

2.9 μm LED with microimmersion lens

LED29mIL

TE cooled 2.9 μm LED with microimmersion lens

LED29mILTEC

2.9 μm LED with parabolic reflector

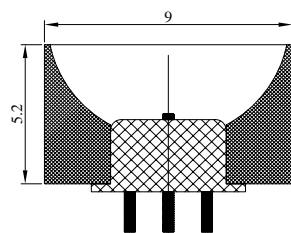
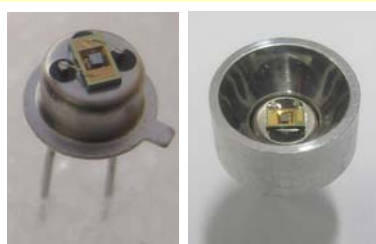
LED29PR

Peak wavelength	μm	2.9÷2.95		@22 °C
Immersion lens/Reflector			PR	mIL
Pulse power	μW	Drive current 1 A, 0.02 duty cycle	30÷35	60÷70
Quasi-CW power	μW	Drive current 0.3 A, 0.5 duty cycle	14÷16	28÷32
CW power	μW	Drive current 0.2 A	10÷12	20÷24
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
LED29mIL TO18	$\varnothing 1.0$	~0.3	chalcogenide lens				
LED29mIL TO18c	$\varnothing 1.0$	~0.3	sapphire window, chalcogenide lens	~35		-60÷+60	
LED29mIL TO39TEC	$\varnothing 1.0$	~1.2	sapphire window, chalcogenide lens		±25		>100 000
LED29PR TO18	0.35×0.35	~1	Metal or plastic parabolic or cone-shaped reflector				
LED29BS TO18	0.35×0.35	~0.3		~140		-60÷+85	
LED29BS TO18c	0.35×0.35	~0.3	sapphire window	~60			

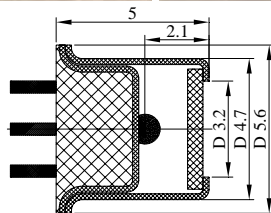
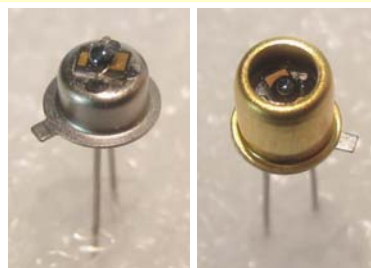
Product view

LED29BS TO18, LED29PR TO18



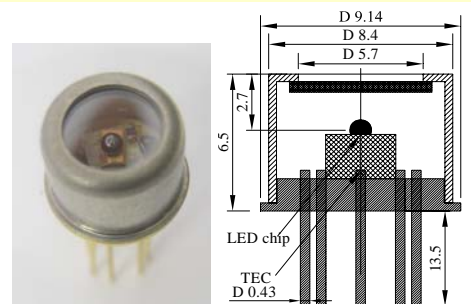
Leg near key is negative

LED29mIL TO18, LED29mIL TO18c

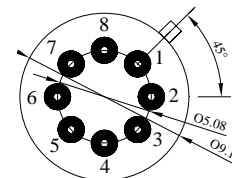


Leg near key is negative

LED29mIL 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^+ -InAs substrate;
- Flip-chip (or emission output through n^+ -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 (≤ 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

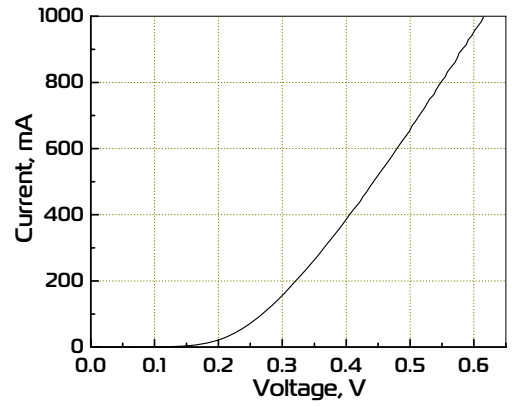
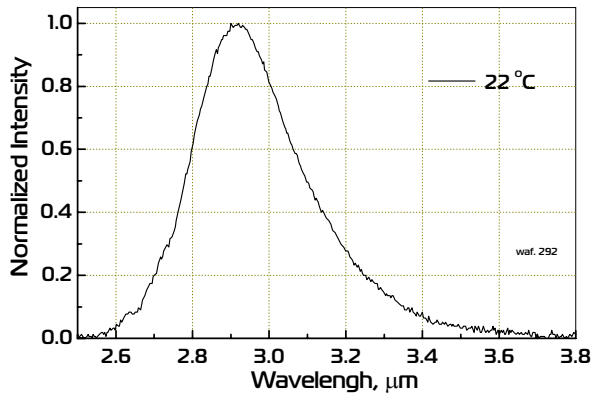


ООО «ИюффеЛЕД»
 IoffeLED, Ltd

Politechnicheskaya 26,
 St.Petersburg, 194021, RUSSIA

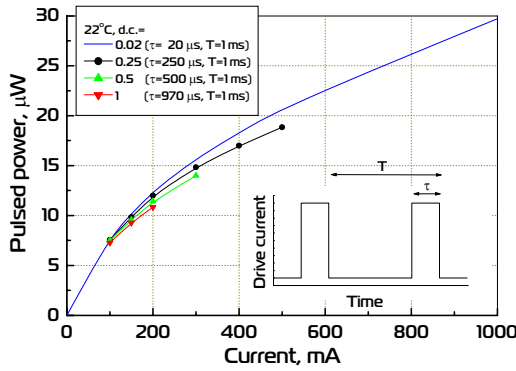
<http://www.ioffeled.com>; e-mail: Mremenny@mail.ioffe.ru
<http://www.mirdog.spb.ru>; e-mail: bmat@iropt3.ioffe.ru

Emission spectra and I - V curve

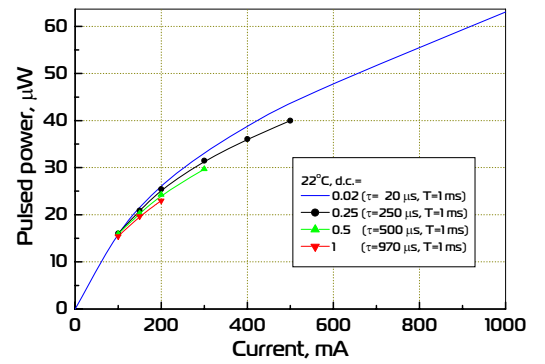


Power and peak wavelength vs. temperature; I - V curve

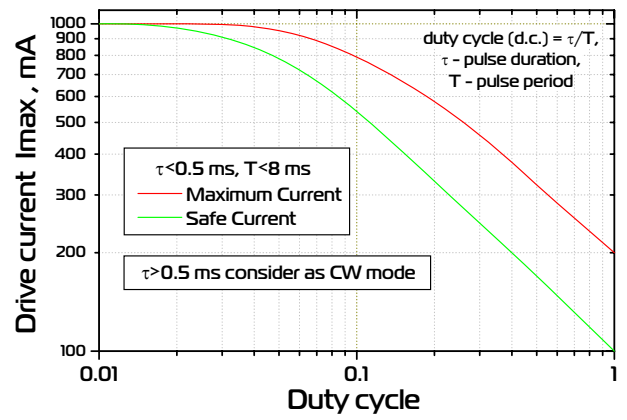
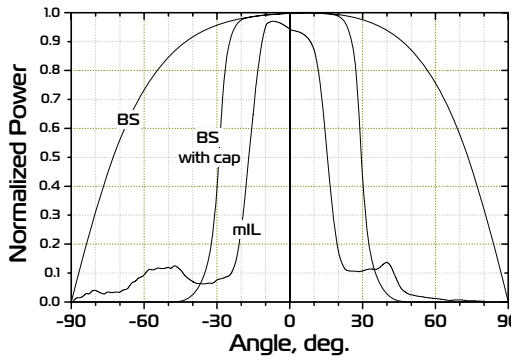
LED29BS, LED29PR



LED29mIL



Far-field characterization; drive current vs operation conditions



Mounted TEC

@ 27 °C, Vacuum

@ 50 °C, N2

1MDO4-011/10

ΔT_{max} , K
69

Q_{max} , W
0.54

I_{max} , A
0.7

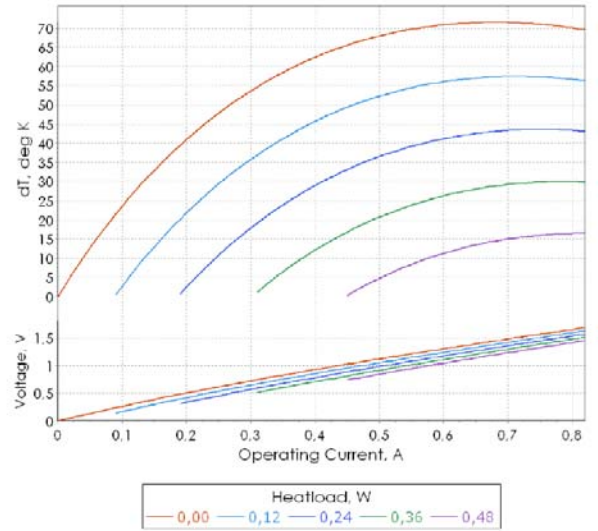
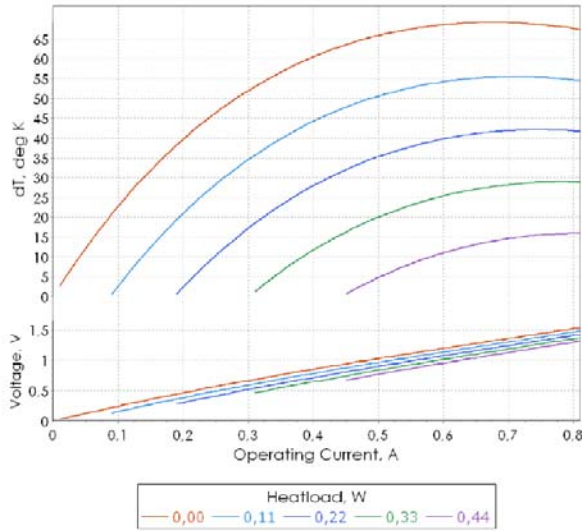
U_{max} , V
1.3

ΔT_{max} , K
72

Q_{max} , W
0.6

I_{max} , A
0.7

U_{max} , V
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

