

Uncooled 4.1  $\mu\text{m}$  FSI Photodiode

PD41FS

TE cooled 4.1  $\mu\text{m}$  FSI Photodiode

PD41FS TO39TEC

Uncooled 4.1  $\mu\text{m}$  FSI Photodiode with microimmersion lens

PD41FSmIL

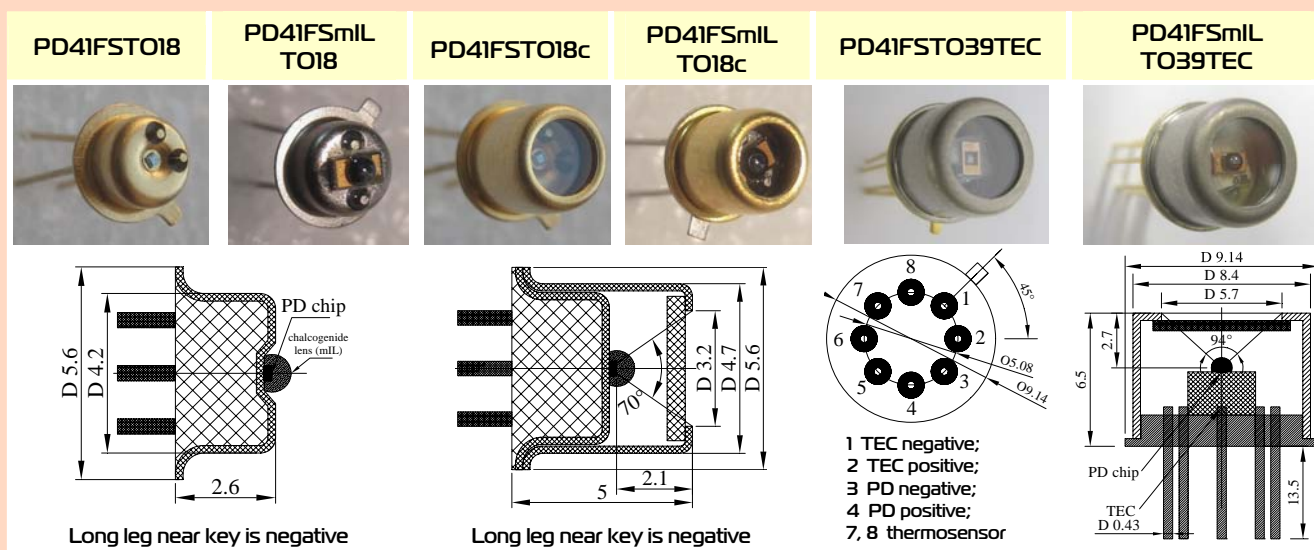
TE cooled 4.1  $\mu\text{m}$  FSI Photodiode with microimmersion lens

PD41FSmIL TO39TEC

Peak wavelength	$\lambda_{\text{max}}$	$\mu\text{m}$	4.15 $\pm$ 0.05	@22 °C
Immersion lens			No	mIL
Current sensitivity	$S_i$	A/W	$\geq 1$ <sup>[1]</sup>	$\geq 1$
Shunt Resistance	$R_0$	Ohm	$\geq 40$	$\geq 40$
Detectivity	$D^*_{\lambda_{\text{max}}}$	$\text{cmHz}^{1/2}\text{W}^{-1}$	$\geq 1.5 \times 10^9$	$\geq 3 \times 10^9$
Voltage sensitivity	$S_U$	V/W	$\geq 40$	$\geq 40$
Switching time	$\tau$	ns	$\leq 20$	$\leq 20$

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

Product view



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  $R_0$  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

<sup>1</sup> - process 6624

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



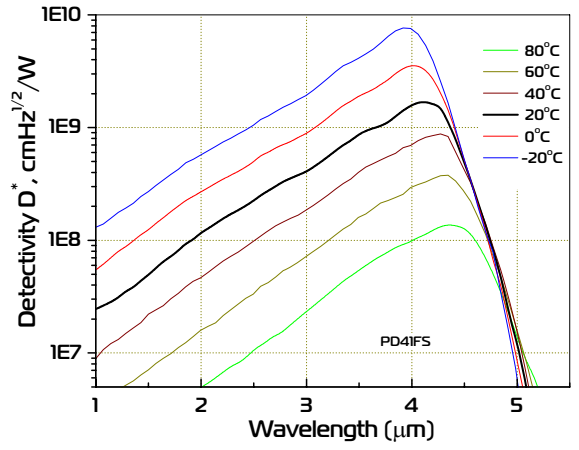
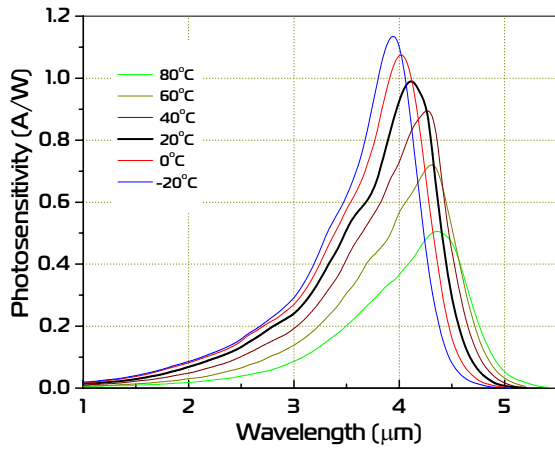
ООО «ИюффеЛЕД»  
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St.Petersburg, 194021, RUSSIA

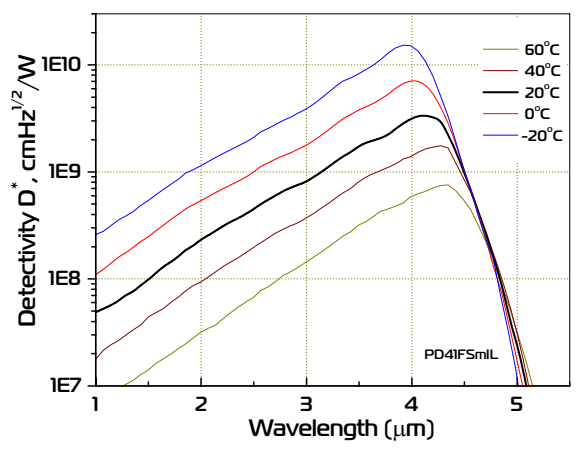
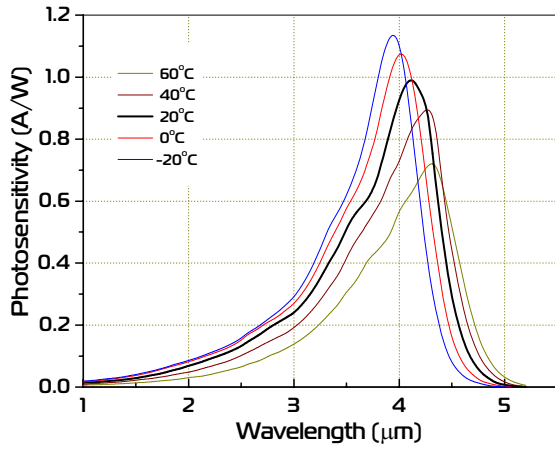
<http://www.ioffeled.com>; e-mail: Mremenny@mail.ioffe.ru  
<http://www.mirdog.spb.ru>; e-mail: bmat@iropt3.ioffe.ru

Spectral response

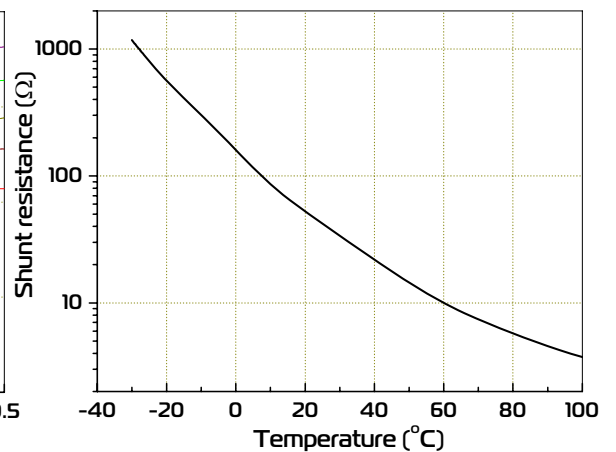
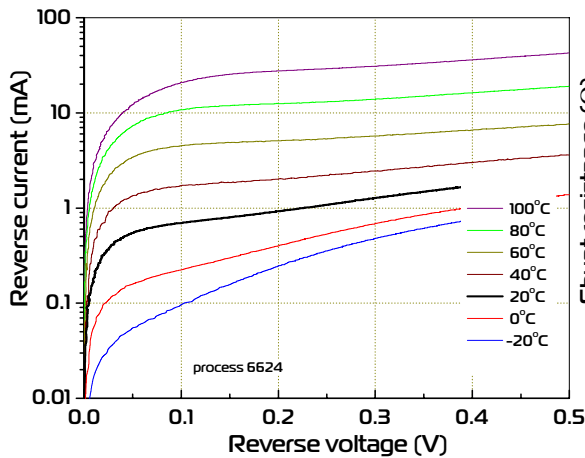
PD41FS



PD41FSmIL



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



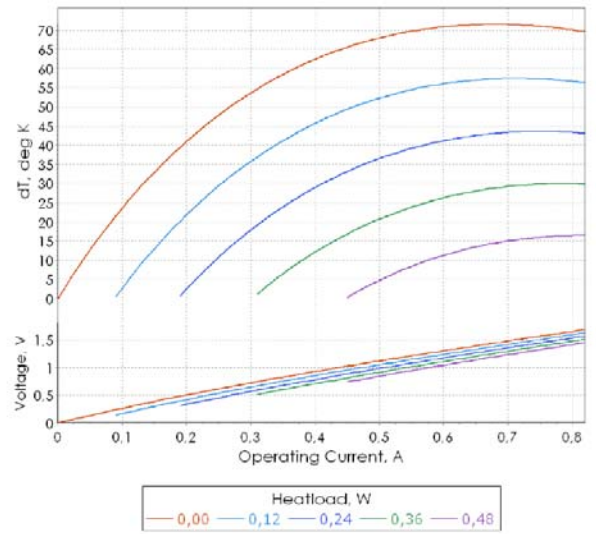
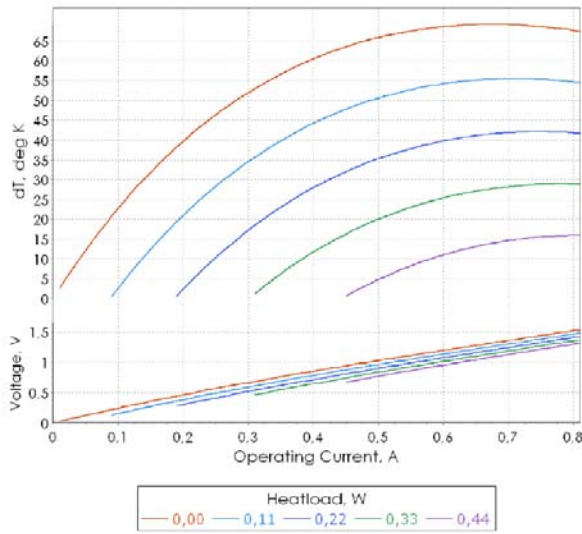
**Mounted TEC**

@ 27 °C, Vacuum

@ 50 °C, N2

1MD04-011/10

$\Delta T_{max}$ , K	$Q_{max}$ , W	$I_{max}$ , A	$U_{max}$ , V	$\Delta T_{max}$ , 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

**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

