

Datasheet (Preliminary)

VCSEL Array Substrate Module

Dogain Optoelectronic Technology(Suzhou)Co., Ltd

PN: QDMAMW3S3535M60mW

Rev. A.00

Nov. 2025

Note:

Customers represent that they have all the necessary expertise to create and implement their own safeguards that anticipate dangerous failures, monitor failures and their consequences, lessen the likelihood of dangerous failures and take appropriate remedial actions.

Revision History

Rev.	Effective Date	Revised By.	The Main Contents Revised.
A00	2025.02.27	马玉梅	Preliminary version released
A01	2025.04.10	马玉梅	Increase I _{max} and modify 680nm Electro-optical characteristics
A02	2025.05.21	马玉梅	Increase reflow soldering charaterisitcs

Product Introduction

Performance characteristics

- Module material: substrate 3535
- Multimode output: The laser operates at 680nm 808nm 1064nm , independent laser or together laser
- Chip power: 680 10mw (2ea) , 808 20mw (1ea), 1064 10mw (2ea)
- Other wavelengths, chip dimensions, and emitter patterns are available according to customer request.

Application

- Consumer electronics
- Machine vision
- Infrared illumination
- Industrial applications
- Medical Beauty

Electro-optical characteristics (25°C)

680 20mw CW

Parameters	Symbol	Min	Typical	Max	Units	Test Condition
Peak Power Output	P_{OP}	18	20	-	mW	CW 32mA 25°C
Threshold Current	I_{th}	4	8	10	mA	CW 32mA 25°C
Laser Forward Voltage	V_{op}	2.2	2.5	2.8	V	CW 32mA 25°C
Slope Efficiency	η_s	0.8	0.9	-	W/A	CW 32mA 25°C
Power Conversion Efficiency	PCE	24	36	-	%	CW 32mA 25°C
Peak Wavelength	λ_{peak}	670	680	690	nm	CW 32mA 25°C
Beam Angle 1/e ²	ϕ	18	21	24	°	CW 32mA 25°C
Max operating current	I_{max}			35	mA	CW 25°C

* All tests are under CW condition with heatsink temperature 25°C

808 20mw CW

Parameters	Symbol	Min	Typical	Max	Units	Test Condition
Peak Power Output	P_{OP}	20	25	-	mW	CW 35mA 25°C
Threshold Current	I_{th}	8	10	15	mA	CW 35mA 25°C
Laser Forward Voltage	V_{op}	1.5	1.8	2.1	V	CW 35mA 25°C
Slope Efficiency	η_s	0.9	1	-	W/A	CW 35mA 25°C
Power Conversion Efficiency	PCE	35	37	-	%	CW 35mA 25°C
Peak Wavelength	λ_{peak}	800	808	816	nm	CW 35mA 25°C
Beam Angle 1/e ²	ϕ	21	24	27	°	CW 35mA 25°C
Max operating current	I_{max}			75	mA	CW 25°C

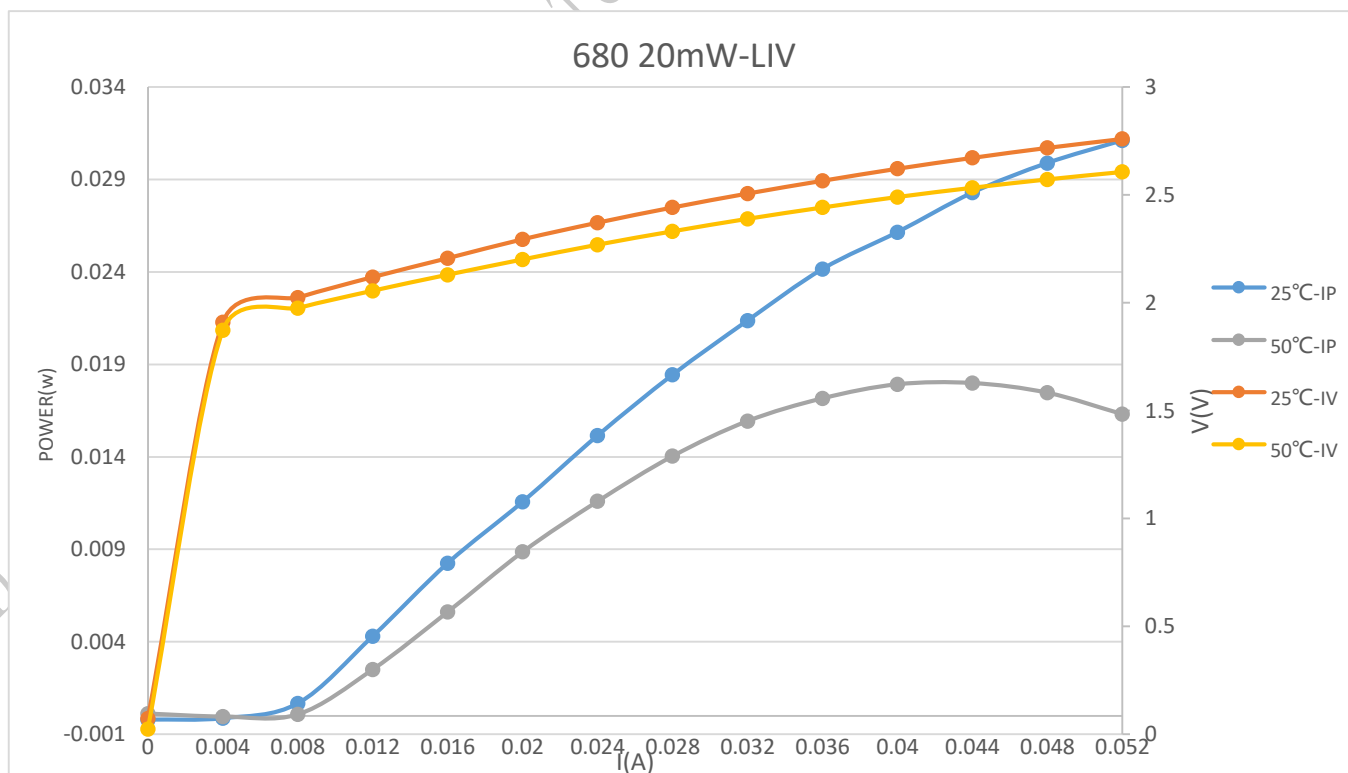
* All tests are under CW condition with heatsink temperature 25°C

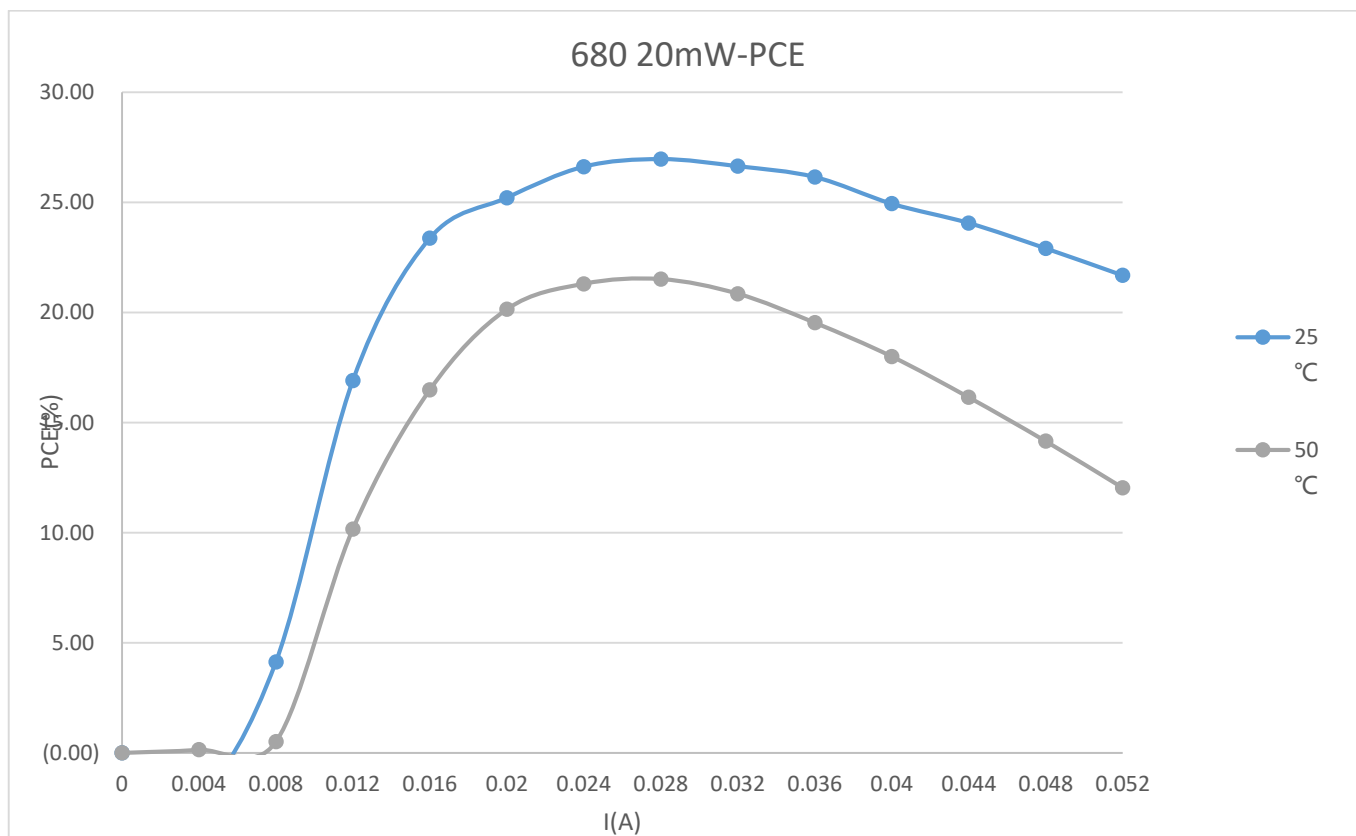
1064 20mw CW

Parameters	Symbol	Min	Typical	Max	Units	Test Condition
Peak Power Output	P _{OP}	18	20	-	mW	CW 40mA 25°C
Threshold Current	I _{th}	4	6	8	mA	CW 40mA 25°C
Laser Forward Voltage	V _{op}	1.4	1.8	2.1	V	CW 40mA 25°C
Slope Efficiency	η _s	0.5	0.6	-	W/A	CW 40mA 25°C
Power Conversion Efficiency	PCE	28		-	%	CW 40mA 25°C
Peak Wavelength	λ _{peak}		1064		nm	CW 40mA 25°C
Beam Angle 1/e ²	φ		23		°	CW 40mA 25°C
Max operating current	I _{max}			50	mA	CW 25°C

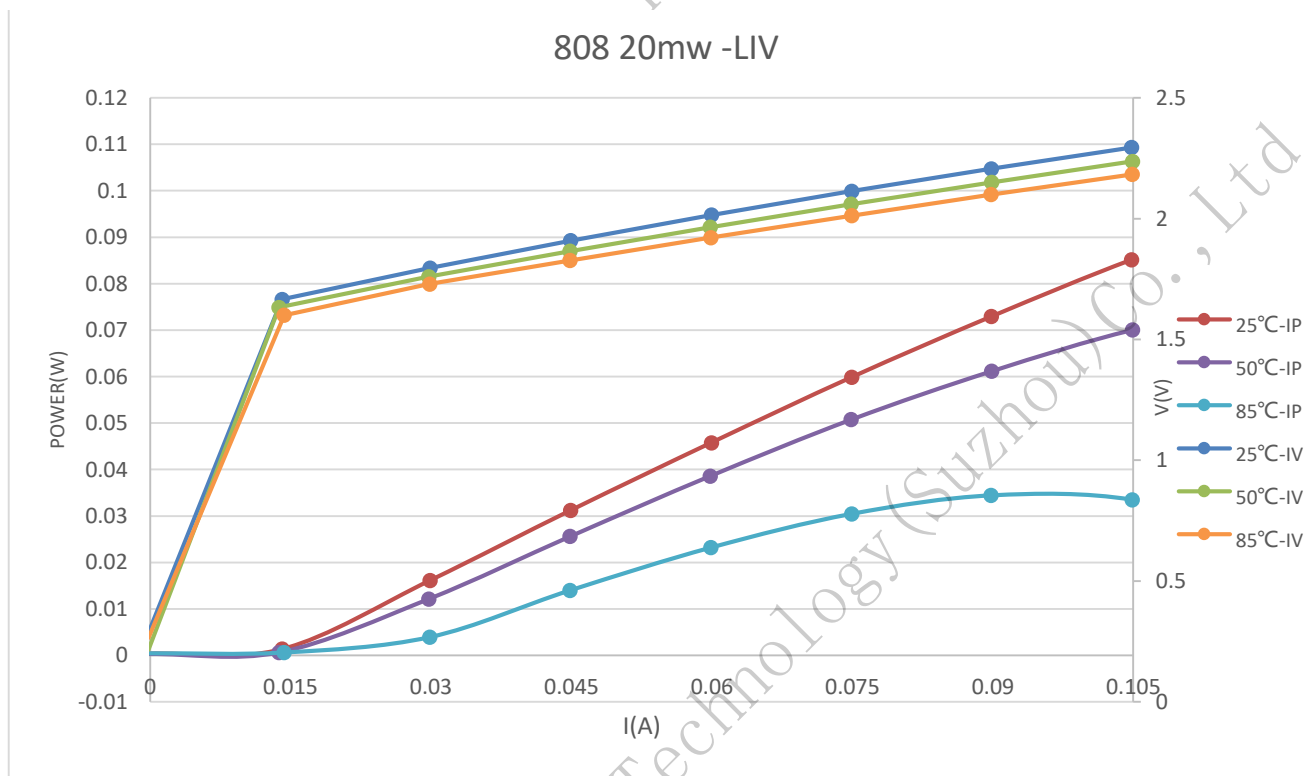
* All tests are under CW condition with heatsink temperature 25°C

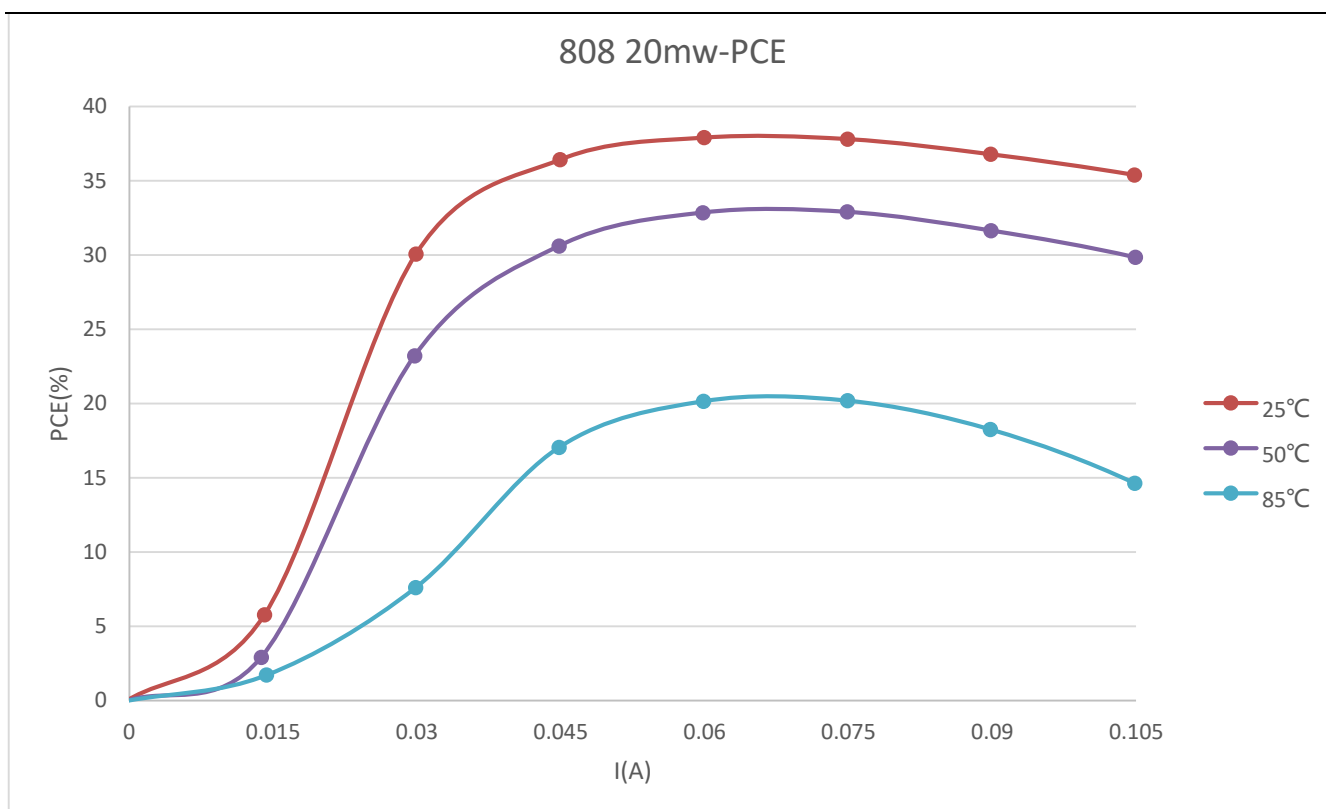
Electro-optic conversion curve



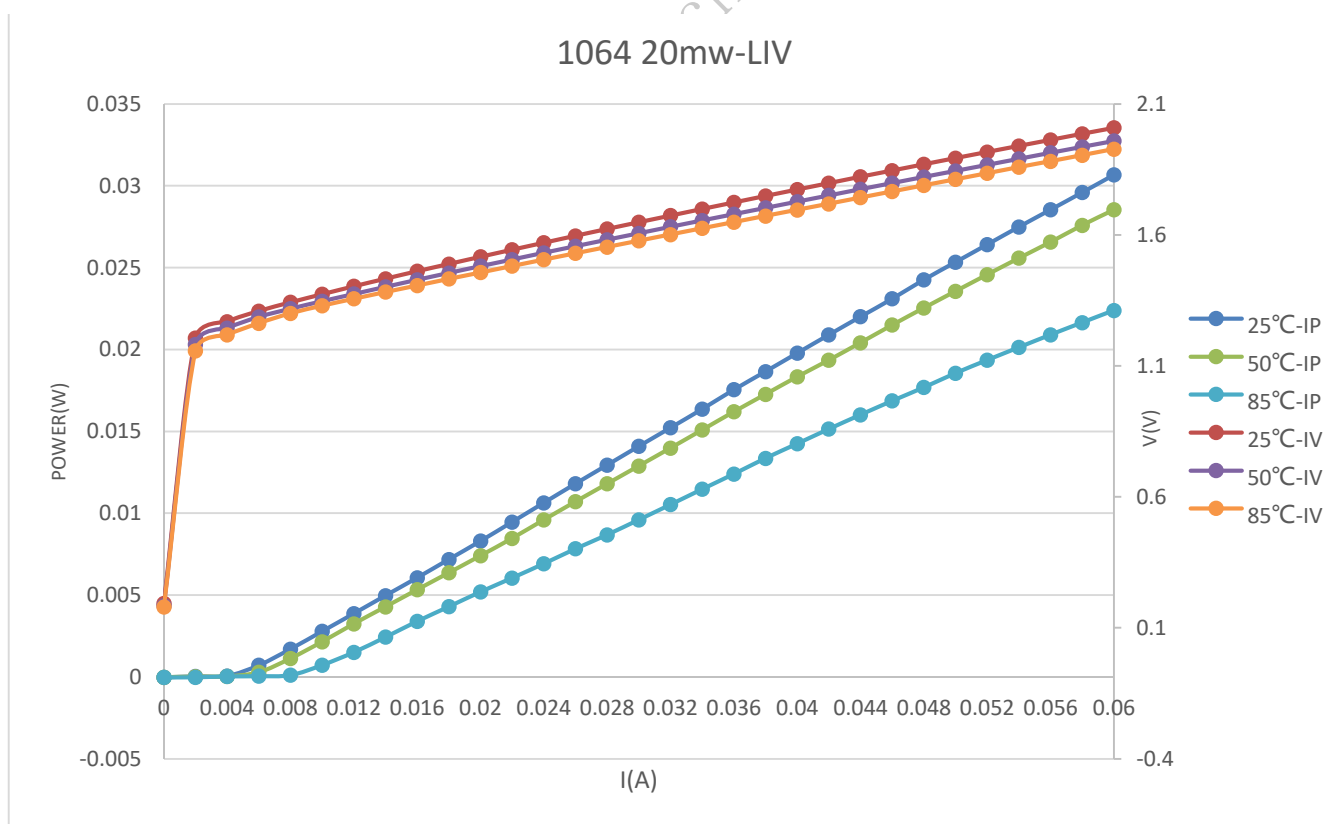


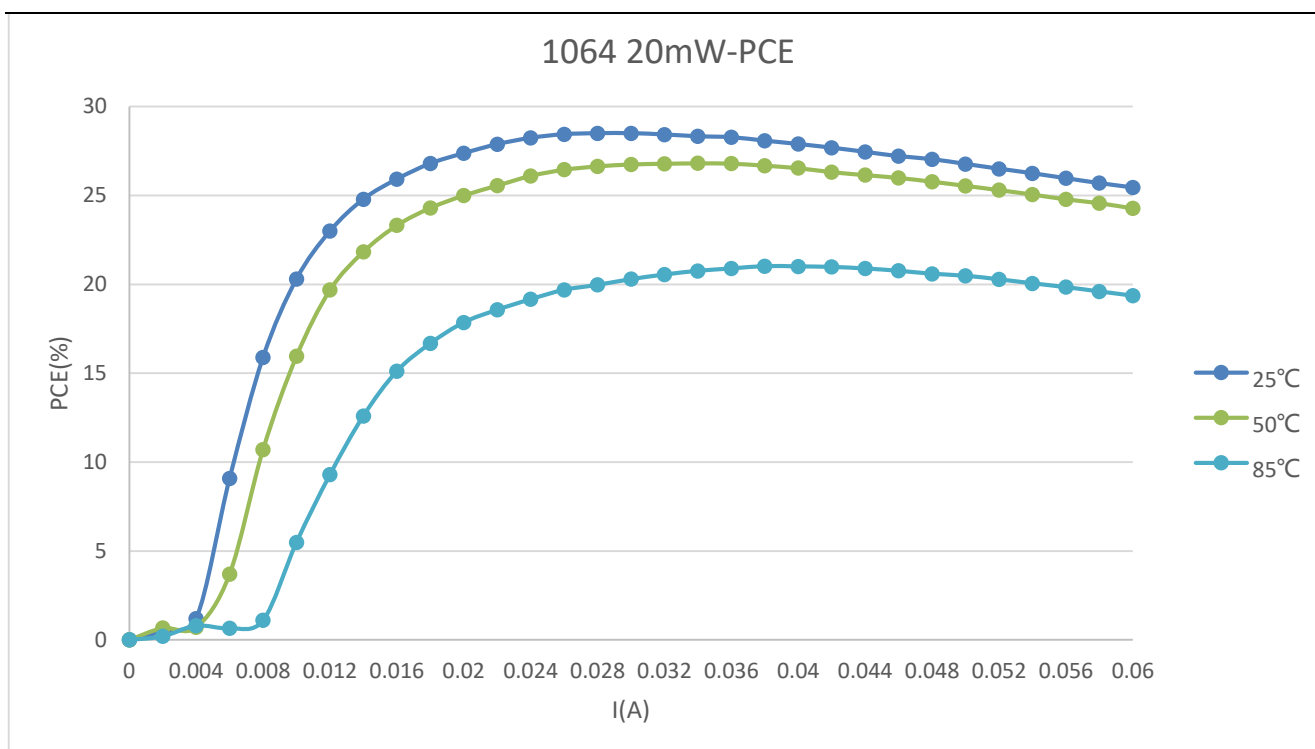
* All tests are under pulse condition on CW.





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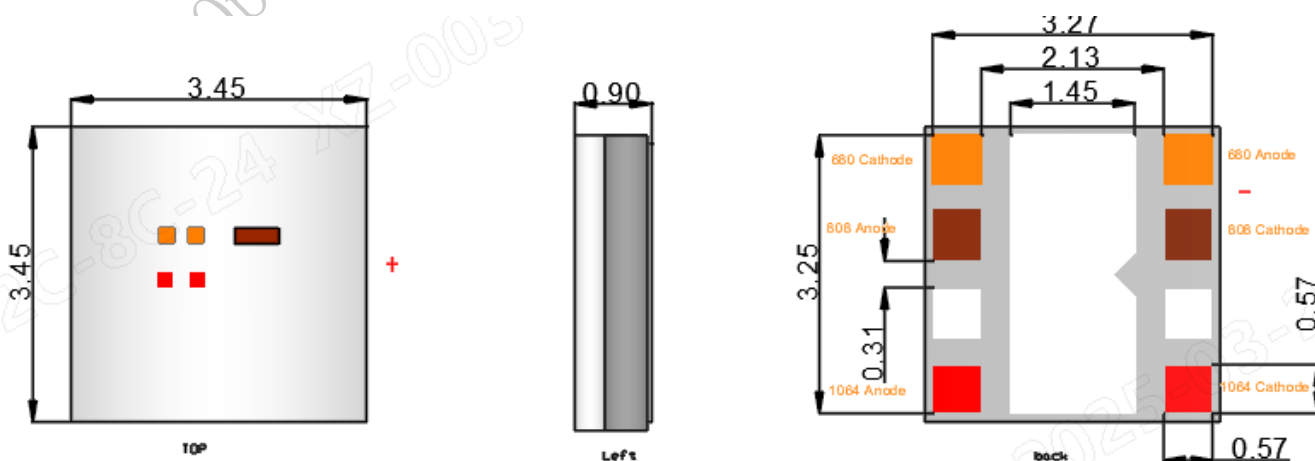




* All tests are under pulse condition on CW.

Product Dimension(units: mm)

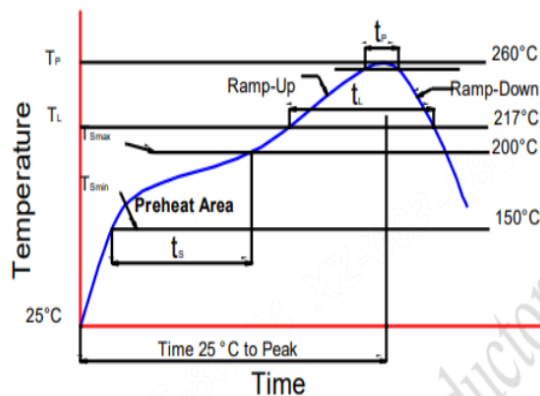
Parameter	Ratings	Units
module Width	3.45±0.1	mm
module Length	3.45±0.1	mm
Anode Contact	Cu surface	/
module Thickness	0.9±0.1	mm
Cathode Contact	Cu surface	/



Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Operating temperature	Top	-20	60	°C
Operating humidity	Hop	0	85	%
Storage temperature	Ts	-20	60	°C
Storage humidity	Hs	0	85	%
Solder Reflow	cycle		5	

Reflow soldering charateristics



特制参数 Profile Feature	无铅焊料 Lead-Free Solder
平均上升速率 (Tsmx 至 Tp) Average Ramp-Up Rate (Tsmx to Tp)	3 °C/sec max.
预热: 温度最小值 (Tsmn) Preheat: Temperature Min (Tsmn)	150
预热: 最高温度 (Tsmx) Preheat: Temperature Max (Tsmx)	200
预热: 时间 (tsmn 到 tsmx) Preheat: Time (tsmn to tsmx)	60-180 secs
回流温度 (TL) Time Maintained Above: Temperature (TL)	217°C
回流时间 (tL) Time Maintained Above: Time (tL)	60-150 secs
峰值/分类温度 (Tp) Peak/Classification Temperature(Tp)	255±5°C
实际峰值温度 (tp) 在 5°C 以内的时间 Time Within 5°C of Actual Peak Temperature (tp)	20~40 secs
降低速率 Ramp-Down Rate	5°C/sec max.

Eye safety and disclaimer

Security recommendations

Depending on the usage of the device, the module may emit highly concentrated invisible infrared light that is harmful to the human eye. Products containing these modules may be required to follow the safety precautions specified in IEC 60850-1 and IEC62471.

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