3.4 μm LED with microimmersion lens — LED34mIL

TE cooled 3.4 μm LED with microimmersion lens — LED34mILTEC

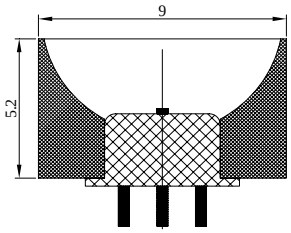
3.4 μm LED with parabolic reflector — LED34PR

Peak wavelength	μm		3.4±0.05	@22 °C
Immersion lens/Reflector			PR	mIL
Pulse power	mW	Drive current 1 A, 0.02 duty cycle	0.13÷0.16	0.25÷0.30
Quasi-CW power	mW	Drive current 0.3 A, 0.5 duty cycle	0.07÷0.08	0.14÷0.16
CW power	mW	Drive current 0.2 A	0.05÷0.07	0.10÷0.15
Cut-off frequency	MHz		50 [1]	

Code	Emission size, mm	Weight, g	Optical components	Far-field pattern FWHM, deg.	Optical axis deviation, deg.	Optical power deviation in lot, %	Operation conditions, °C	Lifetime, hrs
LED34mIL TO18c	∅1.0	~0.3	sapphire window, chalcogenide lens	≤35	≤5	±25	-60÷+60	>80 000
LED34mIL TO39TEC	∅1.0	~1.2	sapphire window, chalcogenide lens	≤35			-60÷+60	
LED34PR TO18	0.35×0.35	~1	Metal or plastic parabolic or cone-shaped reflector				-60÷+85	

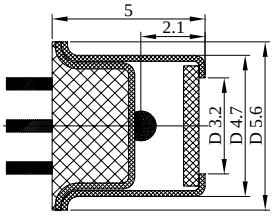
Product view

LED34PR TO18



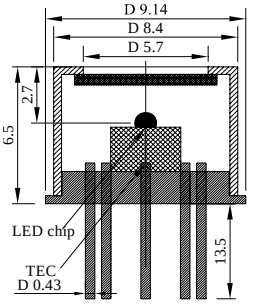
Leg near key is negative

LED34mIL TO18c

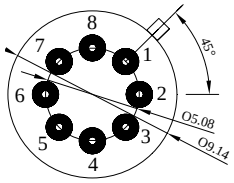


Leg near key is negative

LED34mIL 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;
- Small on-off time (tenths of ns);
- Low power consumption (≤0.1 W)

We recommend if possible using low duty cycle mode of operation with I<0.5×Imax 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!

Notes

[1] - according to estimation

Product specifications are subject to change without prior notice due to improvements or other reasons. Updated 17.05.13

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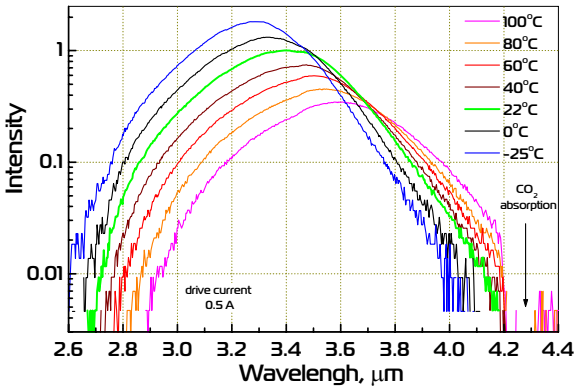
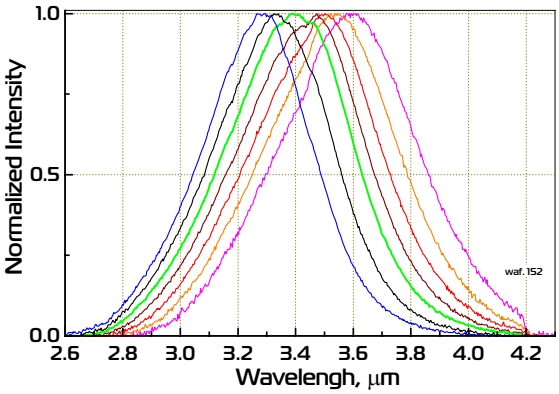
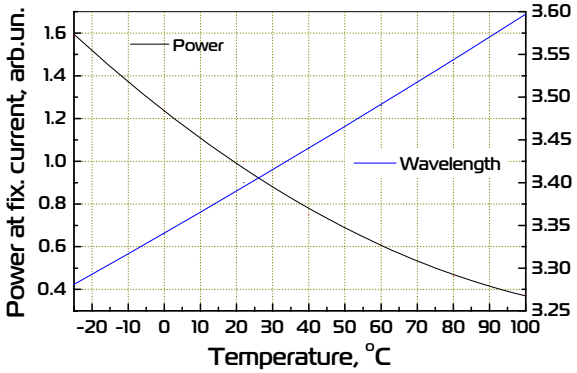
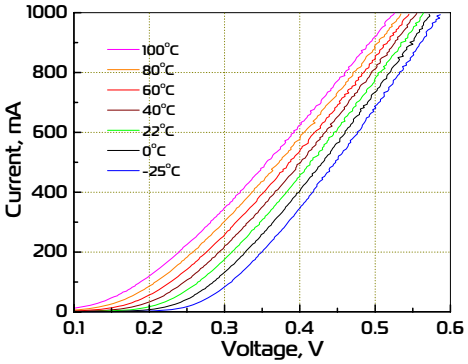
Emission spectra





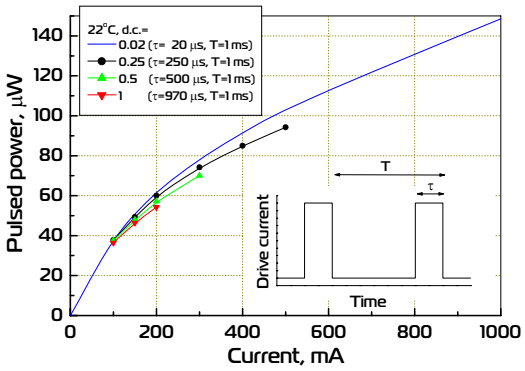
Power and peak wavelength vs. temperature; I – V curve



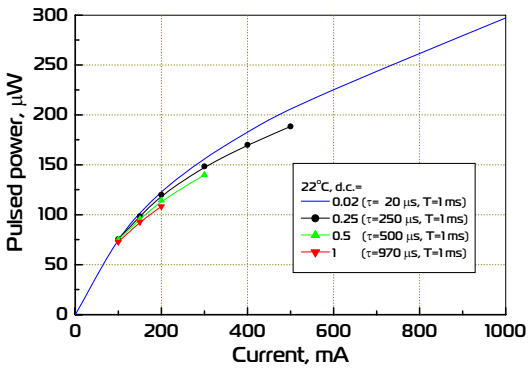


Power and peak wavelength vs. temperature; I – V curve

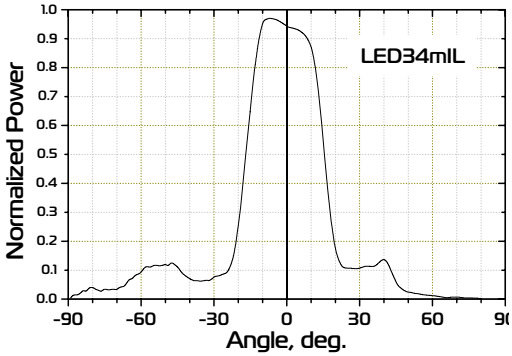
LED34PR

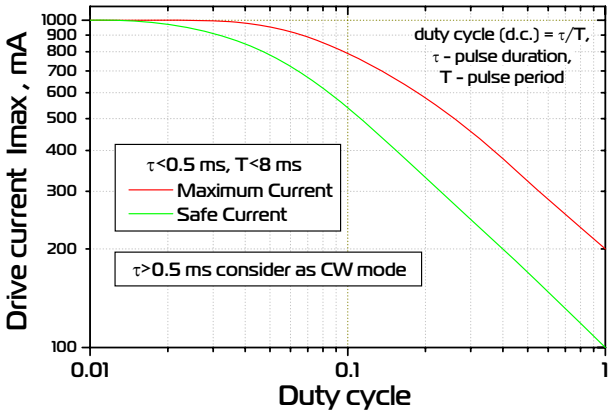


LED34mIL



Far-field characterization; drive current vs operation conditions





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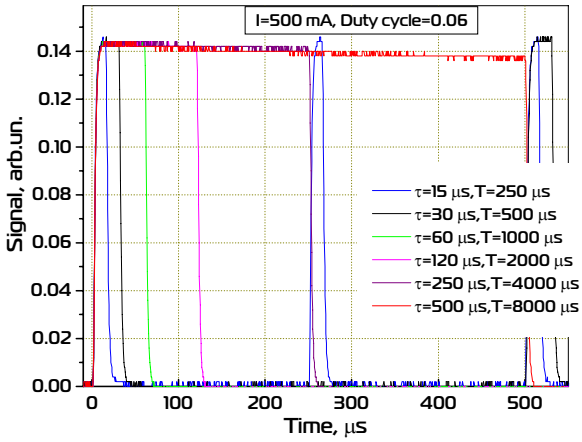
Time dependence of the output power for several values of d.c. and currents

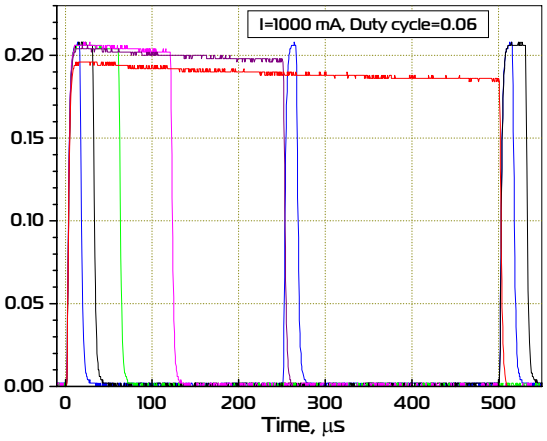
(LED attached to a heatsink at room temperature).

"Safe" operation mode

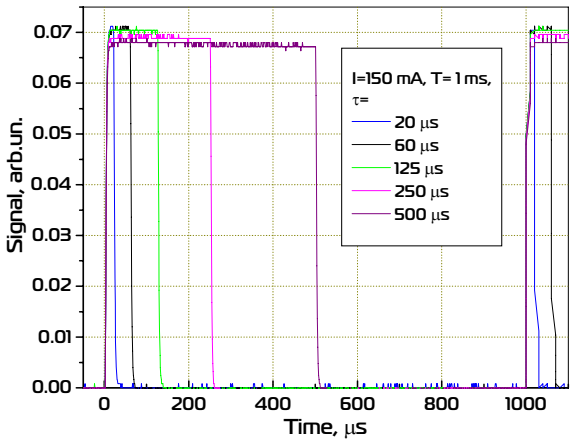
"Maximum current" operation mode

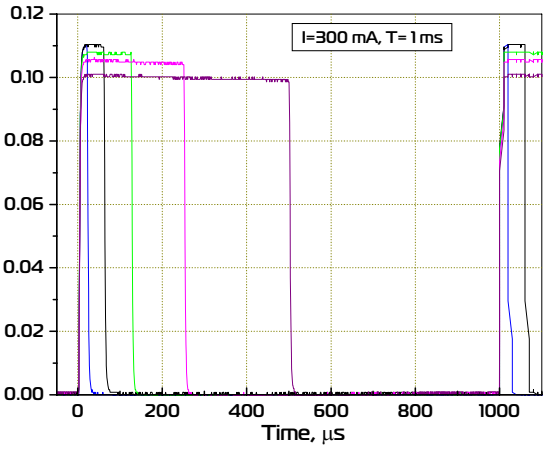
Pulse operation (d.c.=0.06)



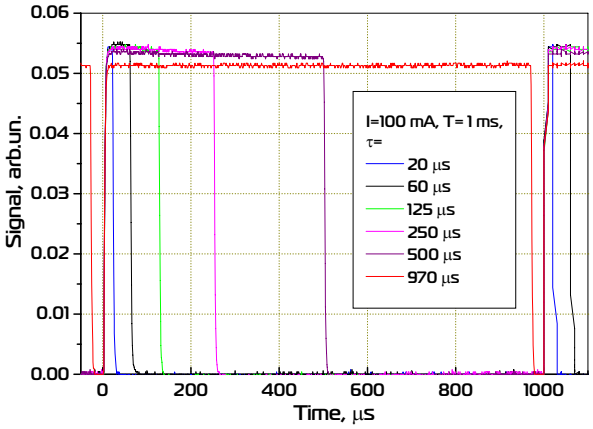


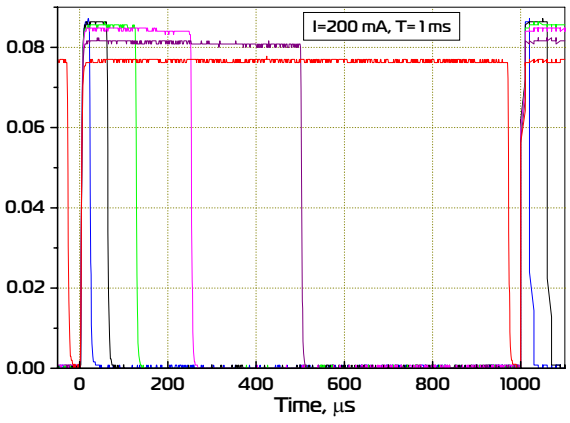
Quasi CW mode (d.c.=0.5)





CW mode (d.c.=1)





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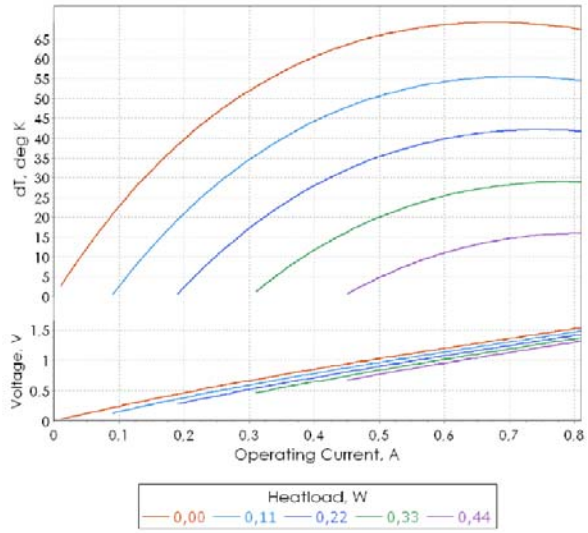
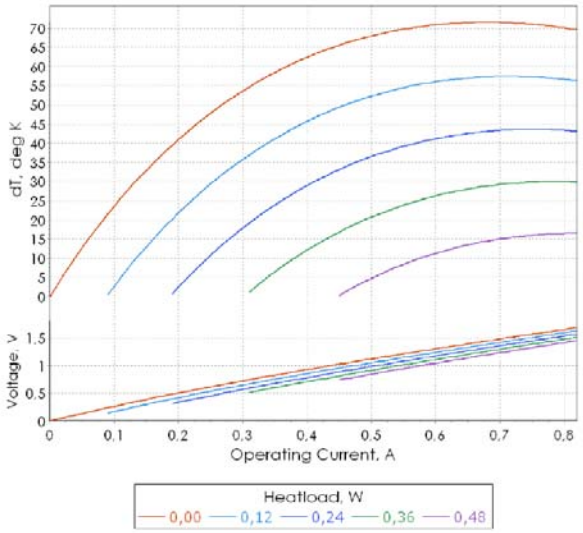
Thermoelectric cooling module datasheet

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