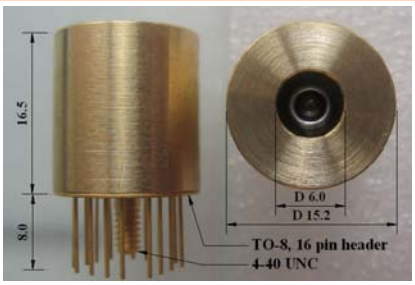
TE cooled Optically Immersed 3.8 µm LED — LED38TO8TEC

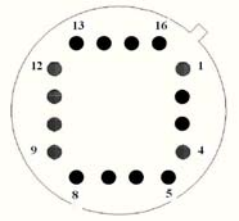
Peak wavelength λ_{max}	µm		3.75÷3.85
Pulse power P_{pulsed}	mW	Drive current 1 A, 2 % duty cycle	0.23
Quasi-CW power P_{QCW}	mW	Drive current 0.4 A, 50% duty cycle	0.12
CW power P_{CW}	mW	Drive current 0.2 A	0.08

Code	Emission size, mm	Lens material	Far-field pattern FWHM, deg.	Optical axis deviation, deg.	Optical power deviation, %	Operation conditions, °C	Lifetime, hrs
LED38TO8TEC	∅ 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

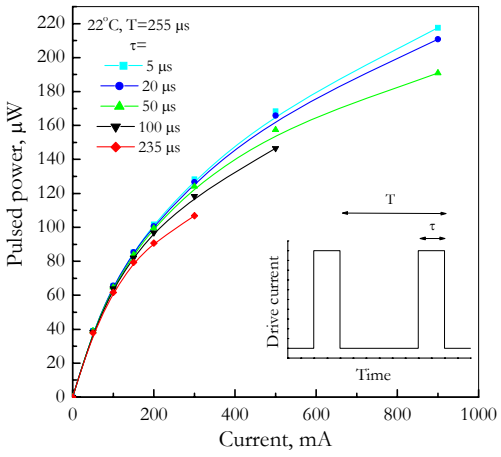
Features

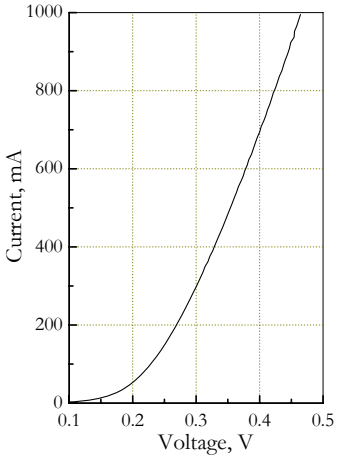
Growth of narrow gap semiconductor alloys onto n^+-InAs substrate; Flip-chip design of LEDs; Optical coupling through the use of chalcogenide glasses and Si lenses with antireflection coating

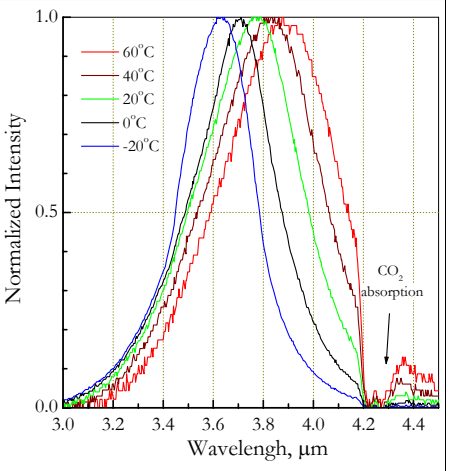
3-fold increased LED output power; Beam collimation within ~15 deg; Low serial resistance; Small on-off time (tenths of ns); Low power consumption (≤0.1 W)

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.

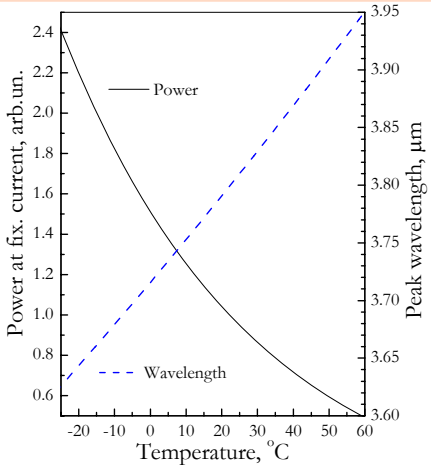
L-I and I-V characteristics and emission spectra

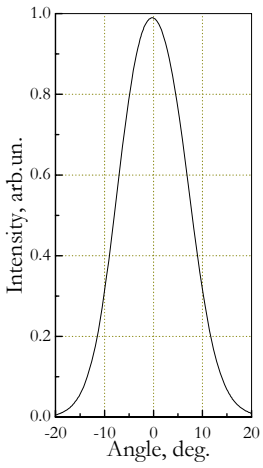


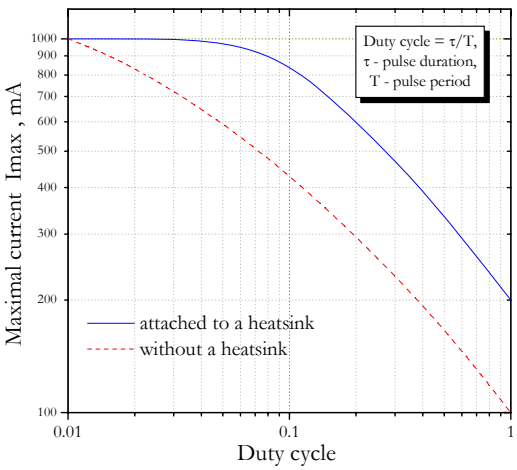




Output power and peak wavelength vs temperature, far-field pattern and maximal current vs operation conditions





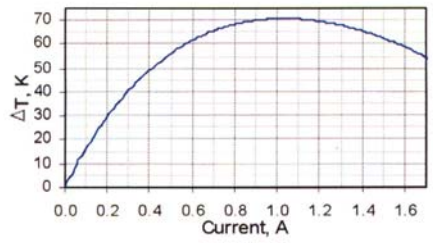


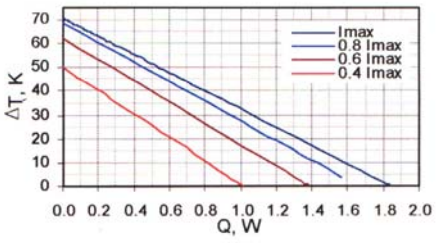
Product specifications are subject to change without prior notice due to improvements or other reasons. Updated 14.10.11

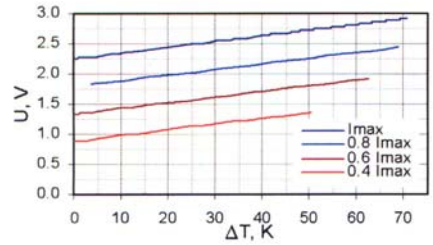
Thermoelectric cooling module datasheet

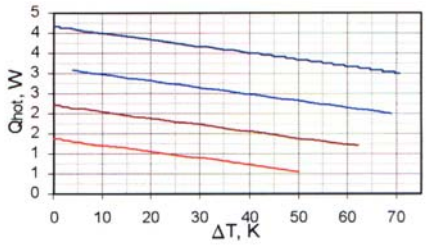
RMT Ltd.

TO816.1MC0602415 — Standard Perfomance Plots







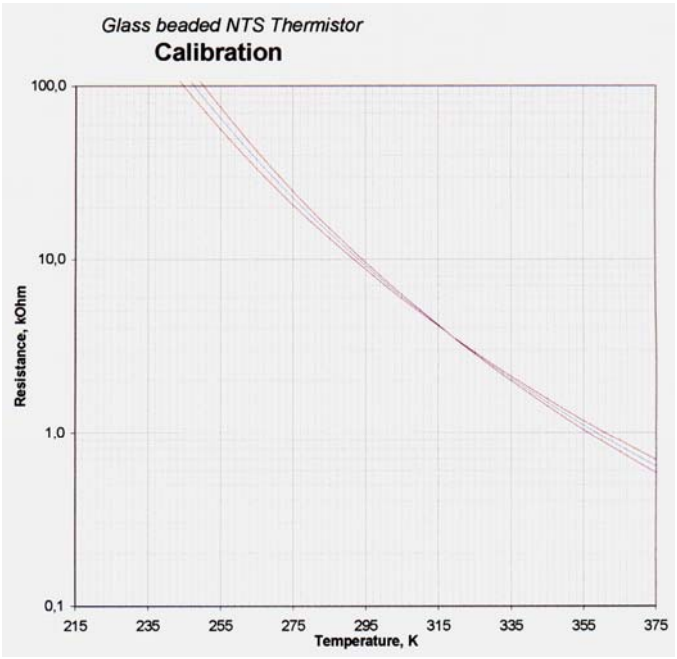


Thermistor specification

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]



where

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

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

β=3691 K^{-1} - Beta constant

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