SONY

SLD301WT

100mW High Power Laser Diode

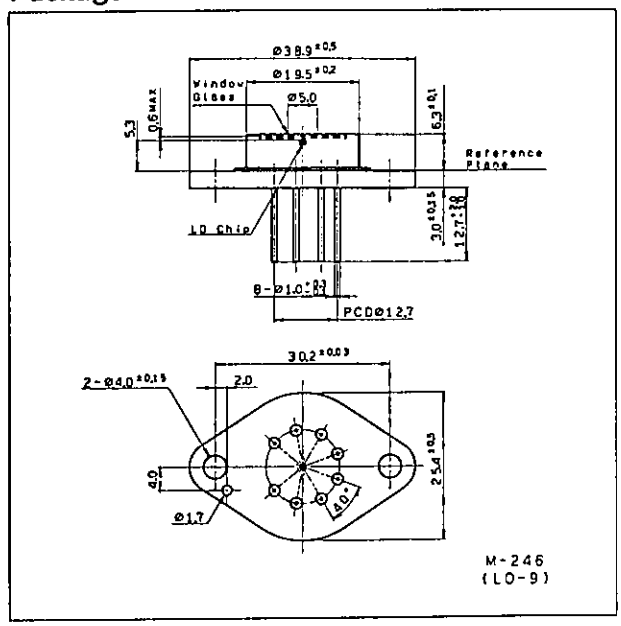
For the availability of this product, please contact the sales office.

Description

SLD301WT is a gain-guided, high-powered laser diode with a built-in TE cooler. Fine tuning of the wavelength is possible by controlling the laser chip temperature.

Package Outline

Unit: mm



Features

- High power
  Recommended power output Po=90mW
- Small operating current
- TO-3 package with built-in TE cooler, thermistor, and photodiode

Structure

GaAlAs double-hetero laser diode

Applications

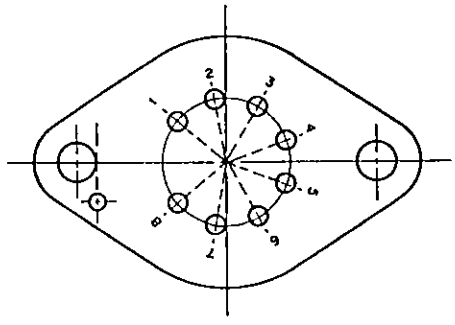
- Solid state laser excitation
- Medical use

Absolute Maximum Ratings (T_{th}=25°C)

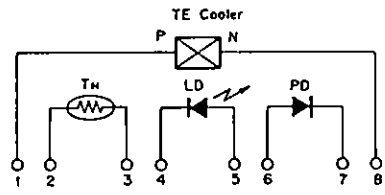
• Radiant power output	P_O		100	mW
• Reverse voltage	V_R	LD	2	V
		PD	15	V
• Operating temperature	T_{opr}		−10 to +50	°C
• Storage temperature	T_{stg}		−40 to +85	°C
• Operating current of TE cooler	I_T		2.1	A

Pin Configuration (Bottom View)

No.	Function
1	TE cooler, positive
2	Thermistor lead 1
3	Thermistor lead 2
4	Laser diode cathode
5	Laser diode anode
6	Photodiode anode
7	Photodiode cathode
8	TE cooler, negative



Equivalent Circuit



E80403A13-HP

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Optical and Electrical Characteristics

T_{th}=25°C

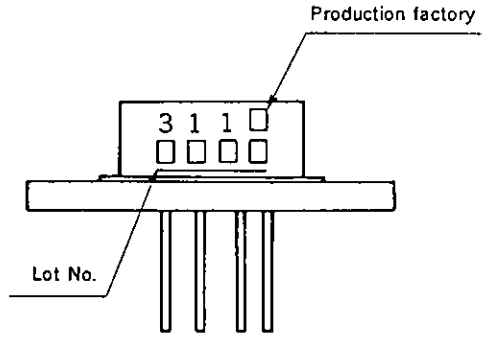
Item		Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold current		Ith			150	200	mA
Operating current		I_{OP}	P_O=90mW		250	400	mA
Operating voltage		V_{OP}	P_O=90mW		1.9	3.0	V
Wavelength*		λ_P	P_O=90mW	770		840	nm
Monitor current		Imon	P_O=90mW V_R=10V		0.15		mA
F. W. H. M	Perpendicular	$\theta\perp$	P_O=90mW		28	40	degree
	Parallel	$\theta_{//}$			12	17	degree
Positional accuracy	Position	ΔX, ΔY	P_O=90mW			±100	μm
	Angle	$\Delta\phi\perp$				±3	degree
Slope efficiency		η_D	P_O=90mW	0.65	0.9		mW/mA
Thermistor resistance		Rth	T_{th}=25°C		10		kΩ

Note) Tth: Thermistor temperature

*Wavelength Selection Classification

Type	Wavelength (nm)
SLD301WT-1	785±15
SLD301WT-2	810±10
SLD301WT-3	830±10
SLD301WT-21	798± 3
-24	807± 3
-25	810± 3

Marking

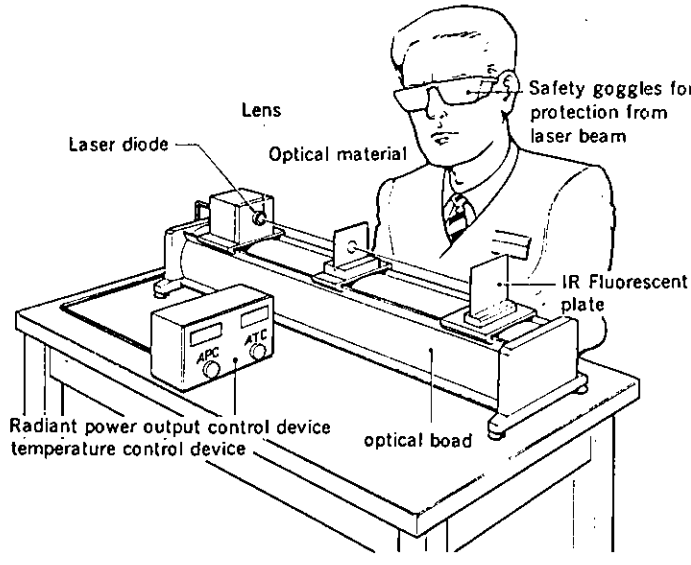


※ Categories are not specified by marking.

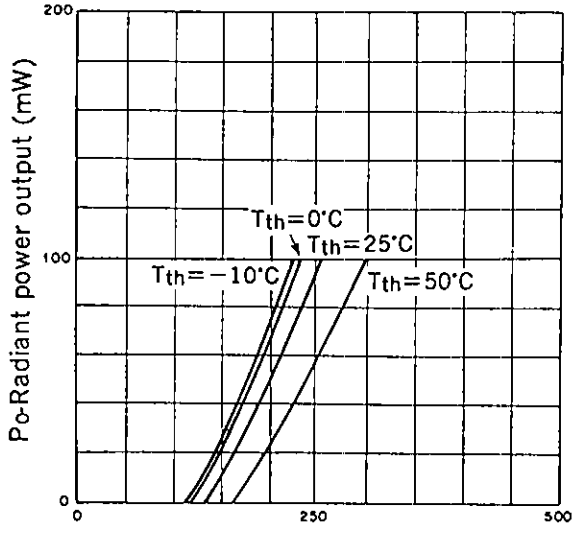
Handling Precautions

Eye protection against laser beams

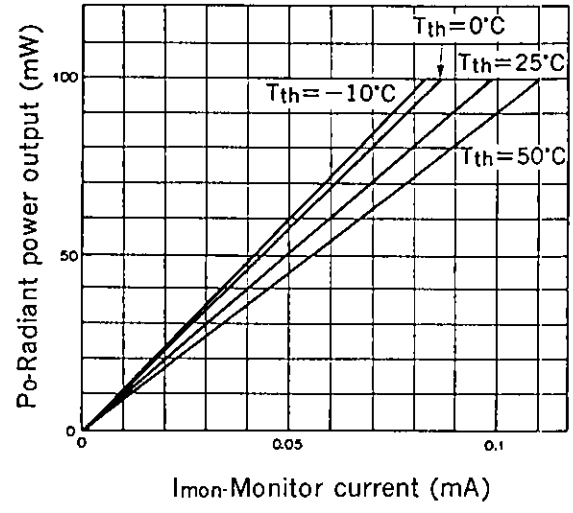
The optical output of laser diodes ranges from several milliwatts to one watt. However the optical density of the laser beam at the tip end reaches 1 megawatt per square centimeter. Unlike gas lasers, as laser diode beams are rather divergent, beam of uncollinated laser diodes are fairly safe at a disance. Generally speaking, however, it is best NOT to LOOK into laser beams, under any circumstances. For laser beams observation purposes ALWAYS use safety goggles that block infrared rays. Usage of 1R scopes, 1R cameras and fluorescent plates is also recommended for the safe monitoring of laser beams.



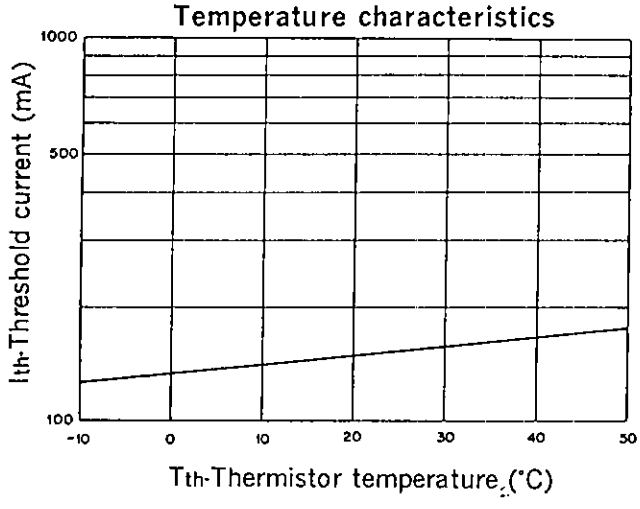
Radiant power output vs.
Forward current characteristics



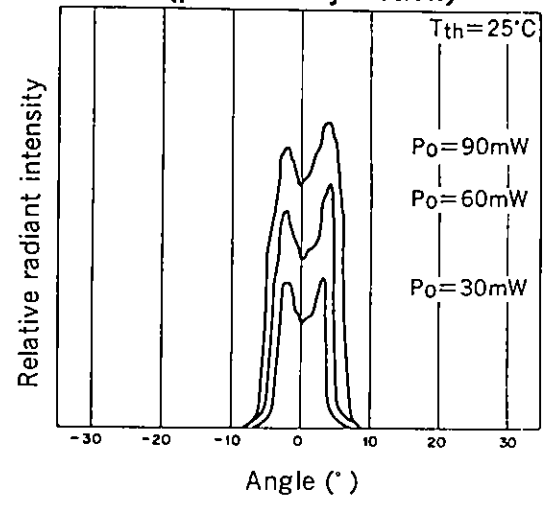
Radiant power output vs.
Monitor current characteristics



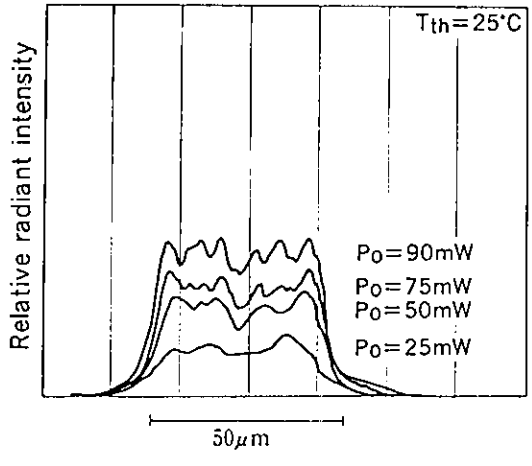
Threshold current vs.
Temperature characteristics



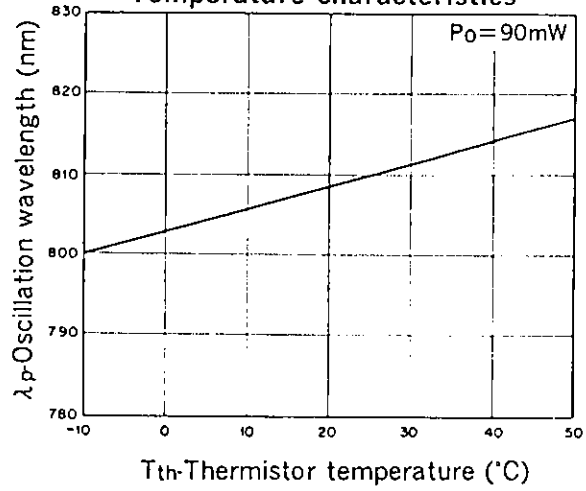
Power dependence of far field pattern
(parallel to junction)



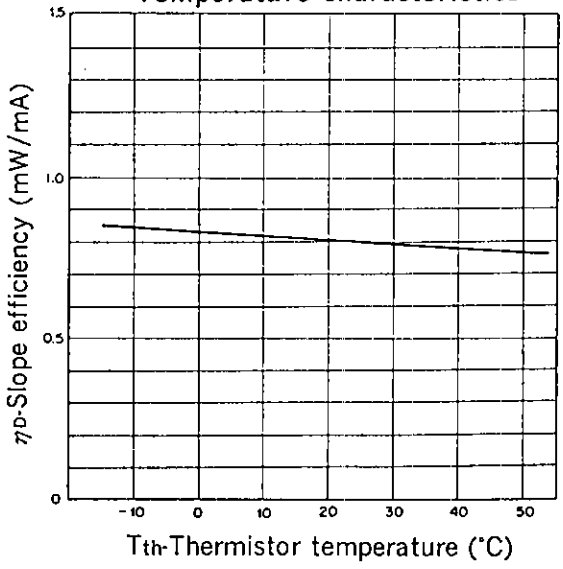
Power dependence of near field pattern



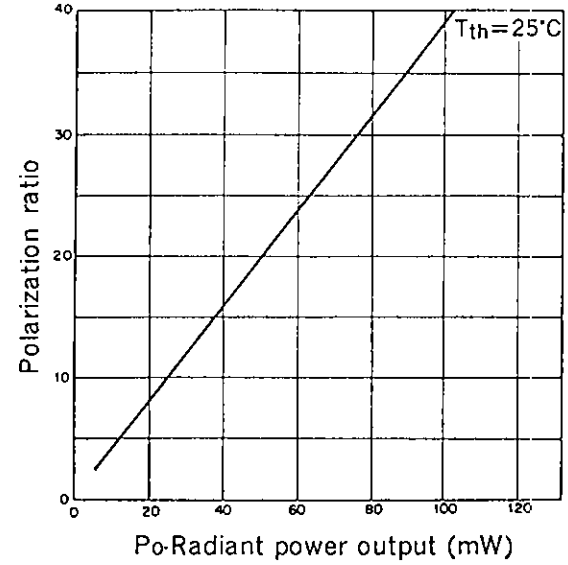
Oscillation wavelength vs.
Temperature characteristics



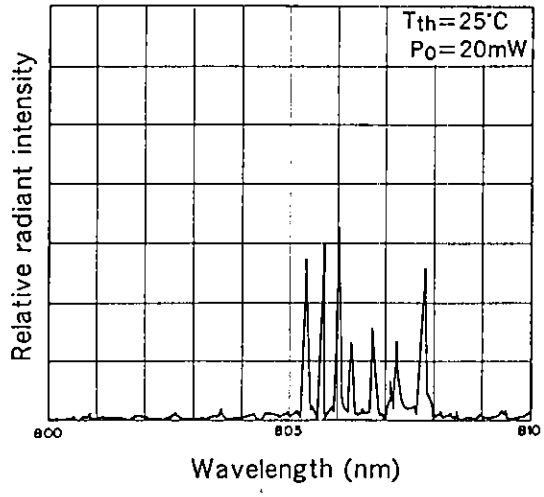
Slope efficiency vs.
Temperature characteristics

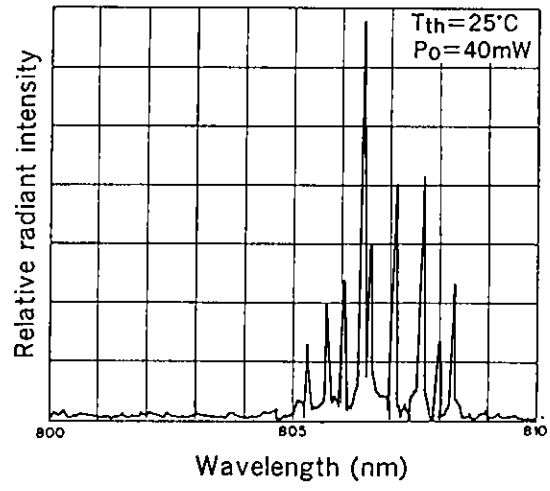


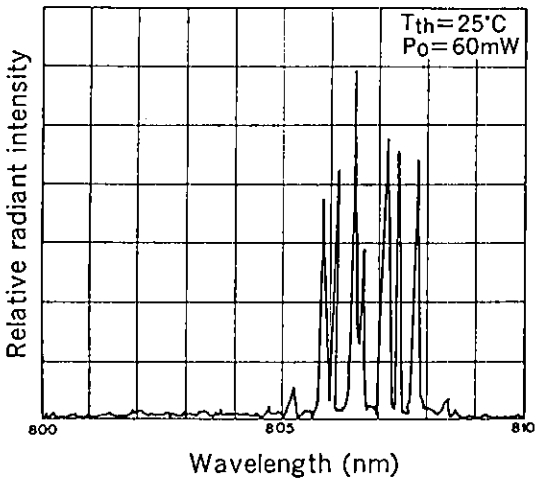
Power dependence of polarization ratio

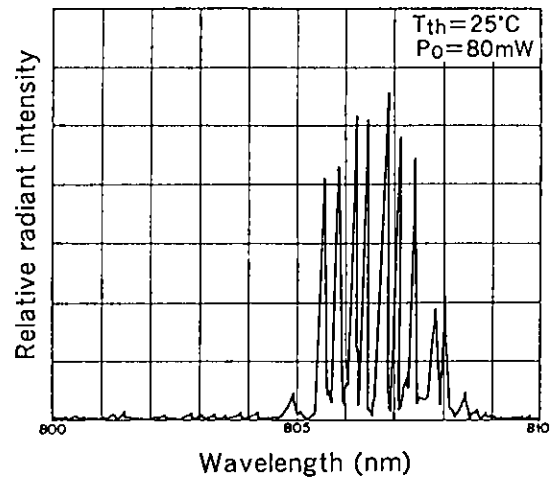


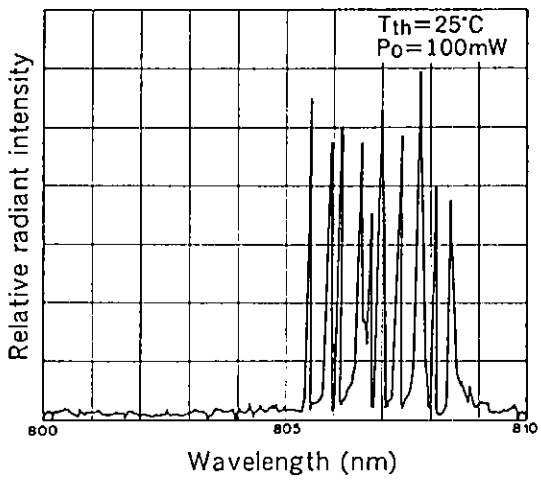
Power dependence of wavelength (spectrum)



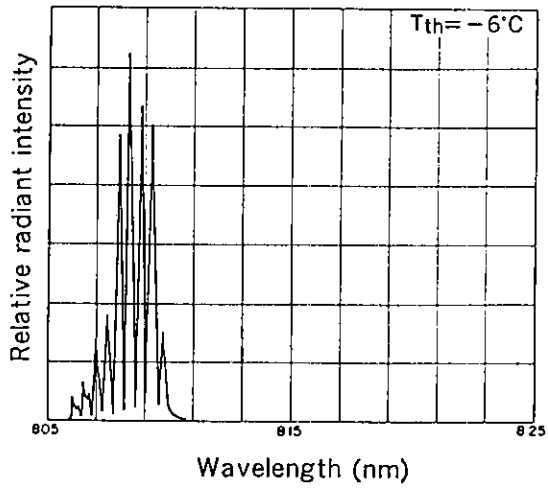


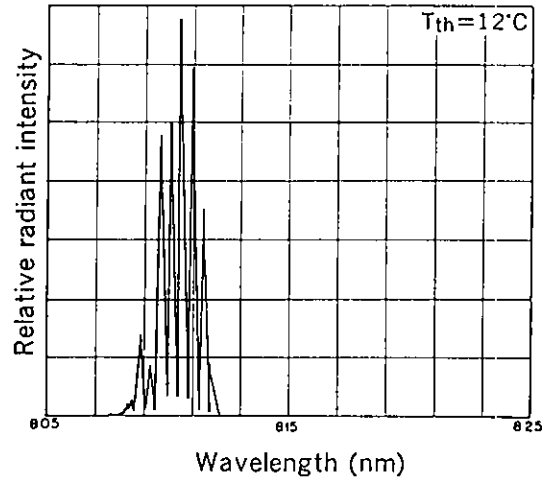


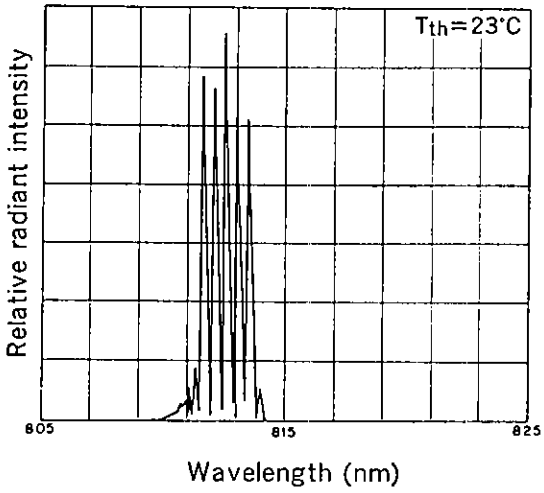


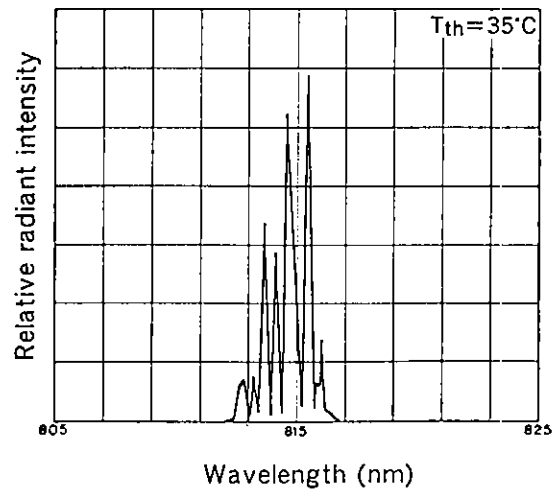


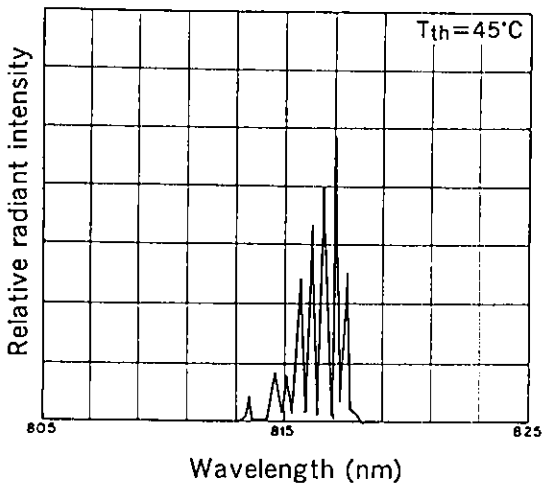
Temperature dependence of wavelength (P_O=90mW)





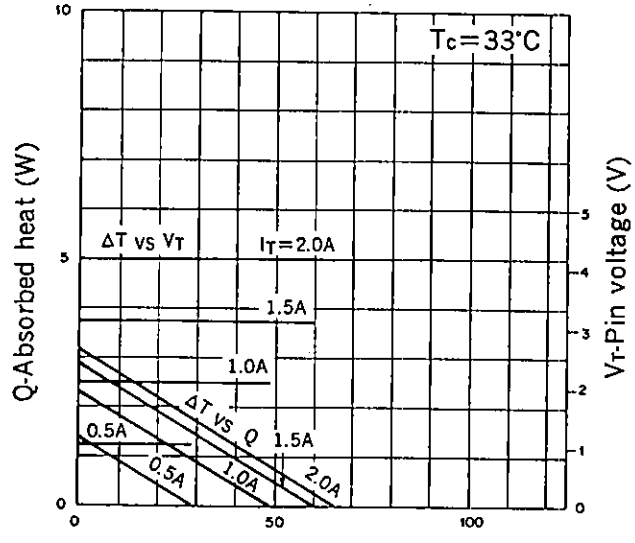




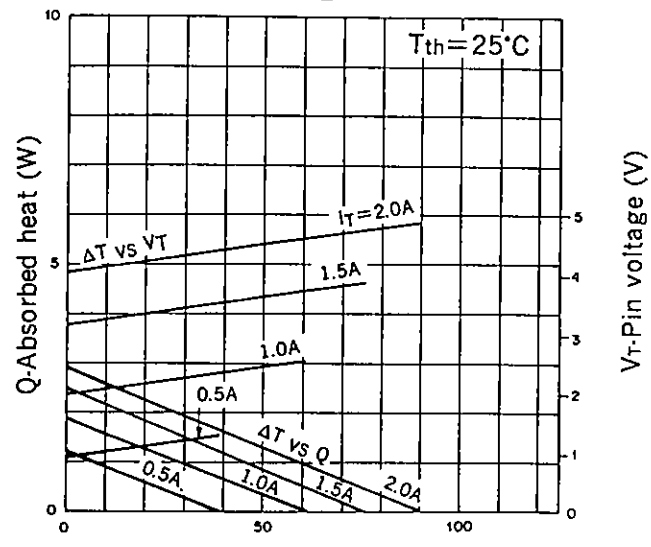


TE cooler characteristics

1



2



ΔT : Tc-Tth
Tth : Thermistor temperature
Tc : Case temperature

Thermistor characteristics

