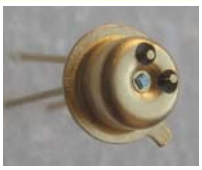
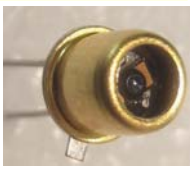
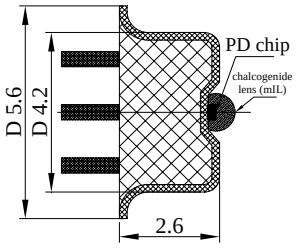
Uncooled 5.2 μm FSI Photodiode — PD52FS
TE cooled 5.2 μm FSI Photodiode — PD52FS TO39TEC
Uncooled 5.2 μm FSI Photodiode with microimmersion lens — PD52FSmIL
TE cooled 5.2 μm FSI Photodiode with microimmersion lens — PD52FSmIL TO39TEC

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	$D^*_{\lambda max}$	$cmHz^{1/2}W^{-1}$	$\geq 1\times10^8$	$\geq 2\times10^8$
Voltage sensitivity	S_U	V/W	≥0.45	≥0.45
Switching time	τ	ns	≤50 [2]	≤50

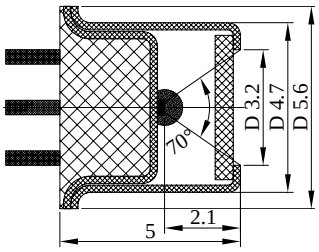
Code	Sensitive area, mm	Weight, g	Optical components	Field of view, deg.	Optical axis deviation, deg.	Detectivity deviation in lot, %	Operation conditions, °C
PD52FSTO18	0.35×0.35	~0.2	-	~140	-	±25	-60÷+85
PD52FSTO18c		~0.3	sapphire window	~65			
PD52FSTO39TEC		~1.2	sapphire window	~90			
PD52FSmILTO18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

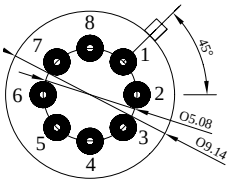
PD52FSTO18	PD52FSmIL TO18	PD52FSTO18c	PD52FSmIL TO18c	PD52FSTO39TEC	PD52FSmIL TO39TEC
					



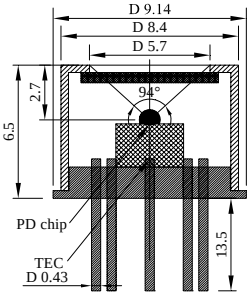
Long leg near key is negative



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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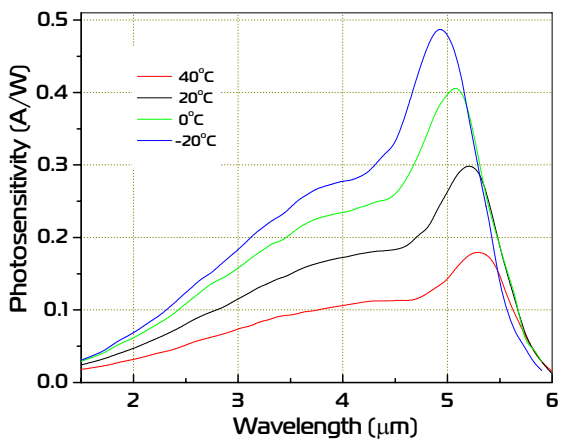
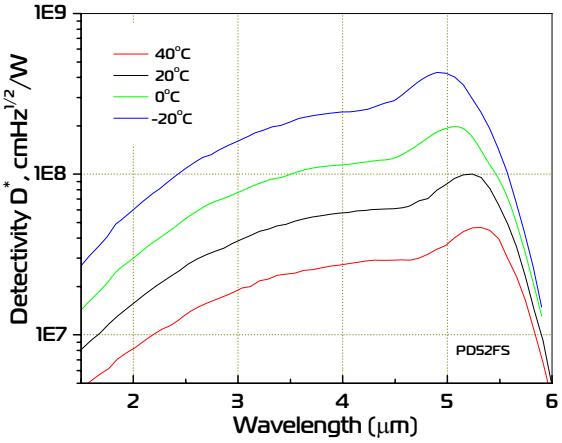
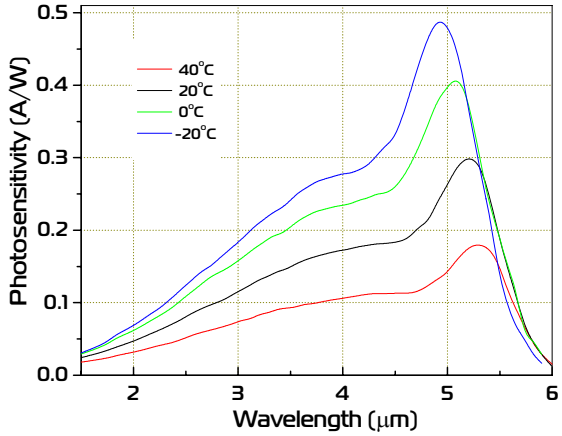
Spectral response

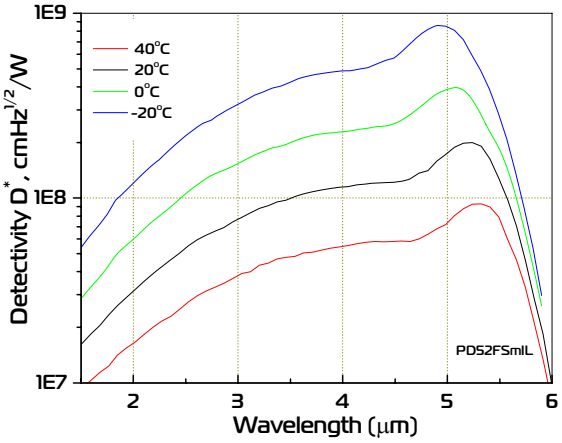
PD52FS



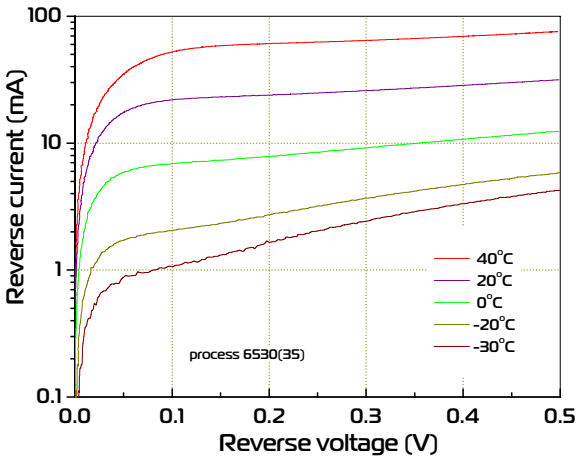


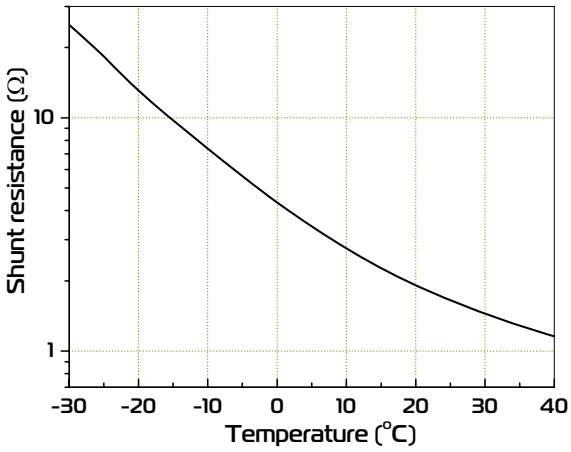
PD52FSmIL





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





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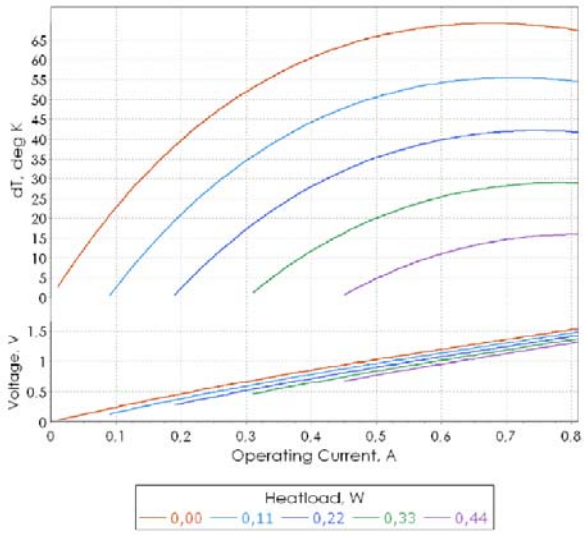
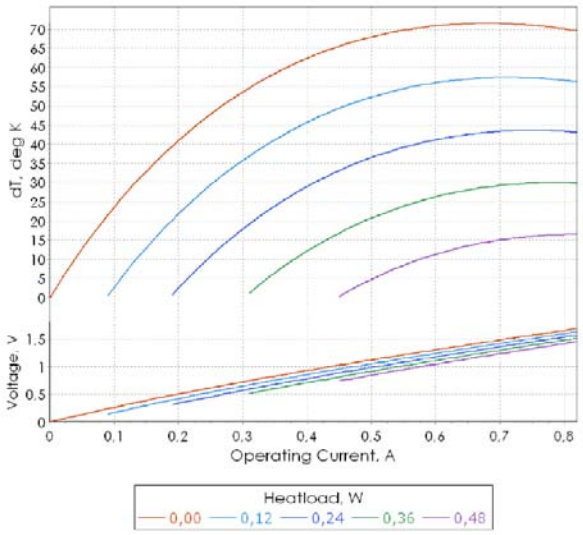
Thermoelectric cooling module datasheet

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



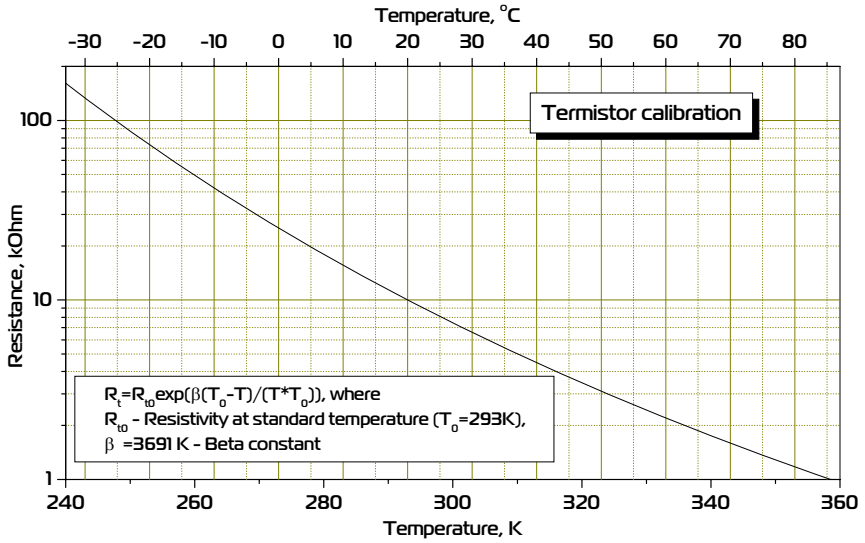


Data from www.tec-microsystems.com; www.rmtltd.ru

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



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