

9-elements (3x3) Photodiode Arrays with TE cooling

**PD42NB (WB) 3x3**

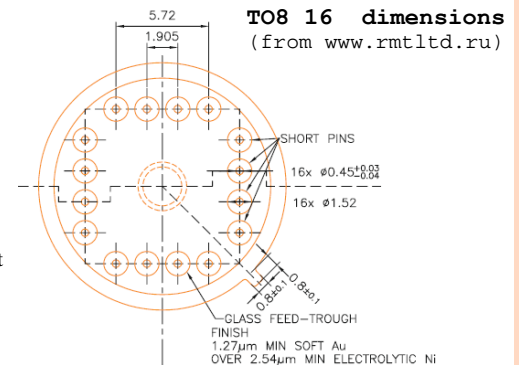
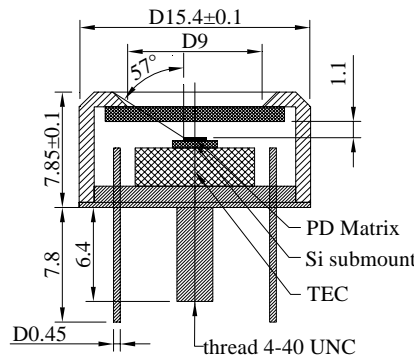
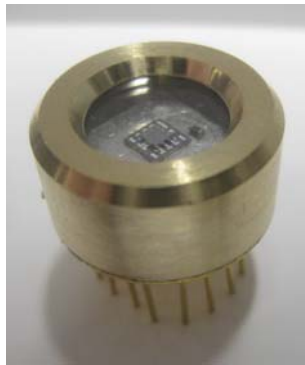
4-elements (2x2) Photodiode Arrays with TE cooling

**PD42NB (WB) 2x2**

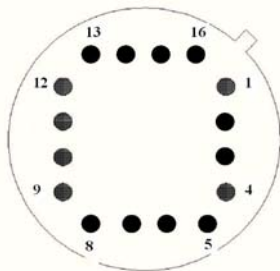
Peak wavelength	$\lambda_{max}$	$\mu m$	$3.9 \pm 0.1$	
Current sensitivity	$S_I$	A/W	$\geq 2.5$	<sup>1</sup>
Shunt Resistance	$R_0$	Ohm	$20 \pm 5$	
Detectivity	$D^*_{\lambda_{max}}$	$cmHz^{1/2}W^{-1}$	$\geq 2.4 \times 10^9$	
Switching time	$\tau$	ns	$\leq 20$	<sup>2</sup>

Code	Sensitive area, mm <sup>2</sup>	Weight, g	Optical components	Field of view, deg.	Detectivity deviation in lot, %	Operation conditions, °C
PD42NB 3x3	9x(0.32x0.32)	~6.5	output sapphire window D=9 mm	~110	±12	-60÷+85
PD42NB 2x2	4x(0.32x0.32)					

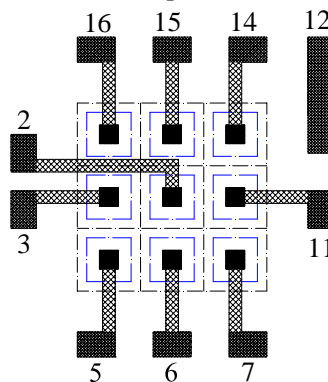
Product view



TO8 16 pin numeration (view from bottom side):



Pixel - pin correspondence



Pin assignment

- |                |                                 |
|----------------|---------------------------------|
| 1 TEC negative | 9 thermoresistor                |
| 2 PD +         | 10 thermoresistor               |
| 3 PD +         | 11 PD +                         |
| 4 TEC positive | 12 PD common negative electrode |
| 5 PD +         | 13 free                         |
| 6 PD +         | 14 PD +                         |
| 7 PD +         | 15 PD +                         |
| 8 free         | 16 PD +                         |

Features

- Original growth of narrow gap A3B5 semiconductor alloys onto n<sup>+</sup>-InAs substrate;
- Deep mesa chip and backside illuminated design;
- Individually addressable PD elements with common cathode;
- Ambient and high temperature operation;
- No bias required;
- Operation from DC to VHF;
- Highest long term stability;
- High value of shunt resistance;
- Narrow (NB) or wide (WB) spectral band;

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> - according to p-n junction area calculation  
<sup>2</sup> - according to estimation

Product specifications are subject to change without prior notice due to improvements or other reasons. Updated 03.05.2014

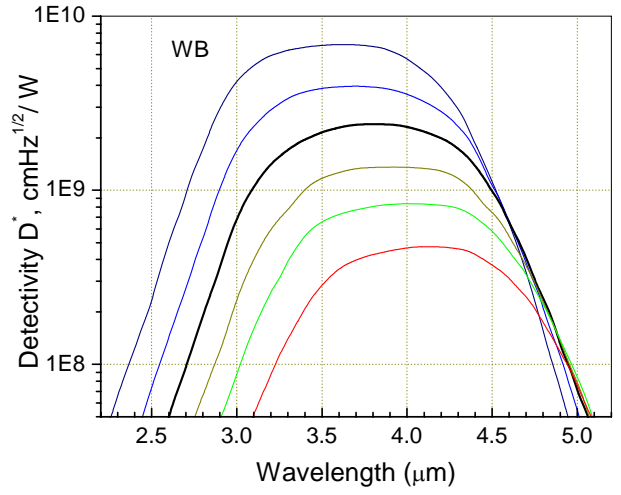
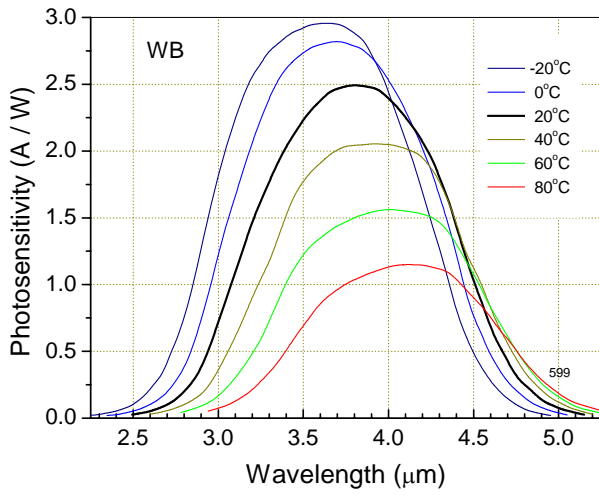


ООО «ИоффеЛЕД»  
**IoFFELED, Ltd**

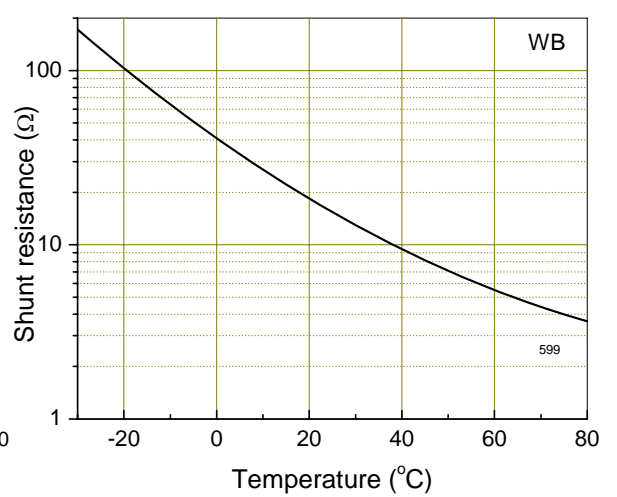
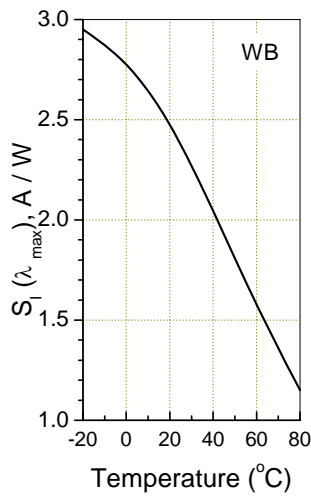
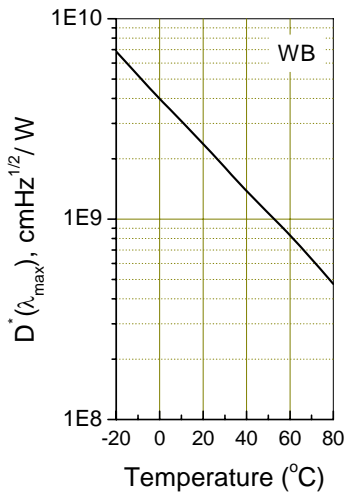
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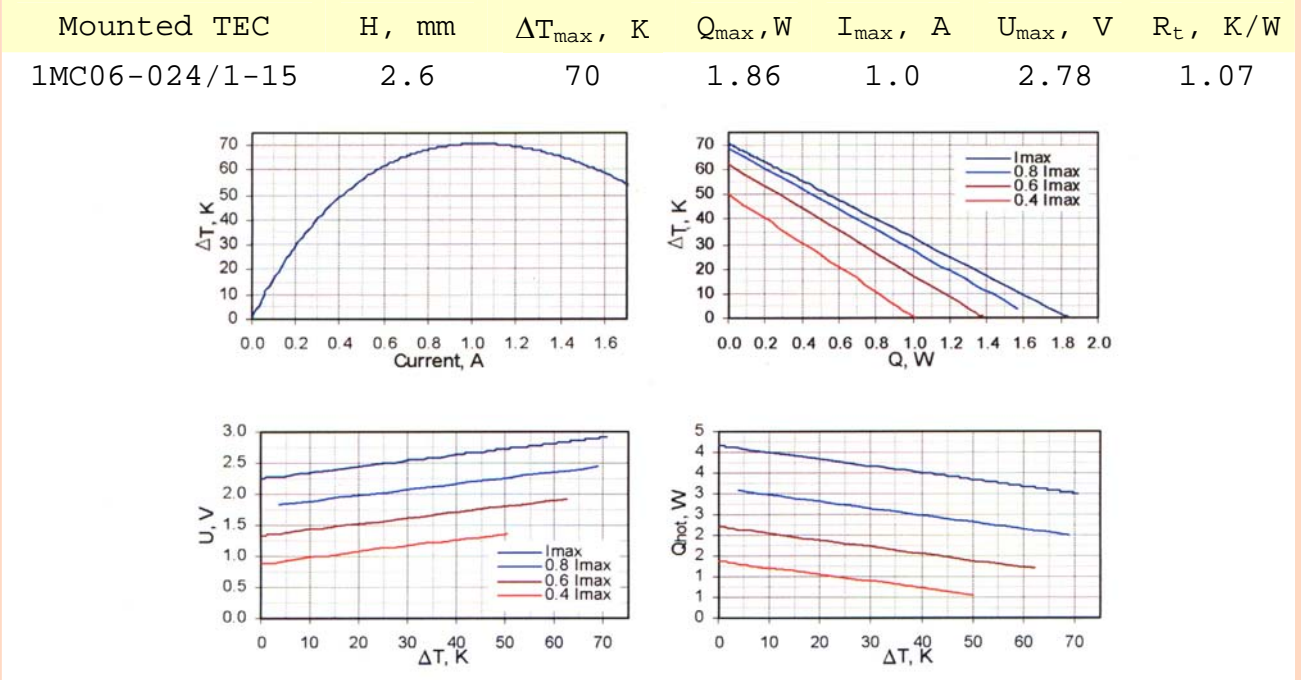
Spectral response



Detectivity, current sensitivity at  $\lambda_{\text{max}}$  and shunt resistance vs. temperature



Thermoelectric cooling module datasheet



Data for  $T_{hot}=300 K$ , from [www.tec-microsystems.com](http://www.tec-microsystems.com); [www.rmtltd.ru](http://www.rmtltd.ru)

Thermistor specification

