

3.8  $\mu\text{m}$  LED with microimmersion lens

LED38mIL

TE cooled 3.8  $\mu\text{m}$  LED with microimmersion lens

LED38mILTEC

3.8  $\mu\text{m}$  LED with parabolic reflector

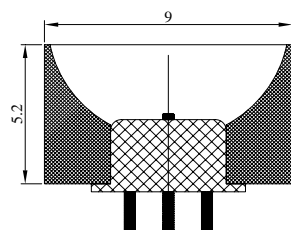
LED38PR

Peak wavelength	$\mu\text{m}$	3.75 $\div$ 3.85		@22 °C
Immersion lens/Reflector			PR	mIL
Pulse power	$\mu\text{W}$	Drive current 1 A, 0.02 duty cycle	80 $\div$ 100	160 $\div$ 200
Quasi-CW power	$\mu\text{W}$	Drive current 0.3 A, 0.5 duty cycle	40 $\div$ 50	80 $\div$ 100
CW power	$\mu\text{W}$	Drive current 0.2 A	30 $\div$ 40	60 $\div$ 80
Cut-off frequency	MHz	50 (according to estimation)		

Code	Emission size, mm	Weight, g	Optical components	Far-field pattern FWHM, deg.	Optical power deviation in lot, %	Operation conditions, °C	Lifetime, hrs
LED38mIL TO18	$\varnothing$ 1.0	~0.3	chalcogenide lens				
LED38mIL TO18c	$\varnothing$ 1.0	~0.3	sapphire window, chalcogenide lens	~35		-60 $\div$ +60	
LED38mIL TO39TEC	$\varnothing$ 1.0	~1.2	sapphire window, chalcogenide lens		$\pm$ 25		>100 000
LED38PR TO18	0.35 $\times$ 0.35	~1	Metal or plastic parabolic or cone-shaped reflector				
LED38BS TO18	0.35 $\times$ 0.35	~0.3		~140		-60 $\div$ +85	
LED38BS TO18c	0.35 $\times$ 0.35	~0.3	sapphire window	~60			

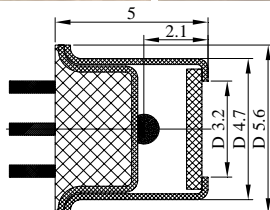
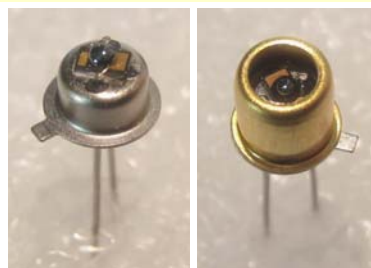
Product view

LED38BS TO18, LED38PR TO18



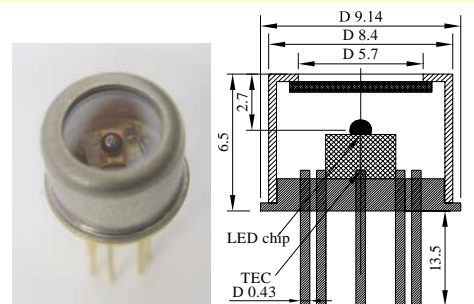
Leg near key is negative

LED38mIL TO18, LED38mIL TO18c

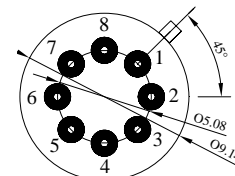


Leg near key is negative

LED38mIL TO39TEC



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



Features

- Original growth of narrow gap semiconductor alloys onto n<sup>-</sup>-InAs substrate;
- Flip-chip (or emission output through n<sup>-</sup>-InAs substrate) design of LEDs;
- Optical coupling through the use of chalcogenide glasses (LED with microimmersion lens)
- 2-fold increased LED output power (with mIL);
- Beam collimation (with mIL or reflector);
- Small on-off time (tenths of ns);
- Low power consumption ( $\leq$ 0.1 W);
- Highest brightness (for BS option)

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°C. Heatsink is essential for TEC operation!

Product specifications are subject to change without prior notice due to improvements or other reasons. Updated 07.12.14

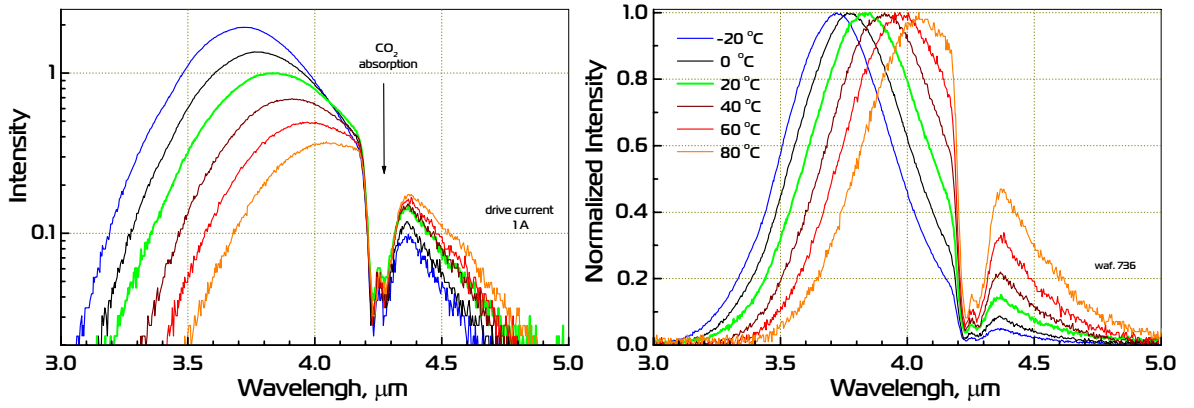


ООО «ИюффеЛЕД»  
IoffeLED, Ltd

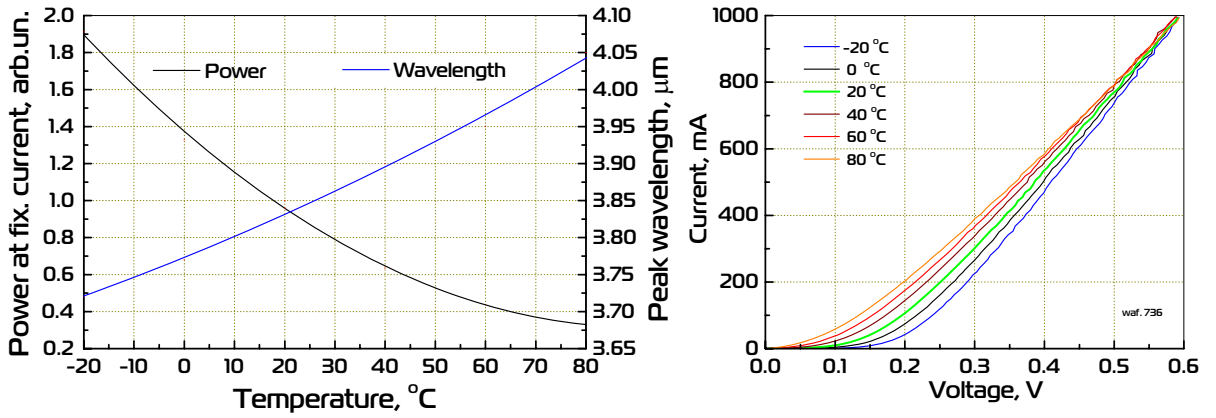
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<http://www.ioffeled.com>; e-mail: Mremenny@mail.ioffe.ru  
<http://www.mirdog.spb.ru>; e-mail: bmat@iropt3.ioffe.ru

Emission spectra

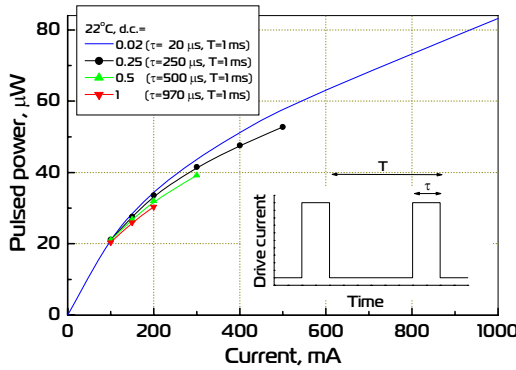


Power and peak wavelength vs. temperature; I - V curve

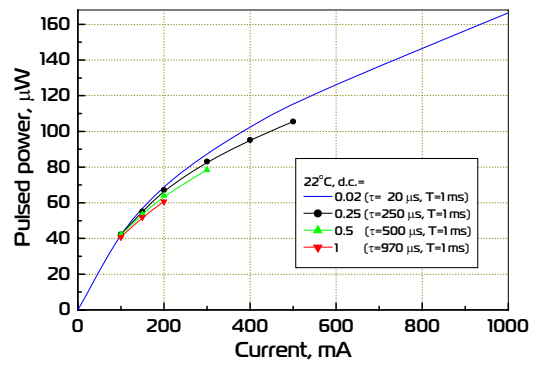


Power and peak wavelength vs. temperature; I - V curve

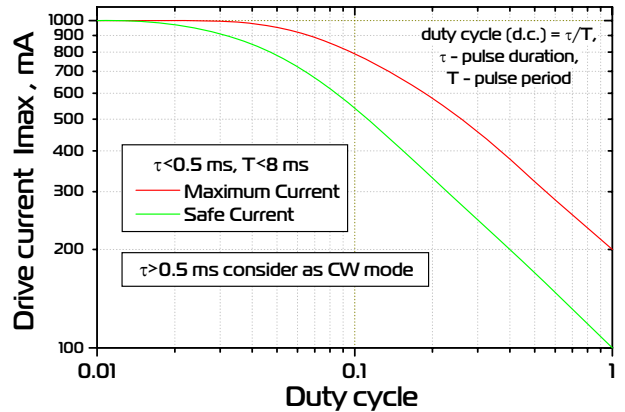
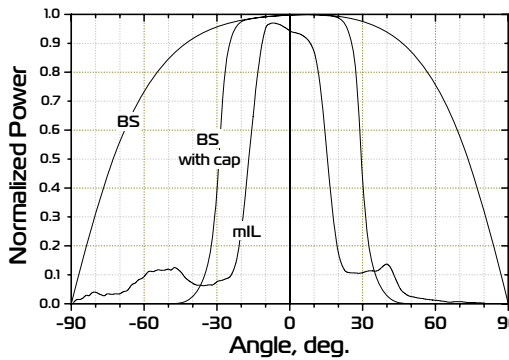
LED38BS, LED38PR



LED38mIL



Far-field characterization; drive current vs operation conditions



## Mounted TEC

@ 27 °C, Vacuum

@ 50 °C, N2

1MDO4-011/10

 $\Delta T_{max}$ , 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

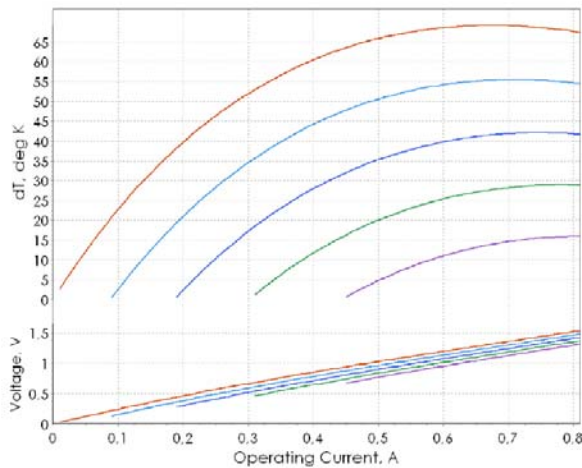
1.3

72

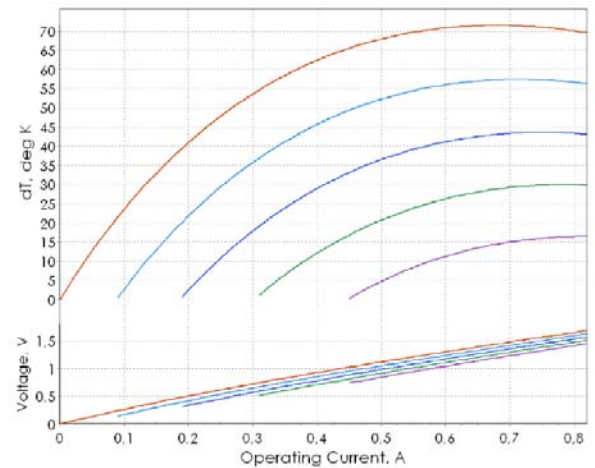
0.6

0.7

1.4



Heatload, W  
 — 0,00 — 0,11 — 0,22 — 0,33 — 0,44



Heatload, W  
 — 0,00 — 0,12 — 0,24 — 0,36 — 0,48

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

