

## Optically Immersed 5.5 $\mu\text{m}$ LED in heatsink optimized housing

LED55 Sr/Su/Cy

## TE cooled Optically Immersed 5.5 $\mu\text{m}$ LED

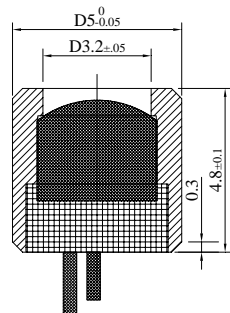
LED55TO8TEC

Peak wavelength	$\mu\text{m}$	5.5 $\div$ 5.6		
		LED55Sr/Su/Cy	LED55TO8TEC	
Pulse power	$\mu\text{W}$	Drive current 1 A, 0.02 duty cycle	5 $\div$ 7	4 $\div$ 5.6
Quasi-CW power	$\mu\text{W}$	Drive current 0.3 A, 0.5 duty cycle	2.2 $\div$ 2.7	1.8 $\div$ 2.2
CW power	$\mu\text{W}$	Drive current 0.2 A	1.5 $\div$ 1.8	1.2 $\div$ 1.4
Cut-off frequency	MHz		50	<sup>1</sup>

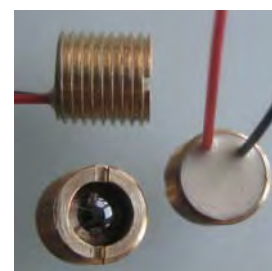
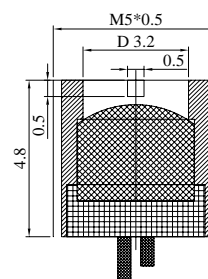
Code	Emission size, mm	Weight, g	Optical components	Far-field pattern FWHM, deg.	Optical axis deviation, deg.	Optical power deviation in lot, %	Operation conditions, $^{\circ}\text{C}$	Lifetime, hrs
LED55 Sr/Su/Cy	$\varnothing 3.2$	$\sim 0.4$	Si lens	$\sim 15$	$\leq 5$	$\pm 25$	-60 $\div$ +85	>100 000
LED55 TO8TEC		$\sim 10$	Si lens and output sapphire window D=6mm					

### Product view

LED55Cy

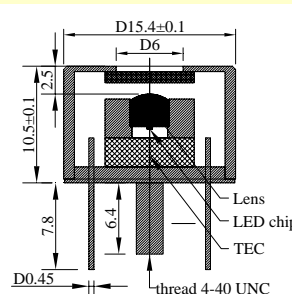
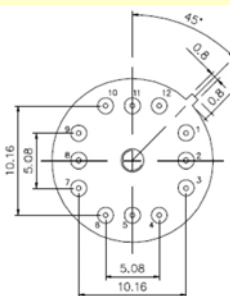


LED55Sr



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

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



Pin assignment  
LED55TO8TEC12

- 1 TEC negative;
- 3 TEC positive;
- 4 LED negative;
- 6 LED positive;
- 7, 9 thermosensor;
- 11  $\perp$  (House)

### Features

- Original growth of narrow gap semiconductor alloys onto n<sup>-</sup>-InAs substrate;
- Flip-chip design of LEDs;
- Optical coupling through the use of chalcogenide glasses and Si lenses with antireflection coating
- 3-fold increased LED output power;
- Beam collimation;
- Small on-off time (tenths of ns);
- Low power consumption ( $\leq 0.1\text{ W}$ )

Emission beam divergence is small and thus we recommend adjusting LED position regarding to the detector system before final evaluation/use of the devices. We recommend if possible using low duty cycle mode of operation with  $I < 0.5 \times I_{\text{max}}$  so that higher efficiency and long term stability of a LED are achieved. Data are valid for LED attached to a heatsink and thermostabilized at 22 $^{\circ}\text{C}$ . Heatsink is essential for TEC operation!

### Notes

<sup>1</sup> - according to estimation

Product specifications are subject to change without prior notice due to improvements or other reasons. Updated 20.01.15

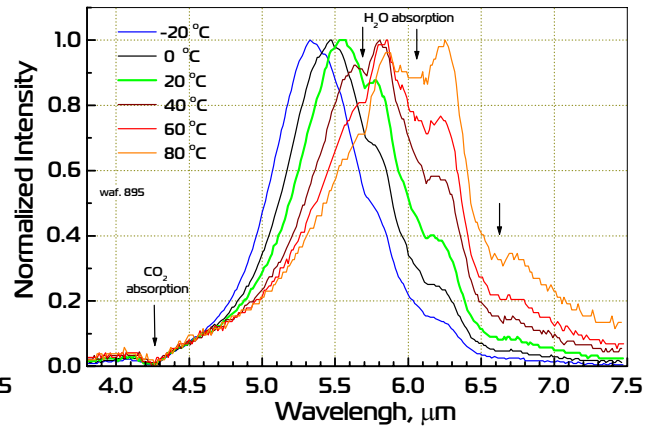
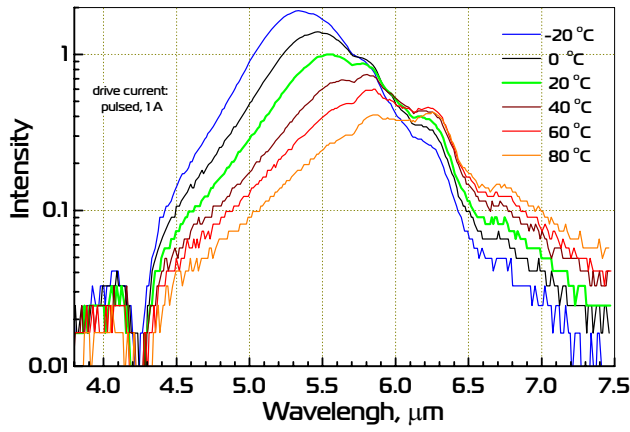


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IoffeLED, Ltd

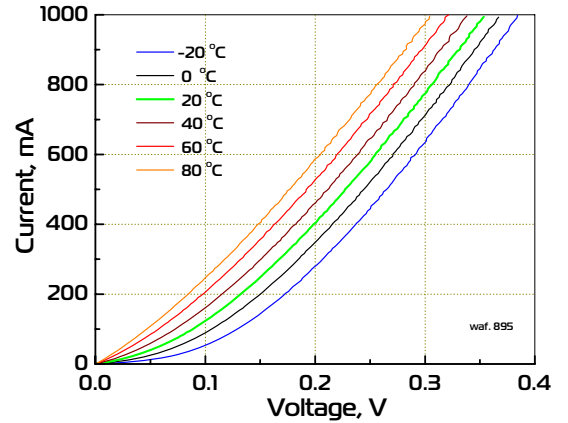
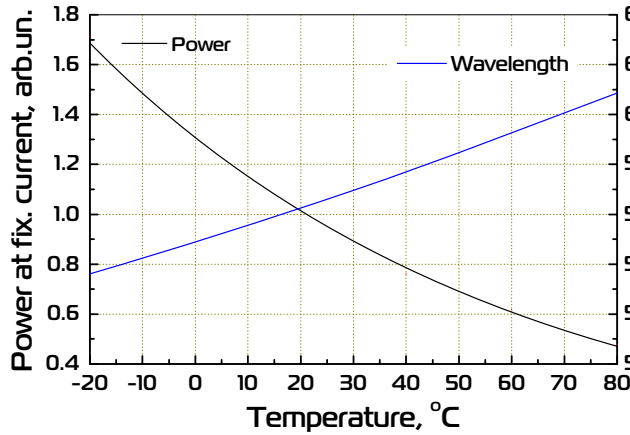
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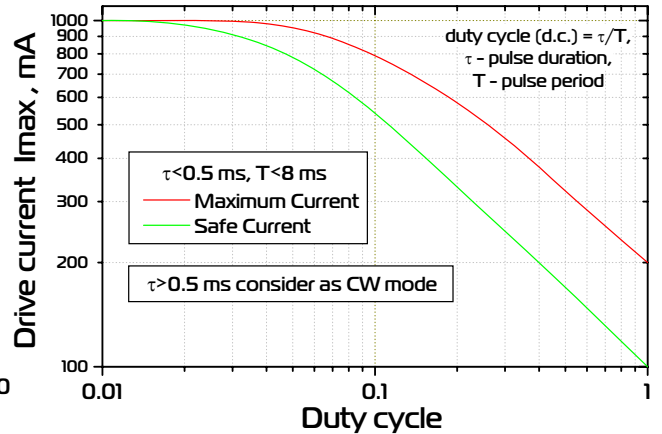
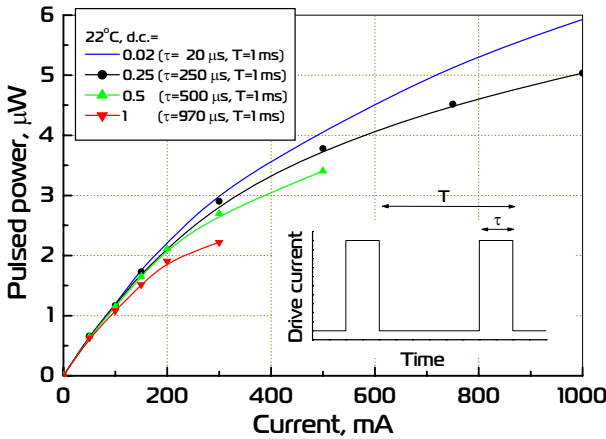
Emission spectra



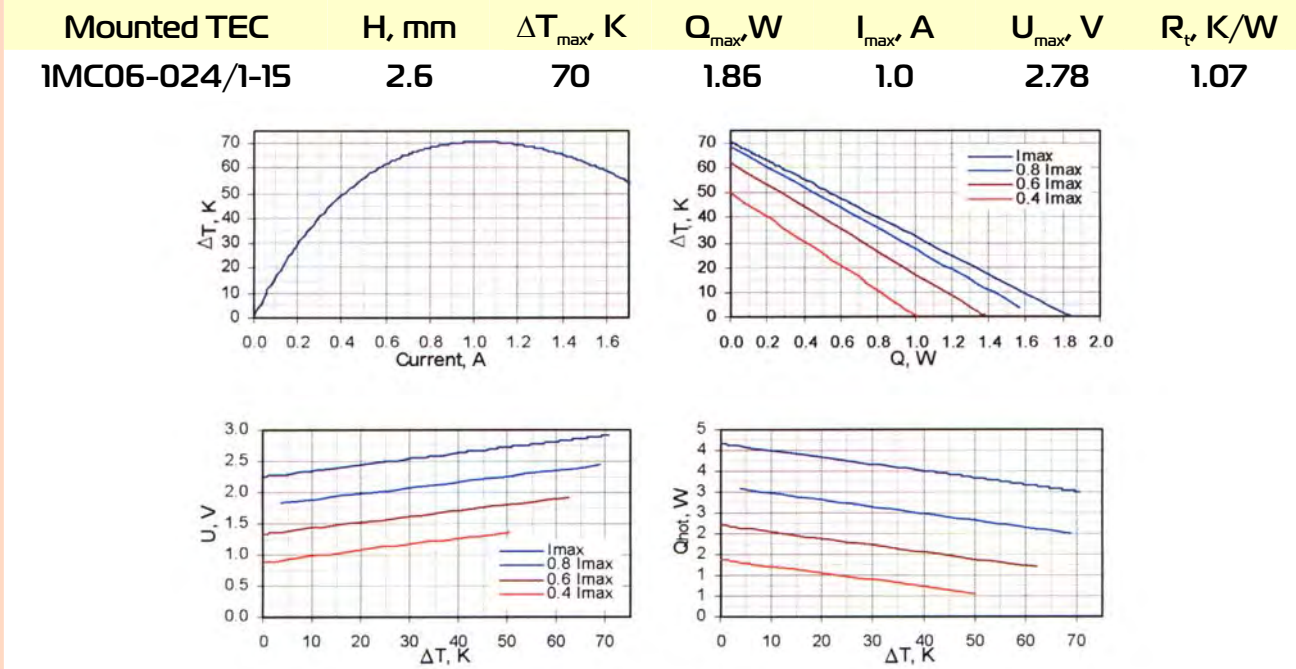
Power and peak wavelength vs. temperature; I - V curves



Output power and drive current vs operation conditions

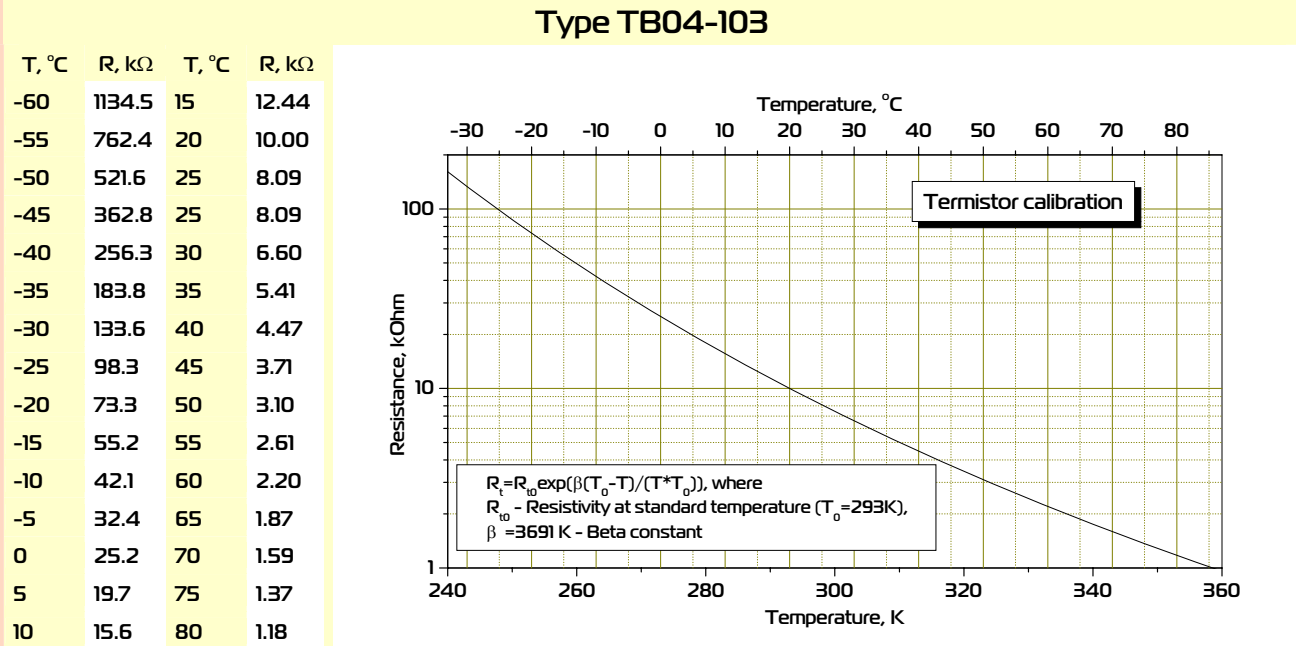


Thermoelectric cooling module datasheet



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

Thermistor specification



Possible TEC heatsink view

