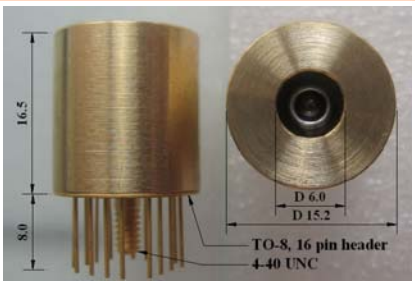
# TE cooled Optically Immersed 3.0 µm LED — LED30TO8TEC

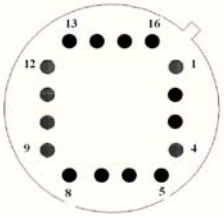
| | | | |
|---|---|---|---|
| Peak wavelength $\lambda_{max}$ | µm | | 2.9÷3.0 |
| Pulse power $P_{pulsed}$ | mW | Drive current 1 A, 2 % duty cycle | 0.25 |
| Quasi-CW power $P_{QCW}$ | mW | Drive current 0.4 A, 50% duty cycle | 0.09 |
| CW power $P_{CW}$ | mW | Drive current 0.2 A | 0.06 |

| Code | Emission size, mm | Lens material | Far-field pattern FWHM, deg. | Optical axis deviation, deg. | Optical power deviation, % | Operation conditions, °C | Lifetime, hrs |
|---|---|---|---|---|---|---|---|
| LED30TO8TEC | ∅ 3.2 | Si lens and sapphire window | ~15 | ≤5 | ±25 | -25÷+60 | >80 000 |

## Product view




Bottom view




Pin assignment

1 TEC −; 4 TEC +
8 LED +; 13 LED −
10, 11 thermosensor

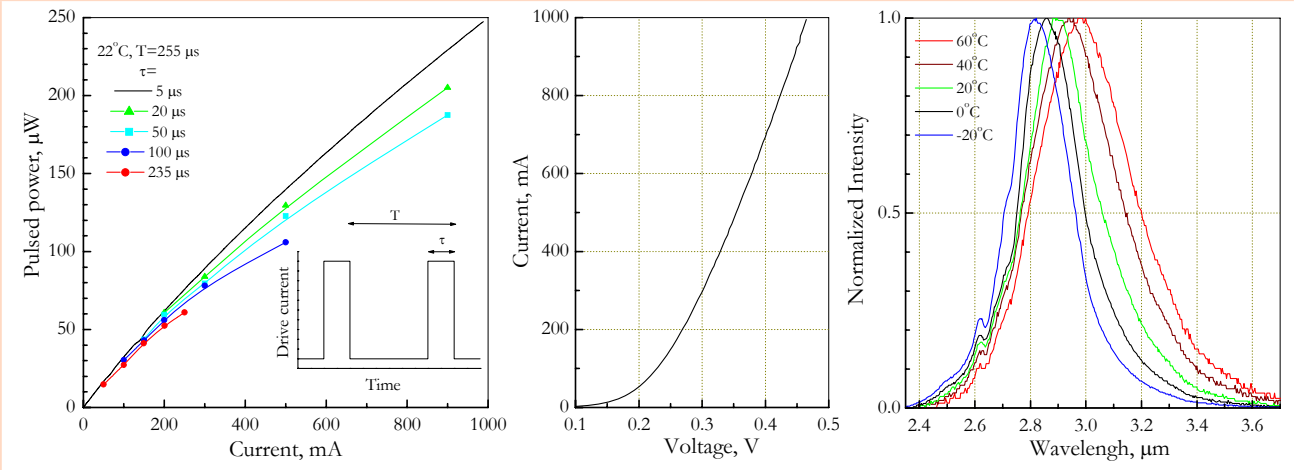
## Features

Growth of narrow gap semiconductor alloys onto $n^+$-InAs substrate; Flip-chip design of LEDs; Optical coupling through the use of chalcogenide glasses and Si lenses with antireflection coating

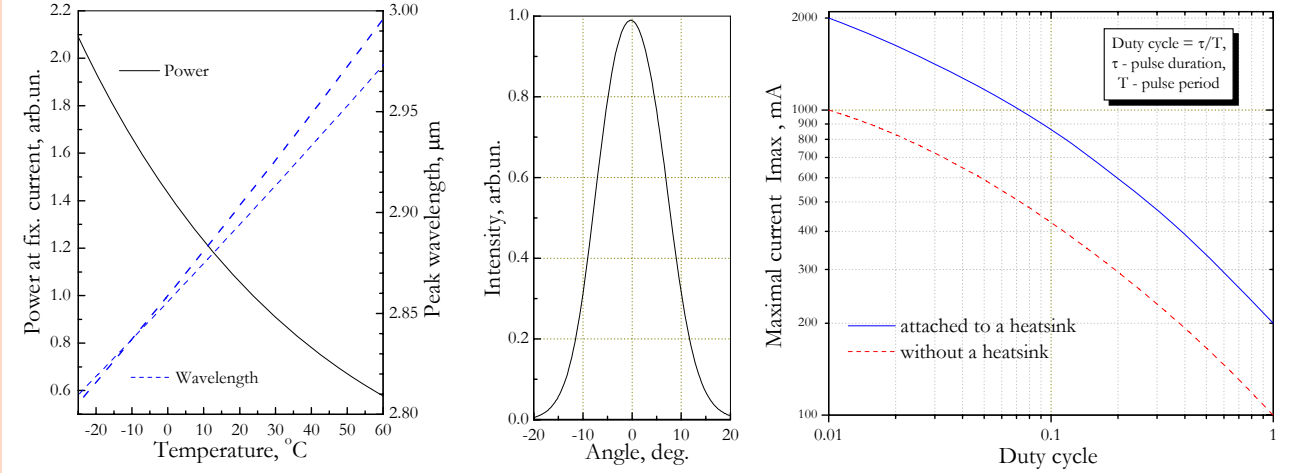
3-fold increased LED output power; Beam collimation within ~15 deg; Low serial resistance; Small on-off time (tenths of ns); Low power consumption (≤0.1 W)

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×Imax so that higher efficiency and long term stability of a LED are achieved. **Data are valid for 22ºC and LED attached to a heatsink**. Heatsink is important for LED operation especially in the CW mode.

## L-I and I-V characteristics and emission spectra




## Output power and peak wavelength vs temperature, far-field pattern and maximal current vs operation conditions

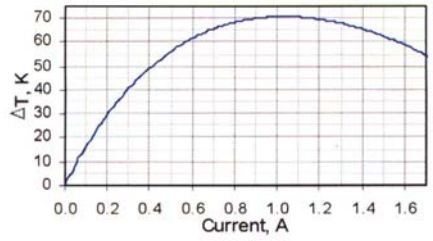


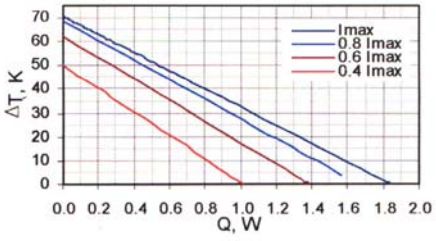

Product specifications are subject to change without prior notice due to improvements or other reasons. Updated 14.10.11

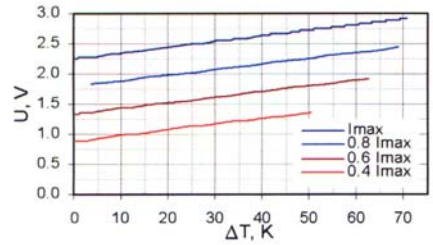
Thermoelectric cooling module datasheet

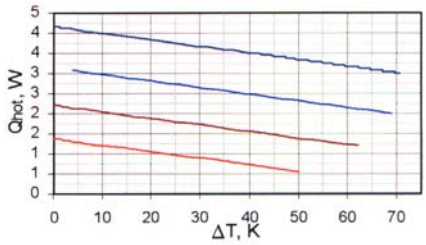
**RMT Ltd.**

## TO816.1MC0602415 — Standard Perfomance Plots



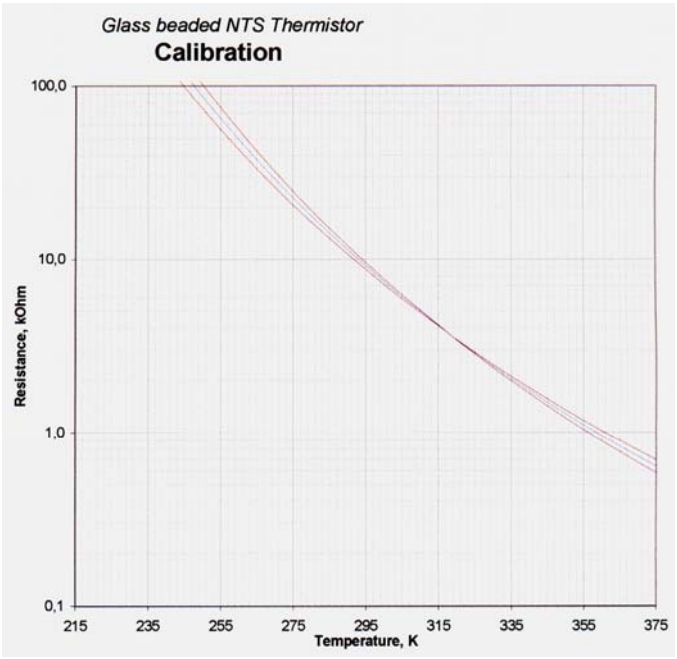




Thermistor specification

| Type | TB04-103 |
|---|---|
| Batch | TB0180506 |

| T, K | 5% | R, | -5% | T, °C |
|---|---|---|---|---|
| 375 | 0,58 | 0,64 | 0,69 | 102 |
| 370 | 0,67 | 0,73 | 0,79 | 97 |
| 365 | 0,77 | 0,83 | 0,90 | 92 |
| 360 | 0,90 | 0,96 | 1,02 | 87 |
| 355 | 1,04 | 1,11 | 1,17 | 82 |
| 350 | 1,22 | 1,28 | 1,35 | 77 |
| 345 | 1,43 | 1,50 | 1,56 | 72 |
| 340 | 1,69 | 1,75 | 1,82 | 67 |
| 335 | 2,00 | 2,06 | 2,12 | 62 |
| 330 | 2,38 | 2,44 | 2,48 | 57 |
| 325 | 2,85 | 2,89 | 2,92 | 52 |
| 320 | 3,44 | 3,45 | 3,46 | 47 |
| 315 | 4,17 | 4,15 | 4,12 | 42 |
| 310 | 5,08 | 5,01 | 4,93 | 37 |
| 305 | 6,24 | 6,09 | 5,93 | 32 |
| 300 | 7,71 | 7,45 | 7,19 | 27 |
| 293 | 10,50 | 10,00 | 9,50 | 20 |
| 290 | 12,04 | 11,39 | 10,75 | 17 |
| 285 | 15,22 | 14,24 | 13,29 | 12 |
| 280 | 19,41 | 17,95 | 16,56 | 7 |
| 275 | 24,96 | 22,81 | 20,80 | 2 |
| 270 | 32,40 | 29,25 | 26,33 | -3 |
| 265 | 42,49 | 37,86 | 33,65 | -8 |
| 260 | 56,29 | 49,49 | 43,40 | -13 |
| 255 | 75,40 | 65,37 | 56,54 | -18 |
| 250 | 102,18 | 87,32 | 74,44 | -23 |
| 245 | 140,21 | 118,03 | 99,11 | -28 |
| 240 | 194,95 | 161,56 | 133,55 | -33 |
| 235 | 274,90 | 224,11 | 182,25 | -38 |
| 230 | 393,45 | 315,33 | 252,09 | -43 |
| 225 | 572,18 | 450,47 | 353,76 | -48 |
| 220 | 846,39 | 654,04 | 504,13 | -53 |
| 215 | 1275,02 | 966,21 | 730,37 | -58 |

| β= | 3876,1 | 3691,5 | 3506,9 | [K$^{-1}$] |
|---|---|---|---|---|
| To= | | 293 | | [K] |




$$R_t = R_{t0}\exp(\beta(T_0 - T)/(T \times T_0)),$$

where

$R_{t0}$ - Resistivity at standard temperature ($T_0$=293K)

$\beta$=3691 K$^{-1}$ - Beta constant


**ООО «Иоффе ЛЕД»**
**Ioffe LED, Ltd**

Politechnicheskaya 26,
St.Petersburg, 194021, RUSSIA

http://www.ioffeled.com
e-mail: Mremennyy@mail.ioffe.ru
Tel./fax: +7 812 297 7446