenient output voltage and is adjusted for the particular PD taking into account the Ro value and frequency range. Other packages are available upon request. Angle of view is small and thus we recommend adjusting PD position regarding to the emission system before final evaluation/use of the devices. Data are valid for PD thermostabilized at 22°C. Heatsink is essential for TEC operation!

Notes

[1] - according to estimation

[2] - devices have passed through 15 thermo cycles : (20°C, 8 hrs) -transition period of 30 min – (+125°C, 8 hrs) without changes in specifications. Valid for devices produced since 01.2013

[3] - devices have passed through 15 thermo cycles : (-60°C, 30 min) - transition period of 30 min -(+85°C, 30 min) without changes in specifications. Valid for devices produced since 01.2013

Product specifications are subject to change without prior notice due to improvements or other reasons. Updated 08.05.13

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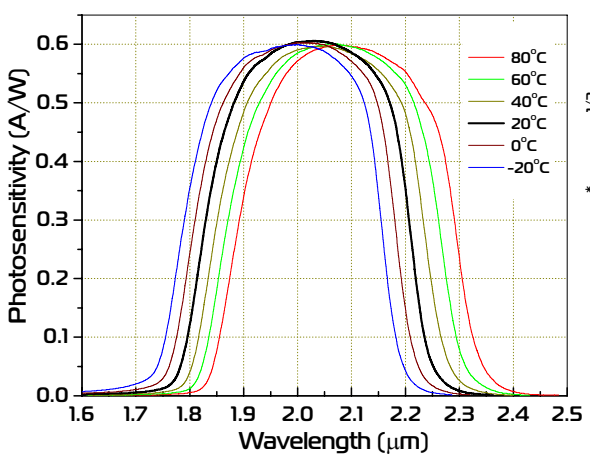
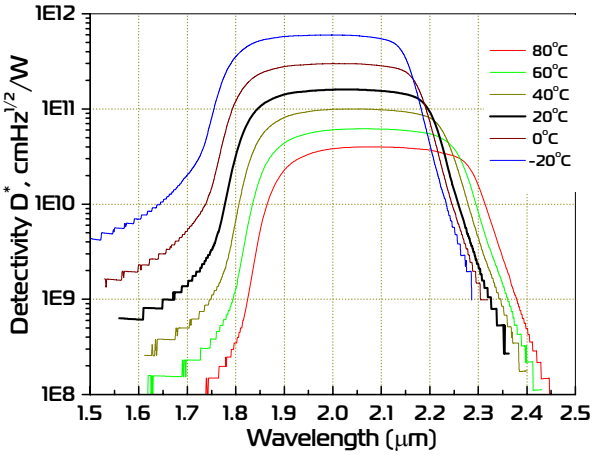
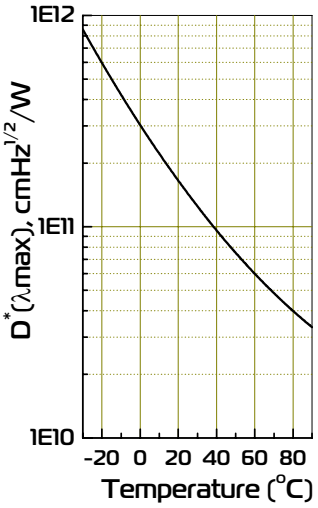
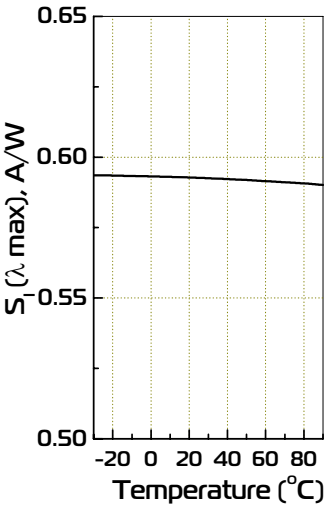
Spectral response

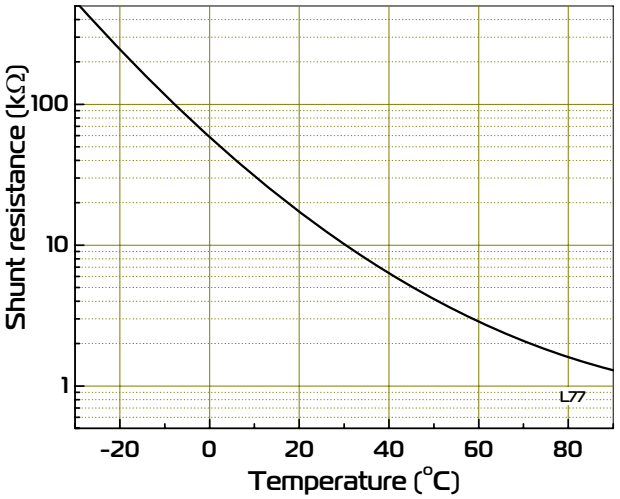




Detectivity, current sensitivity at λ_{max} and shunt resistance vs. temperature







Optically Immersed 2.7 μm Photodiode PD27Su, PD27Sr

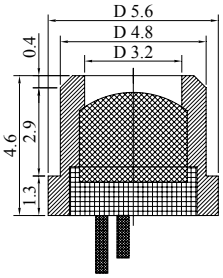
TE cooled Optically Immersed 2.7 μm Photodiode PD27TO8TEC

Peak wavelength	λ_{max}	μm	2.73±0.05 [1]	@22 °C
Current sensitivity	S_I	A/W	≥0.5	
Shunt Resistance	R_0	Ohm	≥2500	
Detectivity	$D^*_{\lambda max}$	$cmHz^{1/2}W^{-1}$	$\geq 7\times10^{10}$	
Voltage sensitivity	S_U	V/W	≥1250	
Switching time	τ	ns	≤20 [2]	

Code	Sensitive area, mm	Weight, g	Optical components	Field of view, deg.	Optical axis deviation, deg.	Detectivity deviation in lot, %	Operation conditions, °C	Lifetime, hrs
PD27Su PD27Sr	∅ 3.2	~0.4	Si lens	~15	≤5	±25	-60÷+85 [3]	>80 000 [5]
PD27 TO8TEC		~10	Si lens and output sapphire window D=6mm				-60÷+85 [4]	

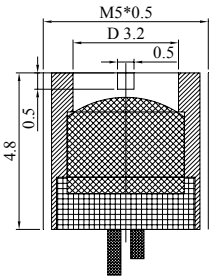
Product view

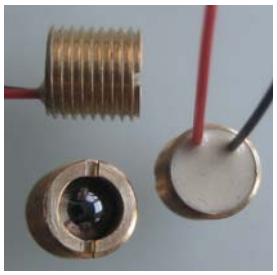
PD27Su



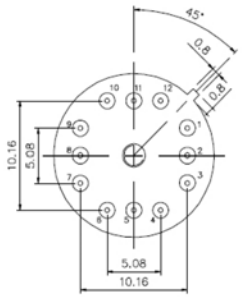
Pin assignment: red wire or long wire and red point on house - positive

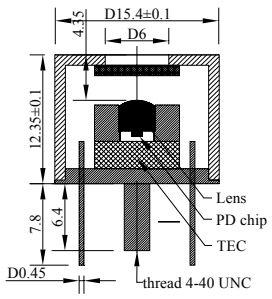
PD27Sr





Pin assignment: red wire or long wire and red point on house - positive





Pin assignment PD27TO8TEC12

1 TEC negative;
3 TEC positive;
4 PD negative;
6 PD positive;
7, 9 thermosensor;
11 ⊥ (House);
12 ⊥ (PD)

Features

- Original growth of narrow gap A3B5 semiconductor alloys onto n^+-InAs substrate;
- Flip-chip design of PDs;
- Optical coupling through the use of chalcogenide glasses and Si lenses with antireflection coating
- Ambient and high temperature operation;
- No bias required;
- Operation from DC to VHF;
- Highest long term stability;
- High value of shunt resistance;

Photodiode could be equipped with preamplifier that is designed for conversion of PD photocurrent into a convenient output voltage and is adjusted for the particular PD taking into account the Ro value and frequency range. Other packages are available upon request. Angle of view is small and thus we recommend adjusting PD position regarding to the emission system before final evaluation/use of the devices. Data are valid for PD thermostabilized at 22°C. Heatsink is essential for TEC operation!

Notes

[1] - process 296
[2] - according to estimation
[3] - devices have passed through 15 thermo cycles : (20°C, 8 hrs) -transition period of 30 min – (+125°C, 8 hrs) without changes in specifications. Valid for devices produced since 01.2013
[4] - devices have passed through 15 thermo cycles : (-60°C, 30 min) - transition period of 30 min -(+85°C, 30 min) without changes in specifications. Valid for devices produced since 01.2013
[5] – according to accelerated degradation stress for LEDs

Product specifications are subject to change without prior notice due to improvements or other reasons. Updated 25.01.13

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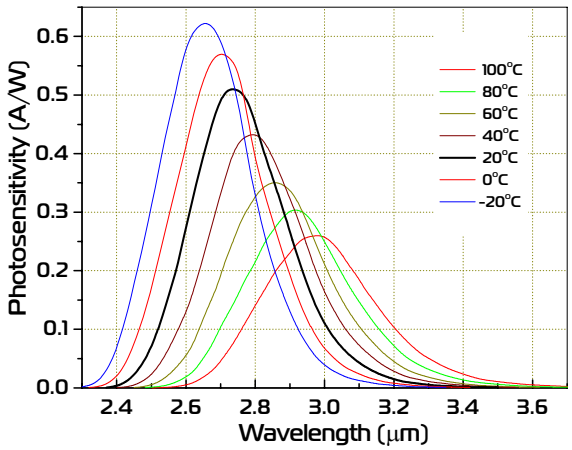
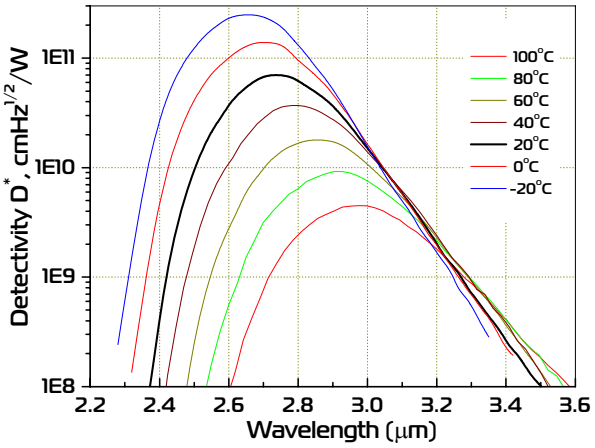
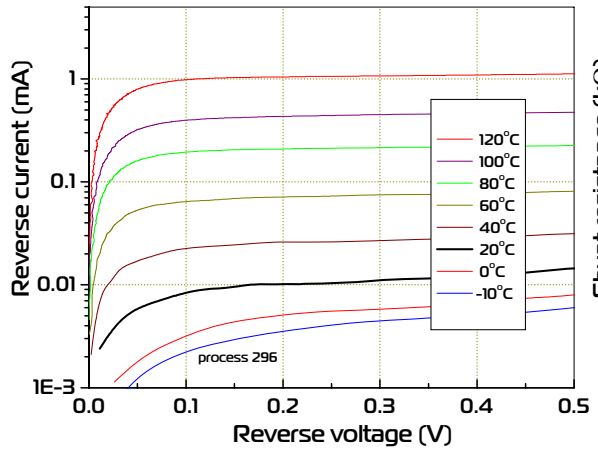
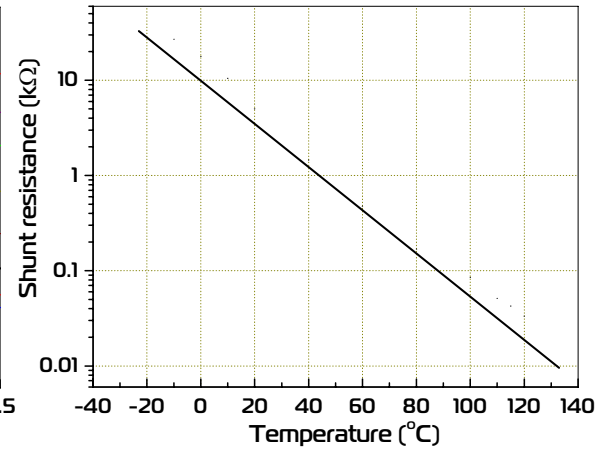
Spectral response





Dark current vs. reverse voltage, shunt resistance vs. temperature





Optically Immersed 2.9 μm Photodiode PD29Su, PD29Sr

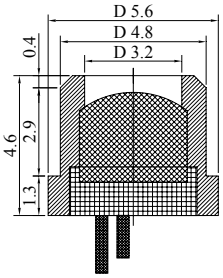
TE cooled Optically Immersed 2.9 μm Photodiode PD29TO8TEC

Peak wavelength	λ_{max}	μm	2.93±0.05 [1]	@22 °C
Current sensitivity	S_I	A/W	≥0.5	
Shunt Resistance	R_0	Ohm	≥1500	
Detectivity	$D^*_{\lambda max}$	$cmHz^{1/2}W^{-1}$	$\geq 4\times10^{10}$	
Voltage sensitivity	S_U	V/W	≥750	
Switching time	τ	ns	≤20 [2]	

Code	Sensitive area, mm	Weight, g	Optical components	Field of view, deg.	Optical axis deviation, deg.	Detectivity deviation in lot, %	Operation conditions, °C	Lifetime, hrs
PD29Su PD29Sr	∅ 3.2	~0.4	Si lens	~15	≤5	±25	-60÷+85 [3]	>80 000 [5]
PD29 TO8TEC		~10	Si lens and output sapphire window D=6mm				-60÷+85 [4]	

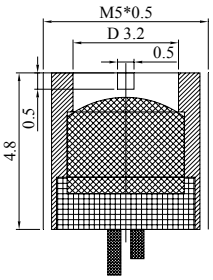
Product view

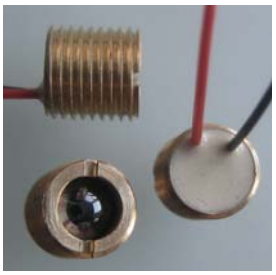
PD29Su



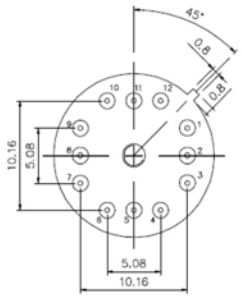
Pin assignment: red wire or long wire and red point on house - positive

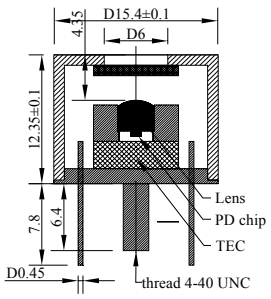
PD29Sr





Pin assignment: red wire or long wire and red point on house - positive





Pin assignment PD29TO8TEC12

1 TEC negative;
3 TEC positive;
4 PD negative;
6 PD positive;
7, 9 thermosensor;
11 ⊥ (House);
12 ⊥ (PD)

Features

- Original growth of narrow gap A3B5 semiconductor alloys onto n^+-InAs substrate;
- Flip-chip design of PDs;
- Optical coupling through the use of chalcogenide glasses and Si lenses with antireflection coating
- Ambient and high temperature operation;
- No bias required;
- Operation from DC to VHF;
- Highest long term stability;
- High value of shunt resistance;

Photodiode could be equipped with preamplifier that is designed for conversion of PD photocurrent into a convenient output voltage and is adjusted for the particular PD taking into account the Ro value and frequency range. Other packages are available upon request. Angle of view is small and thus we recommend adjusting PD position regarding to the emission system before final evaluation/use of the devices. Data are valid for PD thermostabilized at 22°C. Heatsink is essential for TEC operation!

Notes

[1] - process 6189
[2] - according to estimation
[3] - devices have passed through 15 thermo cycles : (20°C, 8 hrs) -transition period of 30 min – (+125°C, 8 hrs) without changes in specifications. Valid for devices produced since 01.2013
[4] - devices have passed through 15 thermo cycles : (-60°C, 30 min) - transition period of 30 min -(+85°C, 30 min) without changes in specifications. Valid for devices produced since 01.2013
[5] – according to accelerated degradation stress for LEDs

Product specifications are subject to change without prior notice due to improvements or other reasons. Updated 25.01.13

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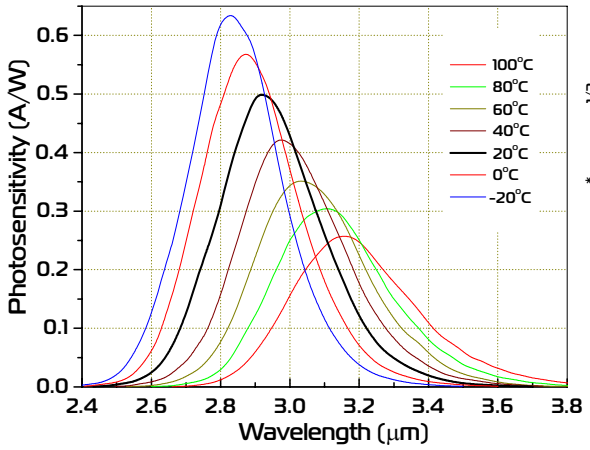
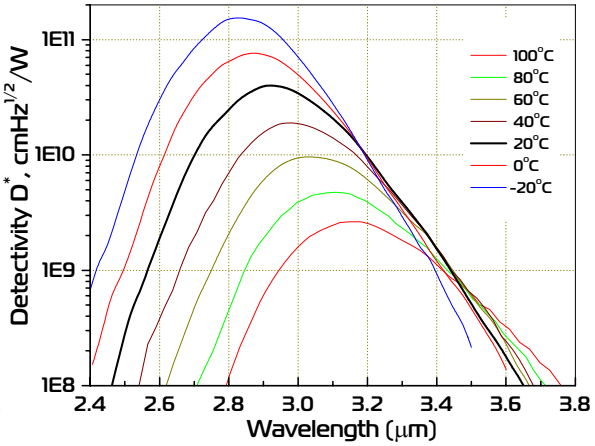
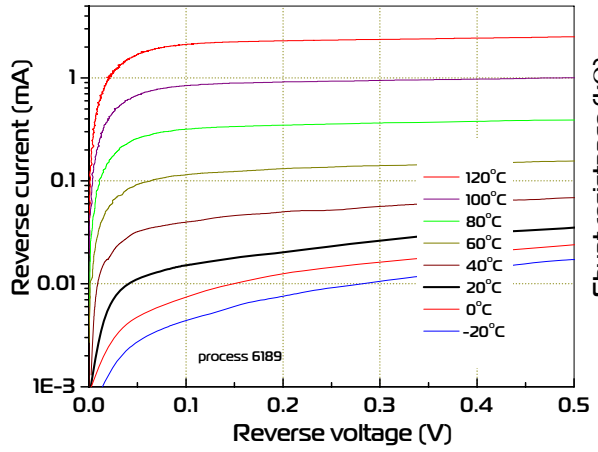
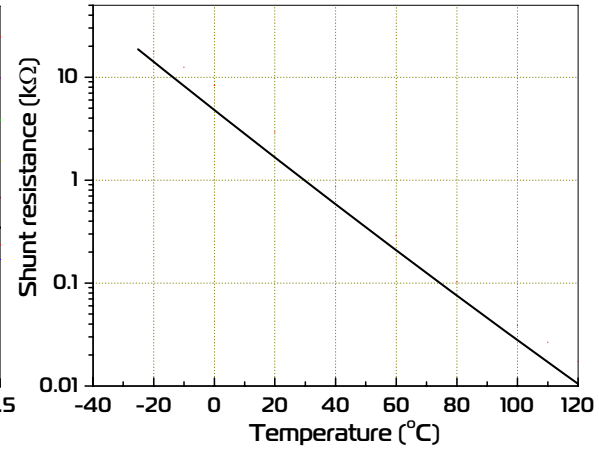
Spectral response





Dark current vs. reverse voltage, shunt resistance vs. temperature





Optically Immersed 3.4 μm Photodiode PD34Su, PD34Sr

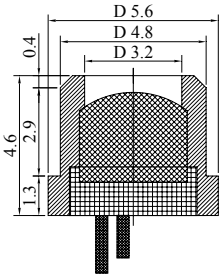
TE cooled Optically Immersed 3.4 μm Photodiode PD34TO8TEC

Peak wavelength	λ_{max}	μm	3.35±0.05	@22 °C
Current sensitivity	S_I	A/W	≥1.0	
Shunt Resistance	R_0	Ohm	≥1000	
Detectivity	$D^*_{\lambda\text{-max}}$	$cmHz^{1/2}W^{-1}$	$\geq 6\times10^{10}$	
Voltage sensitivity	S_U	V/W	≥1000	
Switching time	τ	ns	≤20 [1]	

Code	Sensitive area, mm	Weight, g	Optical components	Field of view, deg.	Optical axis deviation, deg.	Detectivity deviation in lot, %	Operation conditions, °C	Lifetime, hrs
PD34Su PD34Sr	∅ 3.2	~0.4	Si lens	~15	≤5	±25	-60÷+85 [2]	>80 000
PD34 TO8TEC		~10	Si lens and output sapphire window D=6mm				-60÷+85 [3]	

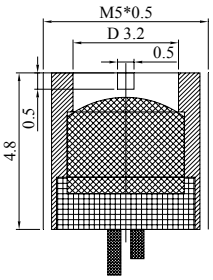
Product view

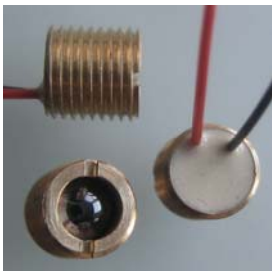
PD34Su



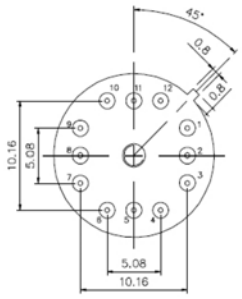
Pin assignment: red wire or long wire and red point on house - positive

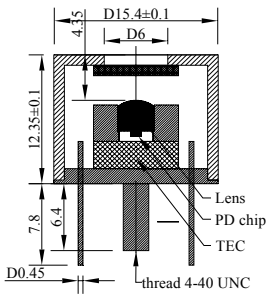
PD34Sr





Pin assignment: red wire or long wire and red point on house - positive





Pin assignment PD34TO8TEC12

1 TEC negative;
3 TEC positive;
4 PD negative;
6 PD positive;
7, 9 thermosensor;
11 ⊥ (House);
12 ⊥ (PD)

Features

- Original growth of narrow gap A3B5 semiconductor alloys onto n^+-InAs substrate;
- Flip-chip design of PDs;
- Optical coupling through the use of chalcogenide glasses and Si lenses with antireflection coating
- Ambient and high temperature operation;
- No bias required;
- Operation from DC to VHF;
- Highest long term stability;
- High value of shunt resistance;

Photodiode could be equipped with preamplifier that is designed for conversion of PD photocurrent into a convenient output voltage and is adjusted for the particular PD taking into account the Ro value and frequency range. Other packages are available upon request. Angle of view is small and thus we recommend adjusting PD position regarding to the emission system before final evaluation/use of the devices. Data are valid for PD thermostabilized at 22°C. Heatsink is essential for TEC operation!

Notes

[1] - according to estimation

[2] - devices have passed through 15 thermo cycles : (20°C, 8 hrs) -transition period of 30 min – (+125°C, 8 hrs) without changes in specifications. Valid for devices produced since 01.2013

[3] - devices have passed through 15 thermo cycles : (-60°C, 30 min) - transition period of 30 min -(+85°C, 30 min) without changes in specifications. Valid for devices produced since 01.2013

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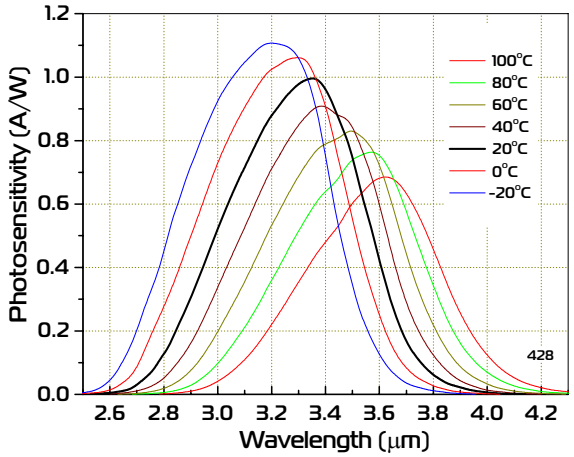
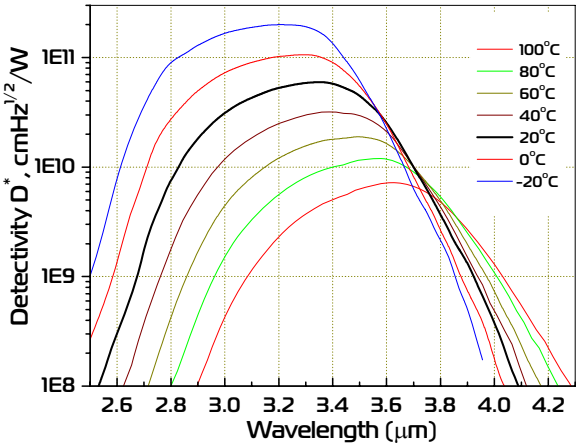
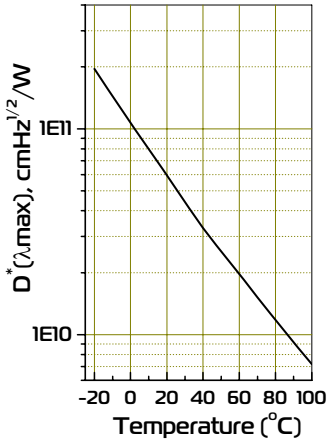
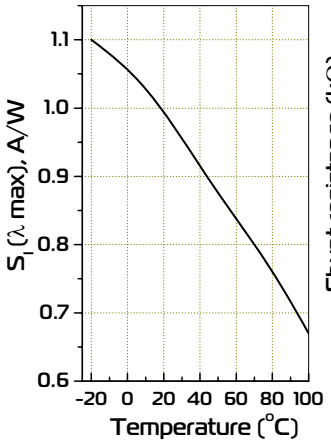
Spectral response

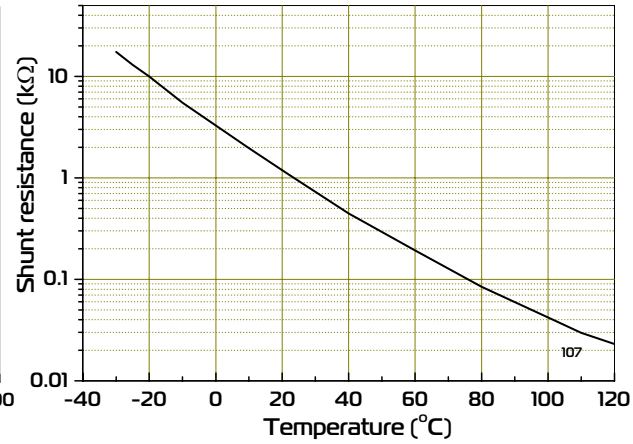




Detectivity, current sensitivity at λ_{max} and shunt resistance vs. temperature







Optically Immersed 3.8 μm Photodiode PD38Su, PD38Sr

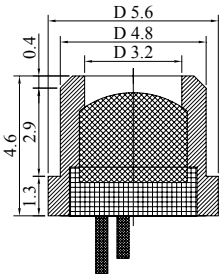
TE cooled Optically Immersed 3.8 μm Photodiode PD38TO8TEC

Peak wavelength	λ_{max}	μm	3.2÷3.7	@22 °C
Current sensitivity at λ_{max}	$S_I(\lambda_{max})$	A/W	≥1.0	
Current sensitivity at 3.8 μm	$S_I(\lambda_{3.8\,\mu m})$	A/W	≥0.85	
Shunt Resistance	R_0	Ohm	≥150	
Detectivity	$D^*_{\lambda max}$	$cmHz^{1/2}W^{-1}$	$\geq 2.6\times10^{10}$	
Voltage sensitivity	S_U	V/W	≥150	
Switching time	τ	ns	≤20 [1]	

Code	Sensitive area, mm	Weight, g	Optical components	Field of view, deg.	Optical axis deviation, deg.	Detectivity deviation in lot, %	Operation conditions, °C	Lifetime, hrs
PD38Su PD38Sr	∅ 3.2	~0.4	Si lens	~15	≤5	±25	-60÷+85 [2]	>80 000
PD38 TO8TEC		~10	Si lens and output sapphire window D=6mm				-60÷+85 [3]	

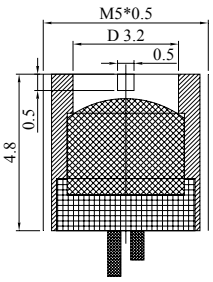
Product view

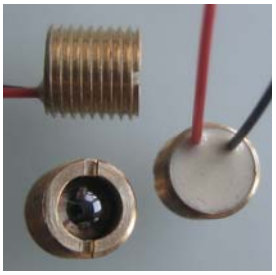
PD38Su



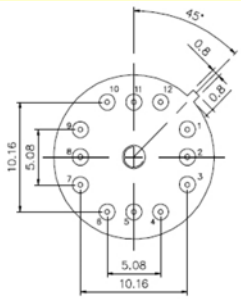
Pin assignment: red wire or long wire and red point on house - positive

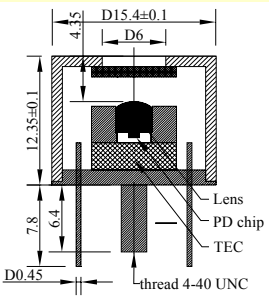
PD38Sr





Pin assignment: red wire or long wire and red point on house - positive





Pin assignment PD38TO8TEC12

1 TEC negative;
3 TEC positive;
4 PD negative;
6 PD positive;
7, 9 thermosensor;
11 ⊥ (House);
12 ⊥ (PD)

Features

- Original growth of narrow gap A3B5 semiconductor alloys onto n^+-InAs substrate;
- Flip-chip design of PDs;
- Optical coupling through the use of chalcogenide glasses and Si lenses with antireflection coating
- Ambient and high temperature operation;
- No bias required;
- Operation from DC to VHF;
- Highest long term stability;
- High value of shunt resistance;

Photodiode could be equipped with preamplifier that is designed for conversion of PD photocurrent into a convenient output voltage and is adjusted for the particular PD taking into account the Ro value and frequency range. Other packages are available upon request. Angle of view is small and thus we recommend adjusting PD position regarding to the emission system before final evaluation/use of the devices. Data are valid for PD thermostabilized at 22°C. Heatsink is essential for TEC operation!

Notes

[1] - according to estimation

[2] - devices have passed through 15 thermo cycles : (20°C, 8 hrs) -transition period of 30 min – (+125°C, 8 hrs) without changes in specifications. Valid for devices produced since 01.2013

[3] - devices have passed through 15 thermo cycles : (-60°C, 30 min) - transition period of 30 min -(+85°C, 30 min) without changes in specifications. Valid for devices produced since 01.2013

Product specifications are subject to change without prior notice due to improvements or other reasons. Updated 08.04.13

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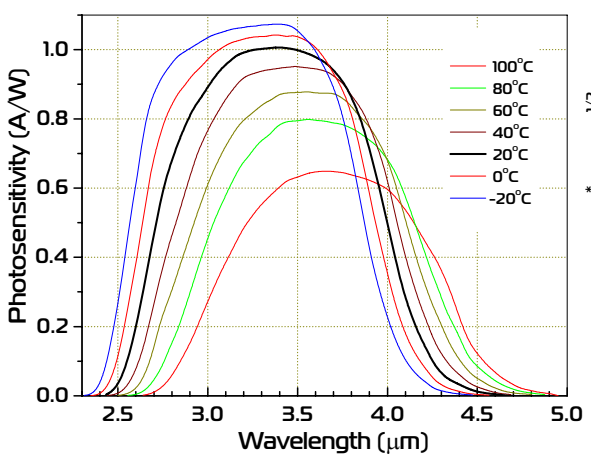
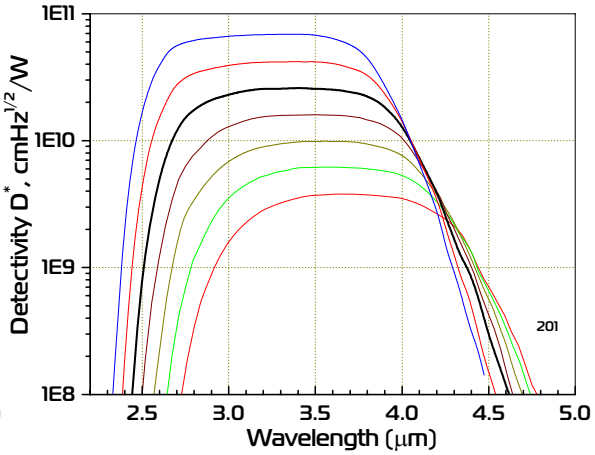
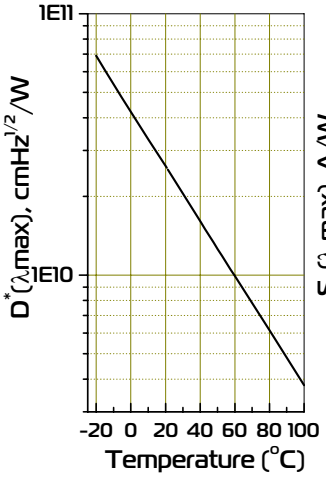
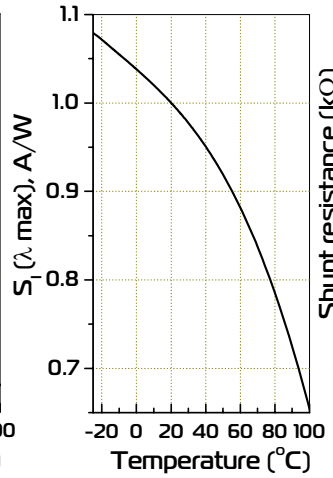
Spectral response

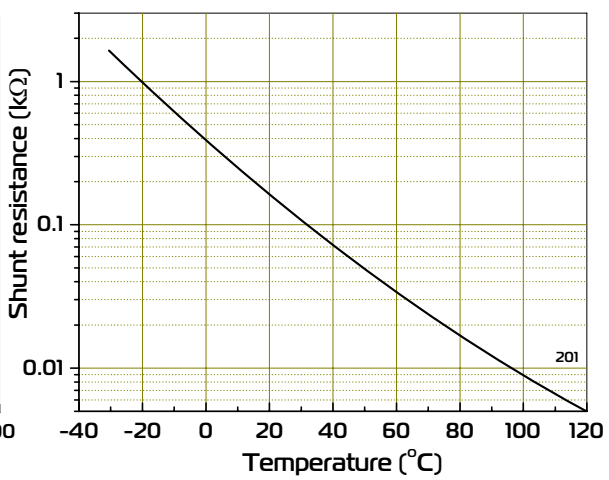




Detectivity, current sensitivity at λ_{max} and shunt resistance vs. temperature







Optically Immersed 4.2 μm Photodiode PD42Su, PD42Sr

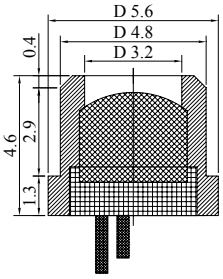
TE cooled Optically Immersed 4.2 μm Photodiode PD42TO8TEC

			PD42Su/Sr WB		PD42Su/Sr NB	
Spectral range	$\lambda_{0.1}$	μm	2.75÷4.6		3.15÷4.75	
Peak wavelength	λ_{max}	μm	4.1÷4.2	@22 °C	3.9÷4.0	@22 °C
Current sensitivity at λ_{max}	$S_I(\lambda_{max})$	A/W	≥0.85		≥1.15	
Current sensitivity at 4.2 μm	$S_I(\lambda_{3.8\,\mu m})$	A/W	≥0.8		≥0.9	
Shunt Resistance	R_0	Ohm	≥70		≥50	
Detectivity	$D^*_{\lambda max}$	$cmHz^{1/2}W^{-1}$	$\geq 1.7\times10^{10}$		$\geq 2.0\times10^{10}$	
Voltage sensitivity	S_U	V/W	≥60		≥60	
Switching time	τ	ns	≤20 [1]			

Code	Sensitive area, mm	Weight, g	Optical components	Field of view, deg.	Optical axis deviation, deg.	Detectivity deviation in lot, %	Operation conditions, °C	Lifetime, hrs
PD42Su PD42Sr	∅ 3.2	~0.4	Si lens	~15	≤5	±25	-60÷+85 [2]	>80 000
PD42 TO8TEC		~10	Si lens and output sapphire window D=6mm				-60÷+85 [3]	

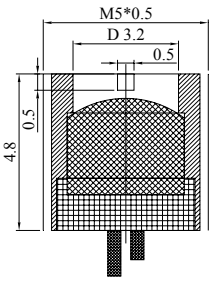
Product view

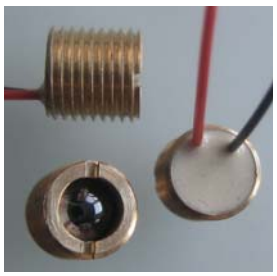
PD42Su



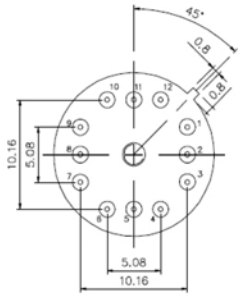
Pin assignment: red wire or long wire and red point on house - positive

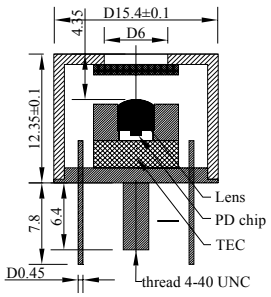
PD42Sr





Pin assignment: red wire or long wire and red point on house - positive





Pin assignment PD42TO8TEC12

1 TEC negative;
3 TEC positive;
4 PD negative;
6 PD positive;
7, 9 thermosensor;
11 ⊥ (House);
12 ⊥ (PD)

Features

- Original growth of narrow gap A3B5 semiconductor alloys onto n^+-InAs substrate;
- Flip-chip design of PDs;
- Optical coupling through the use of chalcogenide glasses and Si lenses with antireflection coating
- Ambient and high temperature operation;
- No bias required;
- Operation from DC to VHF;
- Highest long term stability;
- High value of shunt resistance;

Photodiode could be equipped with preamplifier that is designed for conversion of PD photocurrent into a convenient output voltage and is adjusted for the particular PD taking into account the Ro value and frequency range. Other packages are available upon request. Angle of view is small and thus we recommend adjusting PD position regarding to the emission system before final evaluation/use of the devices. Data are valid for PD thermostabilized at 22°C. Heatsink is essential for TEC operation!

Notes

[1] - according to estimation
[2] - devices have passed through 15 thermo cycles : (20°C, 8 hrs) -transition period of 30 min – (+125°C, 8 hrs) without changes in specifications. Valid for devices produced since 01.2013
[3] - devices have passed through 15 thermo cycles : (-60°C, 30 min) - transition period of 30 min -(+85°C, 30 min) without changes in specifications. Valid for devices produced since 01.2013

Product specifications are subject to change without prior notice due to improvements or other reasons. Updated 10.04.13

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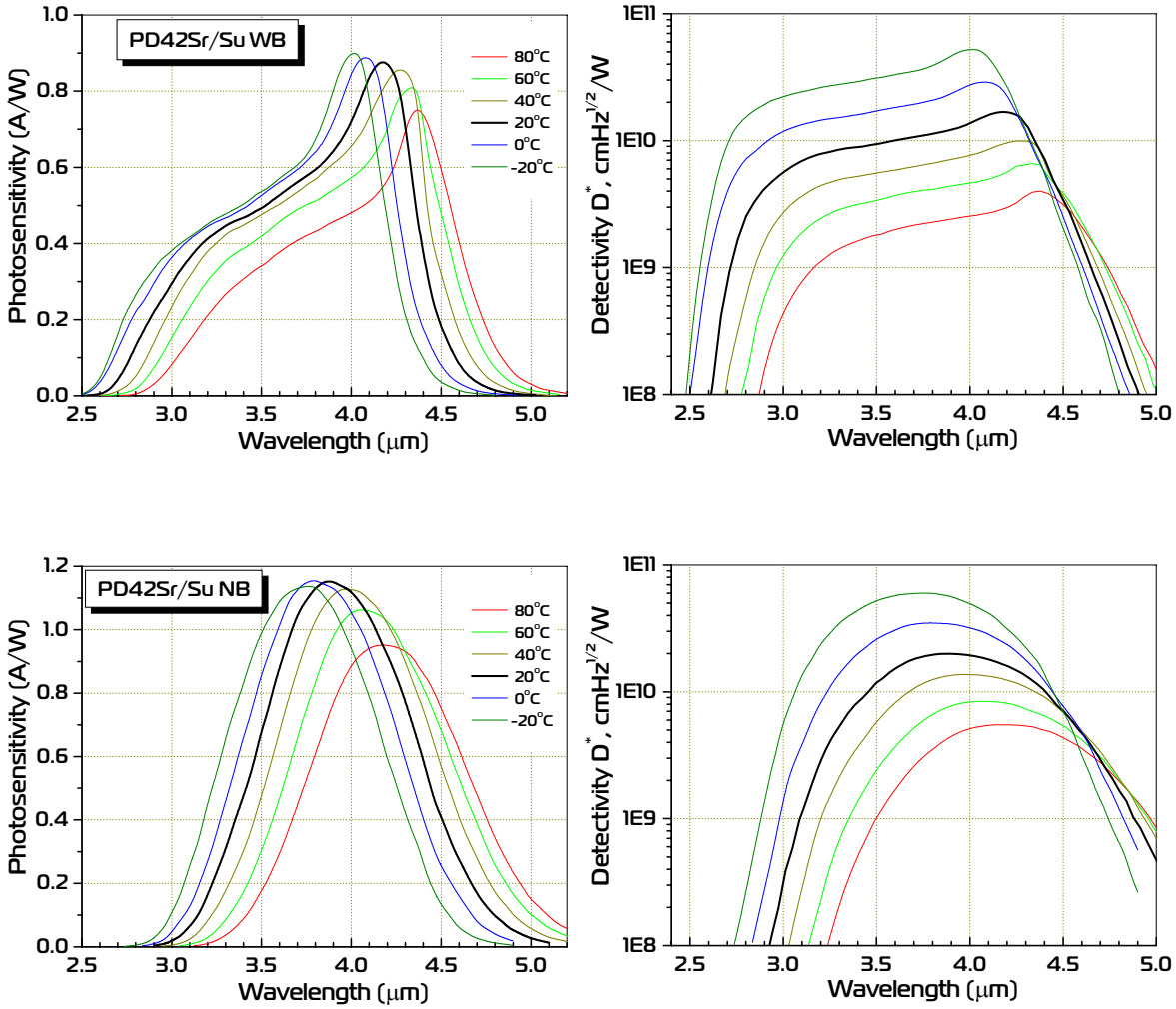
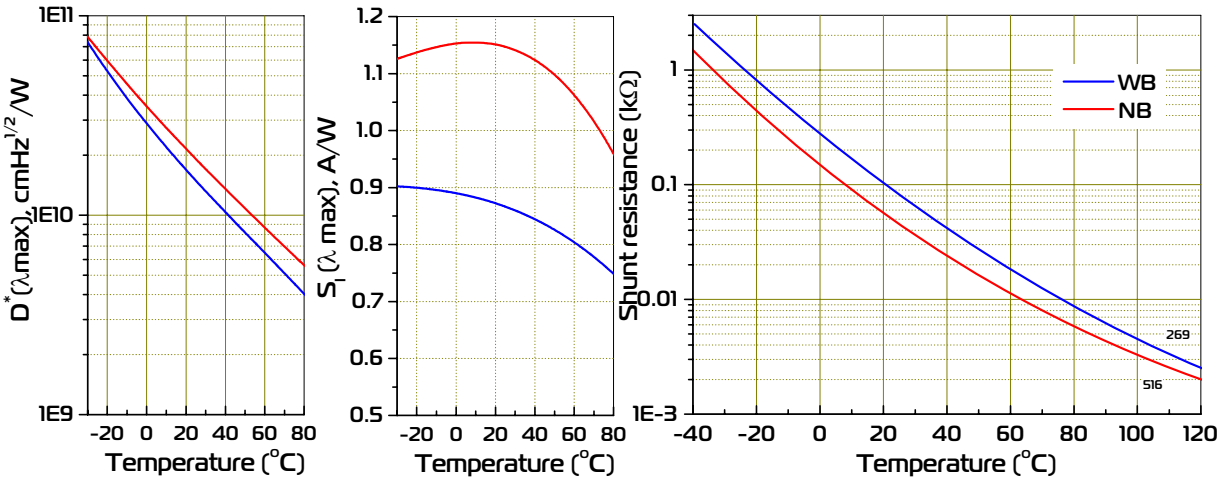
Spectral response



Detectivity, current sensitivity at λ_{max} and shunt resistance vs. temperature



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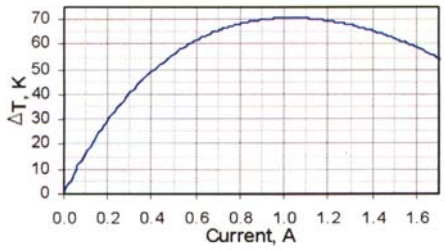
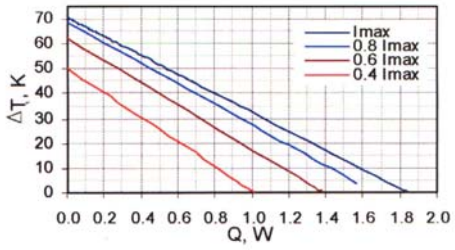
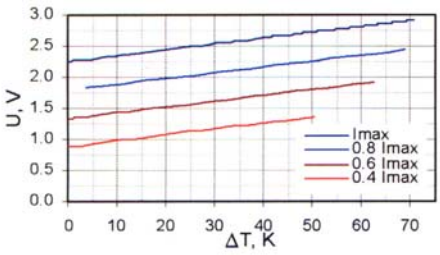
Thermoelectric cooling module TO8TEC datasheet

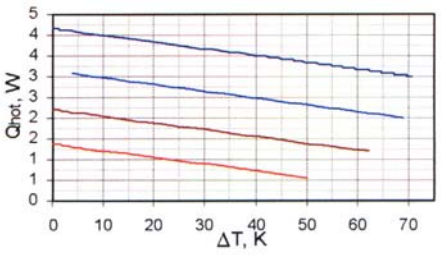
Thermoelectric cooling module datasheet

Mounted TEC	H, mm	ΔT_{max}, K	Q_{max}, W	I_{max}, A	U_{max}, V	R_t, K/W
1MC06-024/1-15	2.6	70	1.86	1.0	2.78	1.07







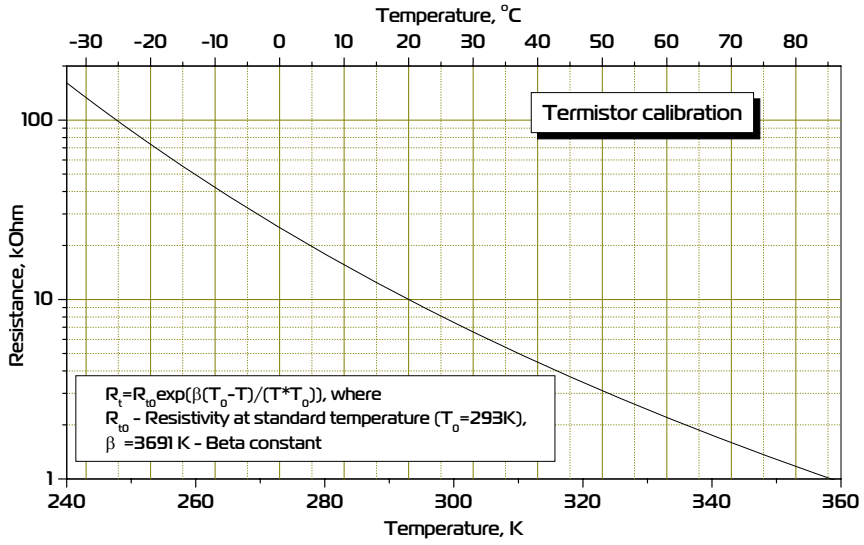


Data for T_{hot}=300 K, from www.tec-microsystems.com; www.rmtltd.ru

Thermistor specification

Type TB04-103

T, °C	R, kΩ	T, °C	R, kΩ
-60	1134.5	15	12.44
-55	762.4	20	10.00
-50	521.6	25	8.09
-45	362.8	25	8.09
-40	256.3	30	6.60
-35	183.8	35	5.41
-30	133.6	40	4.47
-25	98.3	45	3.71
-20	73.3	50	3.10
-15	55.2	55	2.61
-10	42.1	60	2.20
-5	32.4	65	1.87
0	25.2	70	1.59
5	19.7	75	1.37
10	15.6	80	1.18



Possible TEC heatsink view

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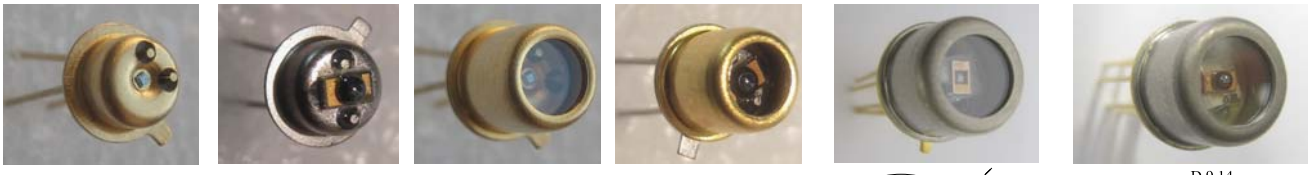
Uncooled 2.7 μm FSI Photodiode PD27FS
TE cooled 2.7 μm FSI Photodiode PD27FS TO39TEC
Uncooled 2.7 μm FSI Photodiode with microimmersion lens PD27FSmIL
TE cooled 2.7 μm FSI Photodiode with microimmersion lens PD27FSmIL TO39TEC

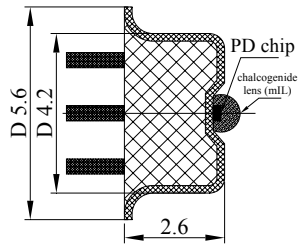
Peak wavelength	λ_{max}	μm	2.75±0.05	@22 °C
Immersion lens			No	mIL
Current sensitivity	S_I	A/W	≥0.6 [1]	≥0.6
Shunt Resistance	R_0	Ohm	≥800	≥800
Detectivity	$D^*_{\lambda\text{-max}}$	$cmHz^{1/2}W^{-1}$	$\geq 0.5\times10^{10}$	$\geq 1.0\times10^{10}$
Voltage sensitivity	S_U	V/W	≥500	≥500
Switching time	τ	ns	≤20	≤20

Code	Sensitive area, mm	Weight, g	Optical components	Field of view, deg.	Optical axis deviation, deg.	Detectivity deviation in lot, %	Operation conditions, °C
PD27FSTO18	0.35×0.35	~0.2	-	~140	-	±25	-60÷+85
PD27FSTO18c		~0.3	sapphire window	~65			
PD27FSTO39TEC		~1.2	sapphire window	~90			
PD27FSmILTO18	~D=1	~0.2	-	~60	≤5	±25	-60÷+60
PD27FSmILTO18c		~0.3	sapphire window, chalcogenide lens	~60			
PD27FSmILTO39TEC		~1.2	sapphire window, chalcogenide lens	~60			

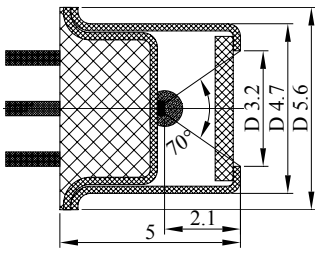
Product view

PD27FSTO18 | PD27FSmIL TO18 | PD27FSTO18c | PD27FSmIL TO18c | PD27FSTO39TEC | PD27FSmIL TO39TEC

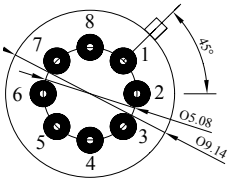




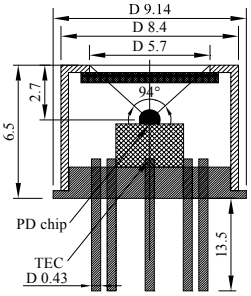
Long leg near key is negative



Long leg near key is negative



1 TEC negative;
2 TEC positive;
3 PD negative;
4 PD positive;
7, 8 thermosensor



Features

- Original growth of narrow gap A3B5 semiconductor alloys;
- Front side illuminated design of PDs;
- "Wide gap" window
- Optical coupling through the use of chalcogenide glass lenses (photodiode with microimmersion lens)
- Ambient and high temperature operation;
- No bias required;
- Operation from DC to VHF;
- Highest long term stability;
- High value of shunt resistance

Photodiode could be equipped with preamplifier that is designed for conversion of PD photocurrent into a convenient output voltage and is adjusted for the particular PD taking into account the Ro value and frequency range. Other packages are available upon request. Data are valid for PD thermostabilized at 22°C. Heatsink is essential for TEC operation!

Notes

[1] – process 285

Product specifications are subject to change without prior notice due to improvements or other reasons. Updated 21.03.13

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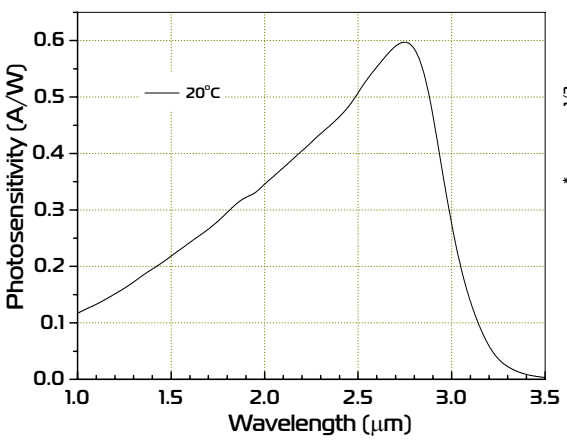
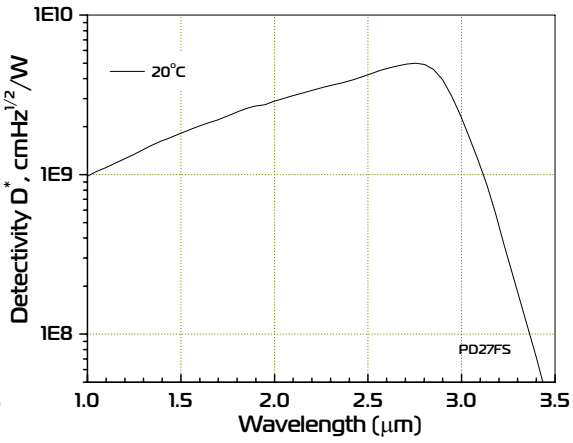
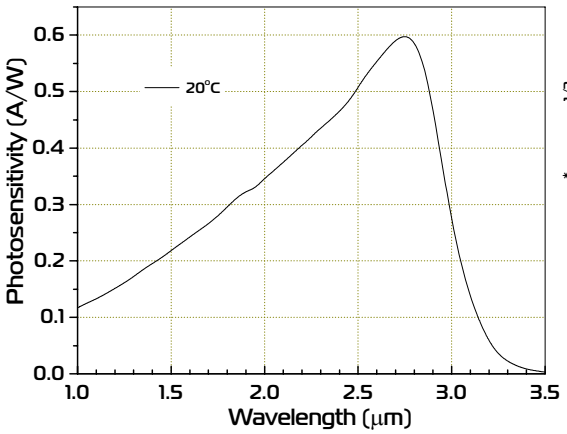
Spectral response

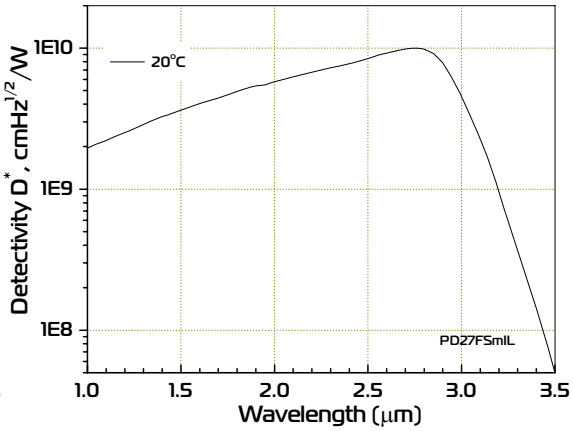
PD27FS





PD27FSmIL





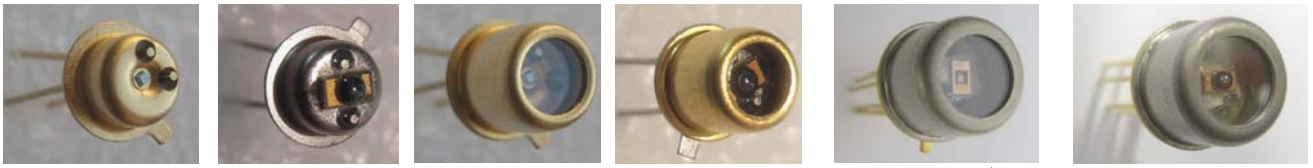
Uncooled 3.3 μm FSI Photodiode PD33FS
TE cooled 3.3 μm FSI Photodiode PD33FS TO39TEC
Uncooled 3.3 μm FSI Photodiode with microimmersion lens PD33FSmIL
TE cooled 3.3 μm FSI Photodiode with microimmersion lens PD33FSmIL TO39TEC

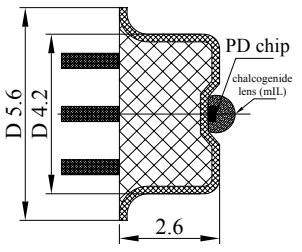
Peak wavelength	λ_{max}	μm	3.30±0.05	@22 °C
Immersion lens			No	mIL
Current sensitivity	S_I	A/W	≥1 [1]	≥1
Shunt Resistance	R_0	Ohm	≥500	≥500
Detectivity	$D^*_{\lambda\text{-max}}$	$cmHz^{1/2}W^{-1}$	$\geq 0.6\times10^{10}$	$\geq 1.5\times10^{10}$
Voltage sensitivity	S_U	V/W	≥500	≥500
Switching time	τ	ns	≤20	≤20

Code	Sensitive area, mm	Weight, g	Optical components	Field of view, deg.	Optical axis deviation, deg.	Detectivity deviation in lot, %	Operation conditions, °C
PD33FSTO18	0.35×0.35	~0.2	-	~140	-	±25	-60÷+85
PD33FSTO18c		~0.3	sapphire window	~65			
PD33FSTO39TEC		~1.2	sapphire window	~90			
PD33FSmILTO18	~D=1	~0.2	-	~60	≤5	±25	-60÷+60
PD33FSmILTO18c		~0.3	sapphire window, chalcogenide lens	~60			
PD33FSmILTO39TEC		~1.2	sapphire window, chalcogenide lens	~60			

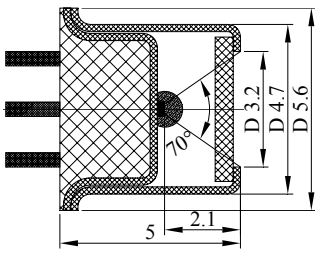
Product view

PD33FSTO18 | PD33FSmIL TO18 | PD33FSTO18c | PD33FSmIL TO18c | PD33FSTO39TEC | PD33FSmIL TO39TEC

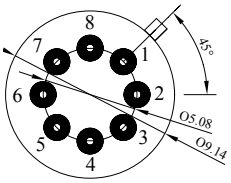




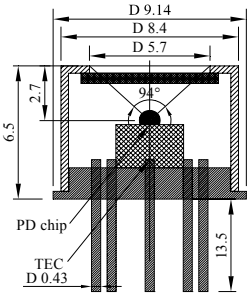
Long leg near key is negative



Long leg near key is negative



1 TEC negative;
2 TEC positive;
3 PD negative;
4 PD positive;
7, 8 thermosensor



Features

- Original growth of narrow gap A3B5 semiconductor alloys;
- Front side illuminated design of PDs;
- "Wide gap" window
- Optical coupling through the use of chalcogenide glass lenses (photodiode with microimmersion lens)
- Ambient and high temperature operation;
- No bias required;
- Operation from DC to VHF;
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- High value of shunt resistance

Photodiode could be equipped with preamplifier that is designed for conversion of PD photocurrent into a convenient output voltage and is adjusted for the particular PD taking into account the Ro value and frequency range. Other packages are available upon request. Data are valid for PD thermostabilized at 22°C. Heatsink is essential for TEC operation!

Notes

[1] - process 400

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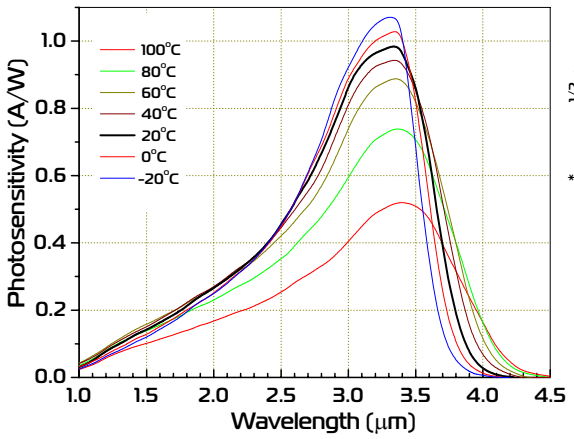
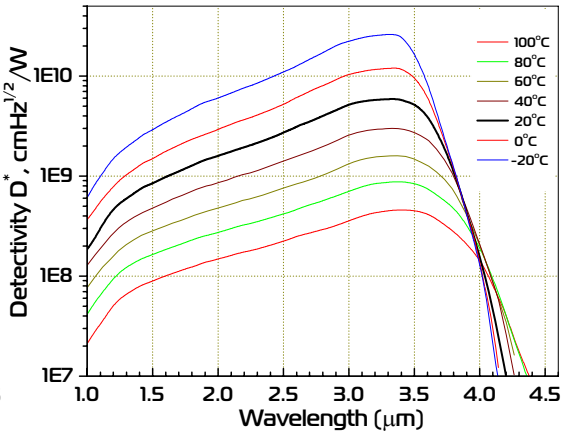
http://www.mirdog.spb.ru; e-mail: bmat@iropt3.ioffe.ru

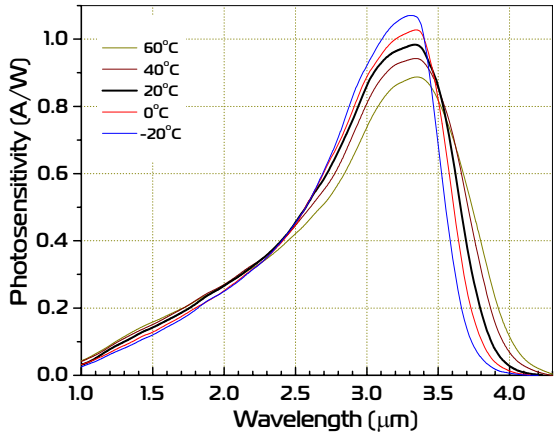
Spectral response

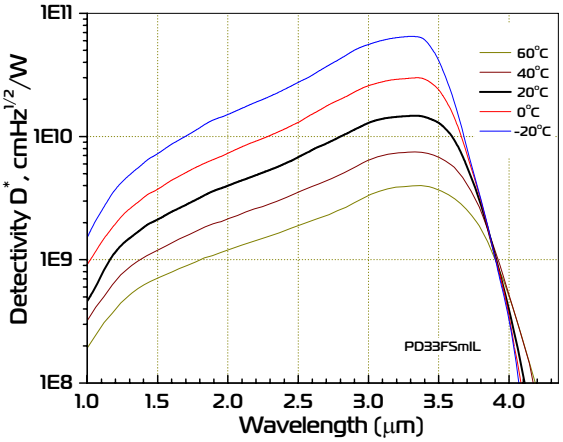
PD33FS



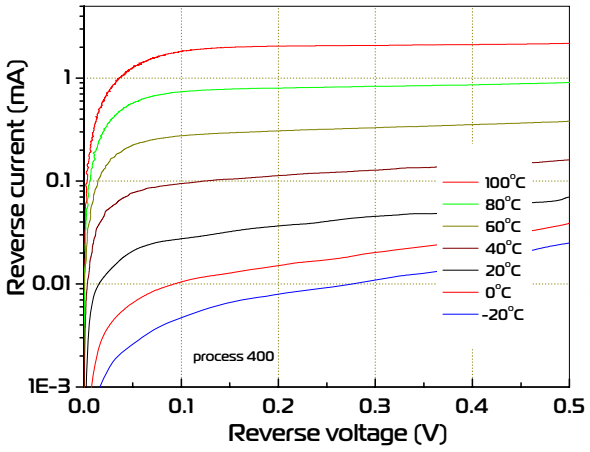


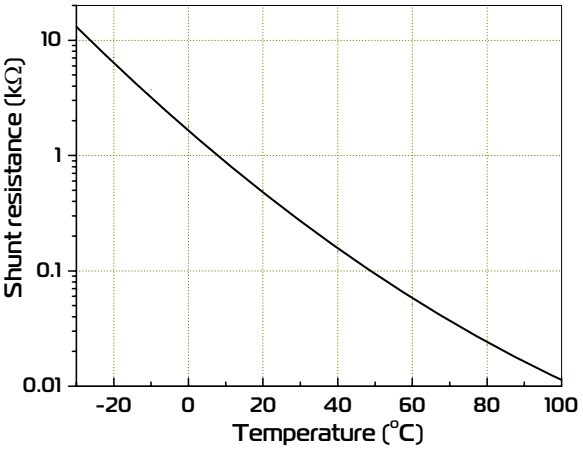
PD33FSmIL





Dark current vs. reverse voltage, shunt resistance vs. temperature





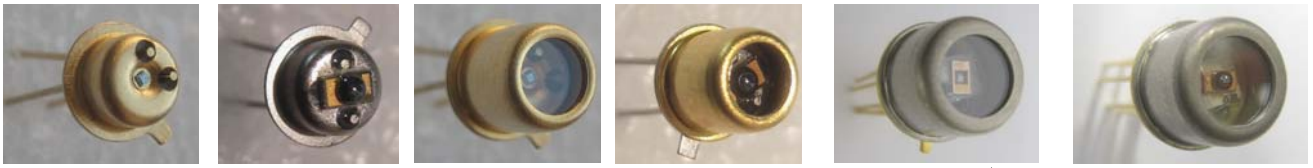
Uncooled 4.1 μm FSI Photodiode PD41FS
TE cooled 4.1 μm FSI Photodiode PD41FS TO39TEC
Uncooled 4.1 μm FSI Photodiode with microimmersion lens PD41FSmIL
TE cooled 4.1 μm FSI Photodiode with microimmersion lens PD41FSmIL TO39TEC

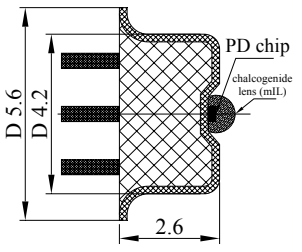
Peak wavelength	λ_{max}	μm	4.15±0.05	@22 °C
Immersion lens			No	mIL
Current sensitivity	S_I	A/W	≥1 [1]	≥1
Shunt Resistance	R_0	Ohm	≥40	≥40
Detectivity	$D^*_{\lambda\text{-max}}$	$cmHz^{1/2}W^{-1}$	$\geq 1.5\times10^9$	$\geq 3\times10^9$
Voltage sensitivity	S_U	V/W	≥40	≥40
Switching time	τ	ns	≤20	≤20

Code	Sensitive area, mm	Weight, g	Optical components	Field of view, deg.	Optical axis deviation, deg.	Detectivity deviation in lot, %	Operation conditions, °C
PD41FSTO18	0.35×0.35	~0.2	-	~140	-	±25	-60÷+85
PD41FSTO18c		~0.3	sapphire window	~65			
PD41FSTO39TEC		~1.2	sapphire window	~90			
PD41FSmILTO18	~D=1	~0.2	-	~60	≤5	±25	-60÷+60
PD41FSmILTO18c		~0.3	sapphire window, chalcogenide lens	~60			
PD41FSmILTO39TEC		~1.2	sapphire window, chalcogenide lens	~60			

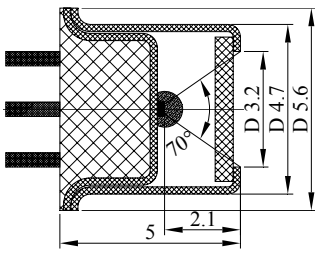
Product view

PD41FSTO18 | PD41FSmIL TO18 | PD41FSTO18c | PD41FSmIL TO18c | PD41FSTO39TEC | PD41FSmIL TO39TEC

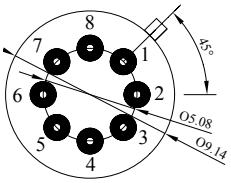




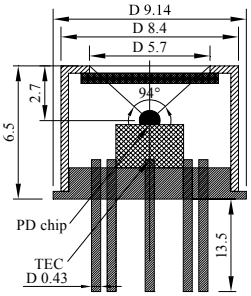
Long leg near key is negative



Long leg near key is negative



1 TEC negative;
2 TEC positive;
3 PD negative;
4 PD positive;
7, 8 thermosensor



Features

- Original growth of narrow gap A3B5 semiconductor alloys;
- Front side illuminated design of PDs;
- "Wide gap" window
- Optical coupling through the use of chalcogenide glass lenses (photodiode with microimmersion lens)
- Ambient and high temperature operation;
- No bias required;
- Operation from DC to VHF;
- Highest long term stability;
- High value of shunt resistance

Photodiode could be equipped with preamplifier that is designed for conversion of PD photocurrent into a convenient output voltage and is adjusted for the particular PD taking into account the Ro value and frequency range. Other packages are available upon request. Data are valid for PD thermostabilized at 22°C. Heatsink is essential for TEC operation!

Notes

[1] – process 6624

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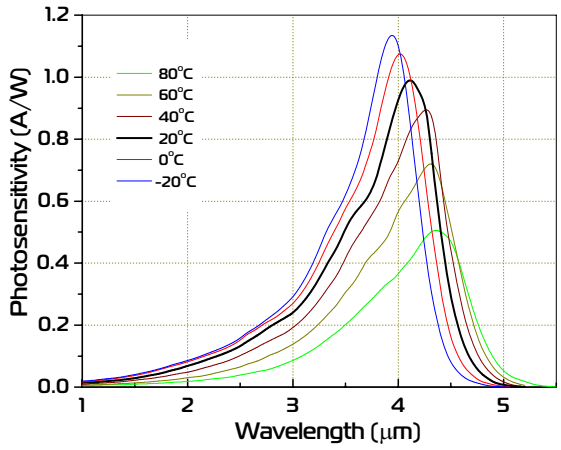
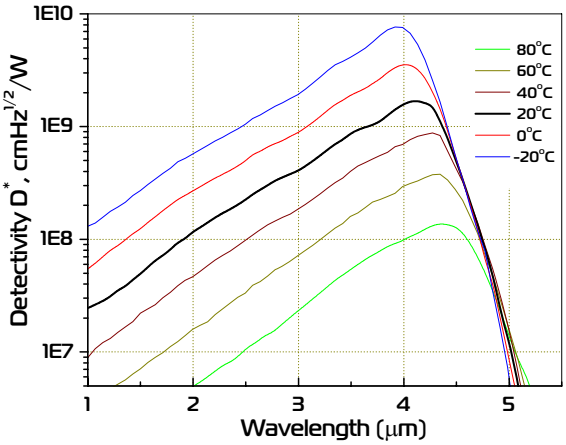
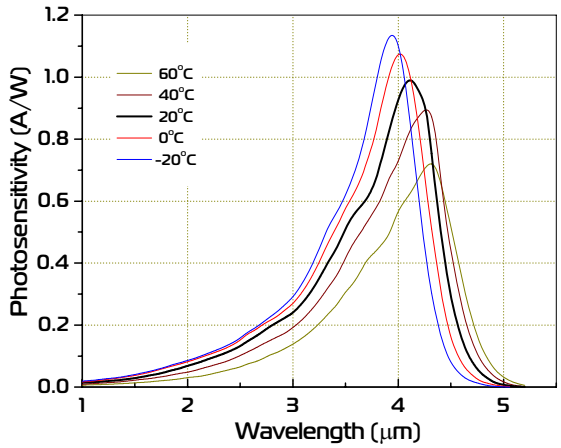
Spectral response

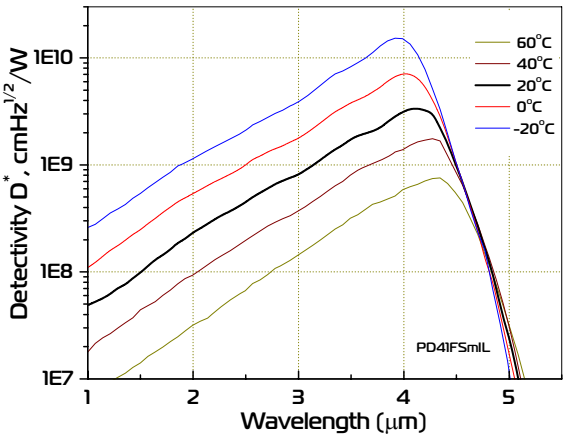
PD41FS



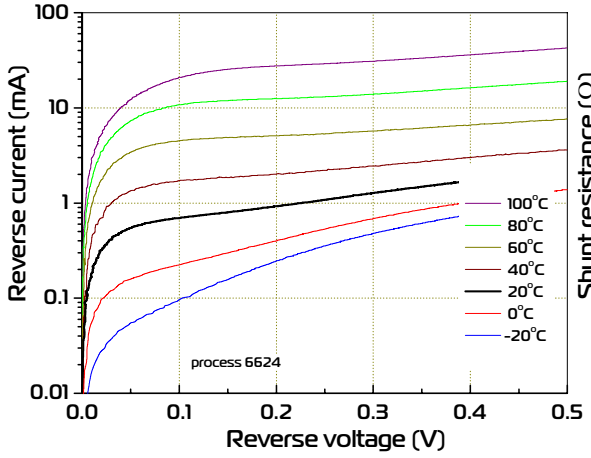


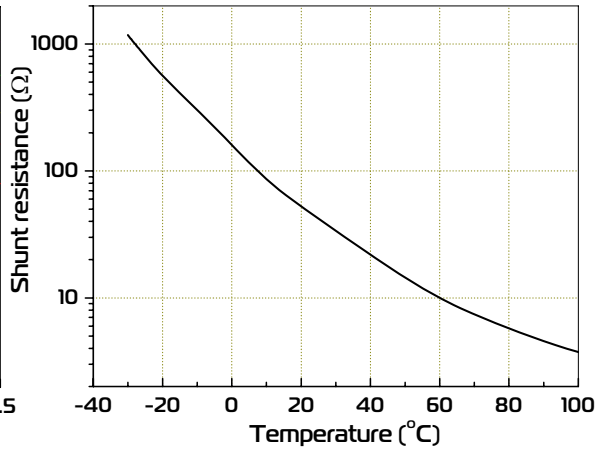
PD41FSmIL





Dark current vs. reverse voltage, shunt resistance vs. temperature





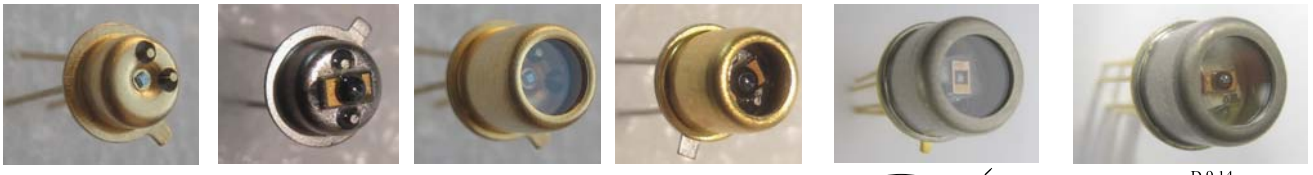
Uncooled 5.2 μm FSI Photodiode PD52FS
TE cooled 5.2 μm FSI Photodiode PD52FS TO39TEC
Uncooled 5.2 μm FSI Photodiode with microimmersion lens PD52FSmIL
TE cooled 5.2 μm FSI Photodiode with microimmersion lens PD52FSmIL TO39TEC

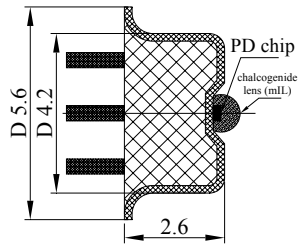
Peak wavelength	λ_{max}	μm	5.2±0.1	@22 °C
Immersion lens			No	mIL
Current sensitivity	S_I	A/W	≥0.3 [1]	≥0.3
Shunt Resistance	R_0	Ohm	≥1.5	≥1.5
Detectivity	$D^*_{\lambda\text{-max}}$	$cmHz^{1/2}W^{-1}$	$\geq 1\times10^8$	$\geq 2\times10^8$
Voltage sensitivity	S_U	V/W	≥0.45	≥0.45
Switching time	τ	ns	≤50 [2]	≤50

Code	Sensitive area, mm	Weight, g	Optical components	Field of view, deg.	Optical axis deviation, deg.	Detectivity deviation in lot, %	Operation conditions, °C
PD52FSTO18	0.35×0.35	~0.2	-	~140	-	±25	-60÷+85
PD52FSTO18c		~0.3	sapphire window	~65			
PD52FSTO39TEC		~1.2	sapphire window	~90			
PD52FSmILTO18	~D=1	~0.2	-	~60	≤5	±25	-60÷+60
PD52FSmILTO18c		~0.3	sapphire window, chalcogenide lens	~60			
PD52FSmILTO39TEC		~1.2	sapphire window, chalcogenide lens	~60			

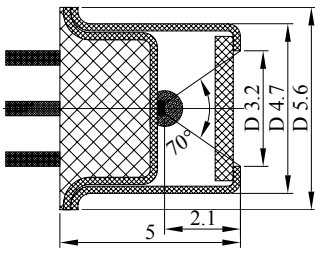
Product view

PD52FSTO18 | PD52FSmIL TO18 | PD52FSTO18c | PD52FSmIL TO18c | PD52FSTO39TEC | PD52FSmIL TO39TEC

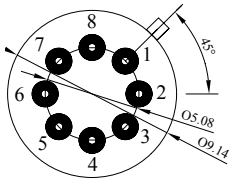




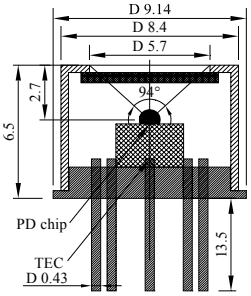
Long leg near key is negative



Long leg near key is negative



1 TEC negative;
2 TEC positive;
3 PD negative;
4 PD positive;
7, 8 thermosensor



Features

- Original growth of narrow gap A3B5 semiconductor alloys;
- Front side illuminated design of PDs;
- "Wide gap" window
- Optical coupling through the use of chalcogenide glass lenses (photodiode with microimmersion lens)
- Ambient temperature operation;
- No bias required;
- Operation from DC to VHF;
- Highest long term stability;

Photodiode could be equipped with preamplifier that is designed for conversion of PD photocurrent into a convenient output voltage and is adjusted for the particular PD taking into account the Ro value and frequency range. Other packages are available upon request. Data are valid for PD thermostabilized at 22°C. Heatsink is essential for TEC operation!

Notes

[1] – process 6530(35)
[2] – according estimation

Product specifications are subject to change without prior notice due to improvements or other reasons. Updated 21.03.13

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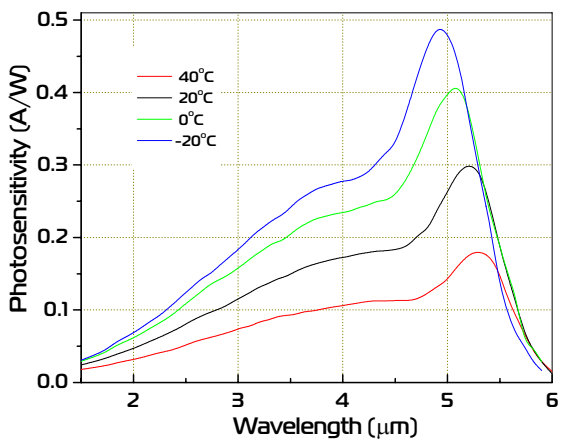
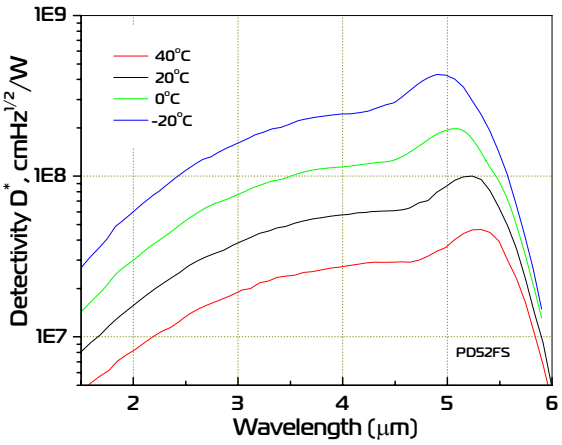
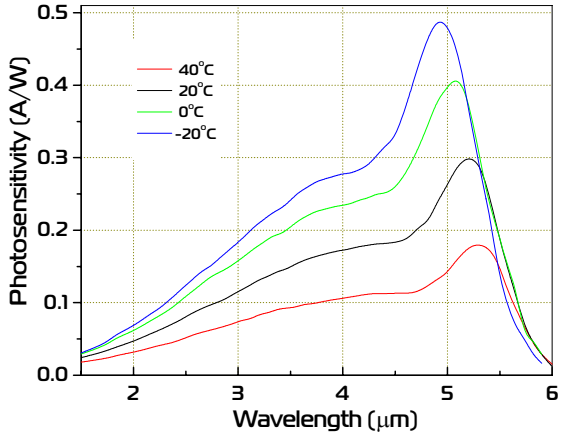
Spectral response

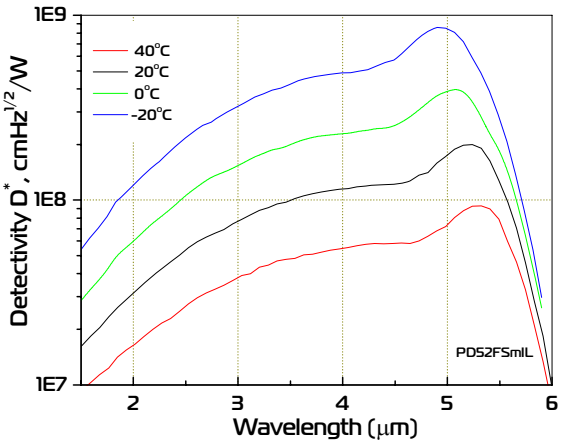
PD52FS



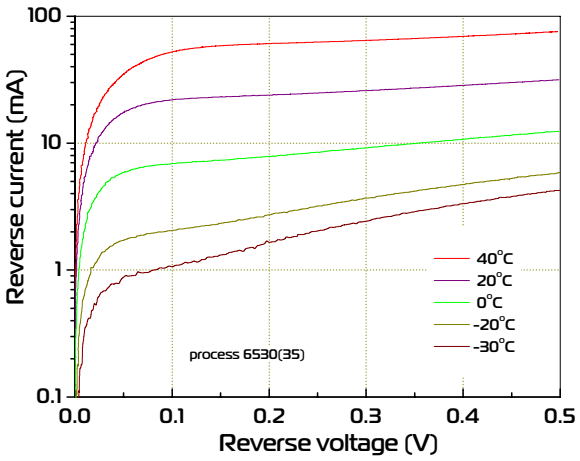


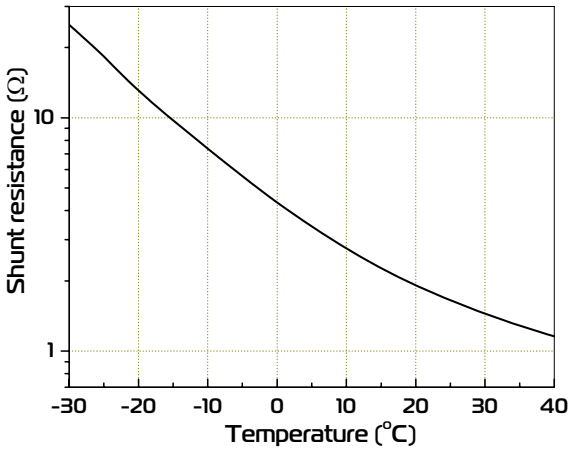
PD52FSmIL





Dark current vs. reverse voltage, shunt resistance vs. temperature

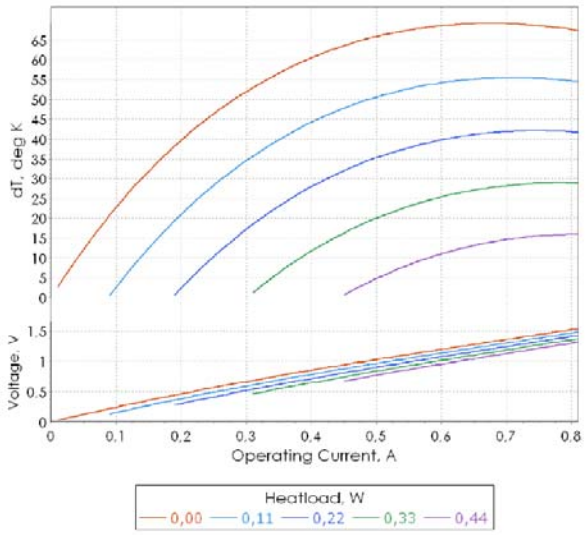


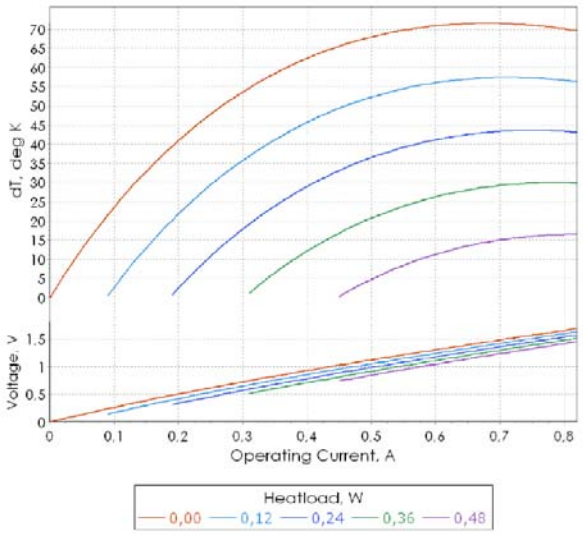


Thermoelectric cooling module TO39TEC datasheet

Thermoelectric cooling module datasheet

Mounted TEC	@ 27 °C, Vacuum				@ 50 °C, N2			
1MD04-011/10	ΔT_{max}, K	Q_{max},W	I_{max}, A	U_{max}, V	ΔT_{max}, K	Q_{max},W	I_{max}, A	U_{max}, V
	69	0.54	0.7	1.3	72	0.6	0.7	1.4



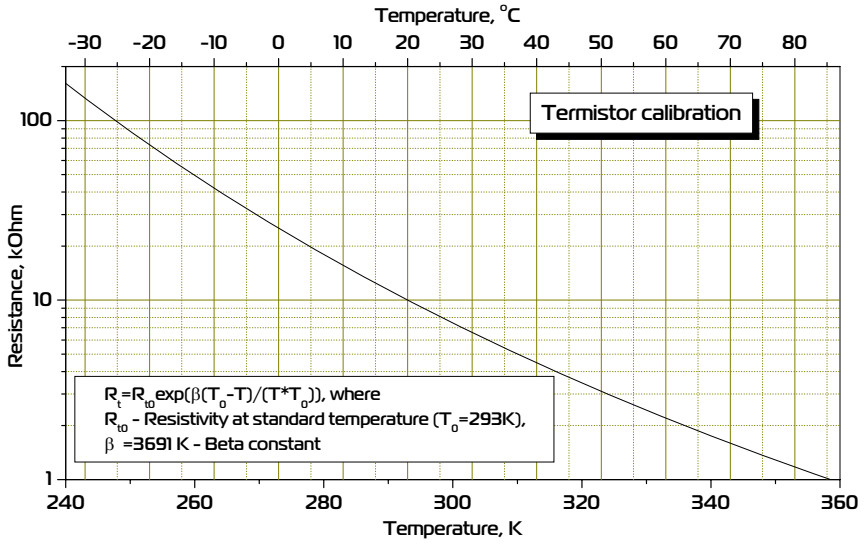


Data from www.tec-microsystems.com; www.rmtltd.ru

Thermistor specification

Type TB04-103

T, °C	R, kΩ	T, °C	R, kΩ
-60	1134.5	15	12.44
-55	762.4	20	10.00
-50	521.6	25	8.09
-45	362.8	25	8.09
-40	256.3	30	6.60
-35	183.8	35	5.41
-30	133.6	40	4.47
-25	98.3	45	3.71
-20	73.3	50	3.10
-15	55.2	55	2.61
-10	42.1	60	2.20
-5	32.4	65	1.87
0	25.2	70	1.59
5	19.7	75	1.37
10	15.6	80	1.18



Infrared detection modules PDMxx

Type	PDM34	PDM38	PDM42	PDM47	PDM55
Photodiode	PD34Sr	PD38Sr	PD42Sr	PD47Sr	PD55Sr
Peak wavelength, μm	3.4	3.8	4.2	4.7	5.3
Photosensitive area, mm/Field of view, deg.	∅ 3.2 / ~15				
Current/voltage conversion coefficient, V/A	2.5E5				
U_{rms}, mV	10÷20				
Maximum output voltage, V	4				
External power supply, V	+/- 5				
Frequency response, MHz	DC ÷ 1				
Thermistor	TB04-103, Resistance 10 kOhm at 20 °C				

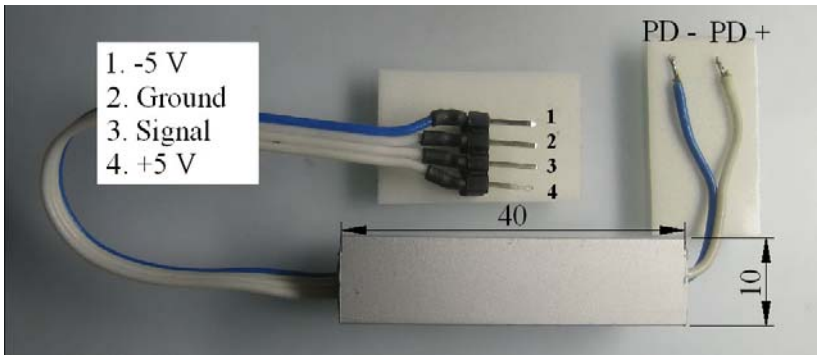
Amplifier for MW IR photodiodes Ampxx

Frequency response, MHz	DC÷1	Current/voltage conversion coefficient, V/A	2.5E5
U_{rms}, mV	10÷20		
Maximum output voltage, V	0÷4	External power supply, V	+/- 5

Product view

PDMxx

Ampxx

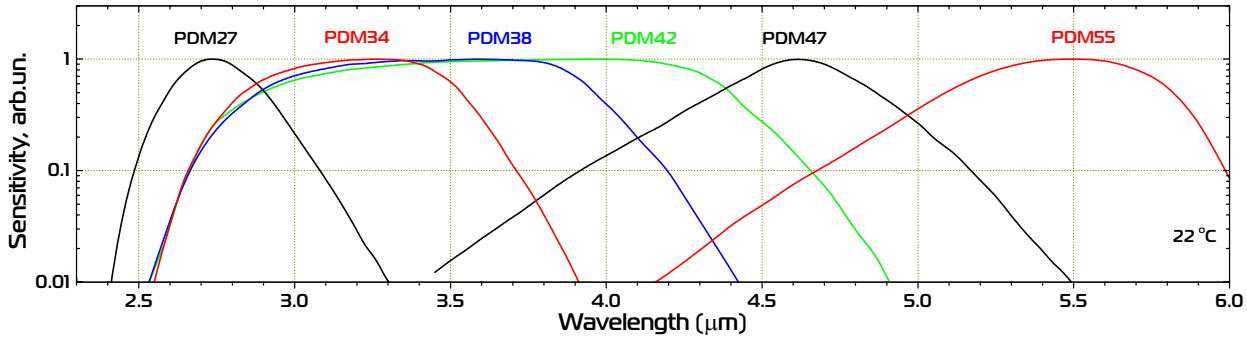


Features

Compact size; Uncooled detector; Easy to use; Operation from DC to HF; Highest long term stability

PDMxx are the infrared detection modules using an immersion photodiode, thermosensor and a transimpedance amplifier integrated into a compact case. PDMxx are dedicated to high speed and DC infrared measurements. Each amplifier is carefully optimized to work with particular type of photodiode.

Spectral response



Product specifications are subject to change without prior notice due to improvements or other reasons. Updated 5.04.13

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