



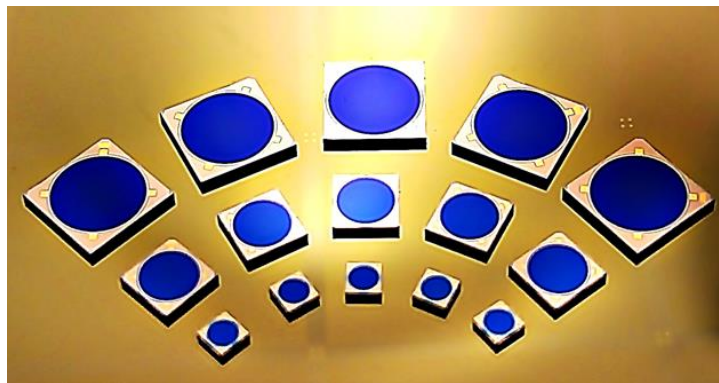
## InGaAs PIN Photodiode Chip (1.7- $\mu\text{m}$ Wavelength Cutoff)

### FEATURES

- Highly Reliable Planar Device
- SWIR-Only or VIS-SWIR Operation
- Low Leakage Current
- High Shunt Resistance
- High Responsivity
- Low Stray Absorption

### APPLICATIONS

- Power Monitoring
- Spectral Analysis
- Light Detection and Ranging (LIDAR)
- Remote Temperature Sensors
- Humidity Detection
- Ice/Slush Detection
- Gas Leak Detection
- Single-Photodiode SWIR Camera
- Covert IR Sensing
- Optical Powering



### GENERAL DESCRIPTIONS

MODEL NO.		PIN1000-17(V)-D	PIN2000-17(V)-D	PIN3000-17-D
PARAMETER	UNIT	VALUE		
Spectral Range	$\mu\text{m}$	0.9 – 1.7 / 0.6 – 1.7		0.9 – 1.7
<sup>1,2</sup> Aperture Size	$\mu\text{m}$	$\varnothing$ 950	$\varnothing$ 1850	$\varnothing$ 3000
Chip Dimension				
Length	$\mu\text{m}$	1070 $\pm$ 15	2055 $\pm$ 15	3285 $\pm$ 15
Width	$\mu\text{m}$	1070 $\pm$ 15	2055 $\pm$ 15	3285 $\pm$ 15
Thickness	$\mu\text{m}$	300 $\pm$ 20	300 $\pm$ 20	300 $\pm$ 20

<sup>1</sup>Standard apertures of  $\varnothing$ 500  $\mu\text{m}$  and  $\varnothing$ 5000  $\mu\text{m}$  are also available.

<sup>2</sup>CLPT also provides services for custom-designed aperture in various sizes and shapes or in array format. Please contact us for further information.



## SPECIFICATIONS ( $T_{\text{AMB}} = 23^{\circ}\text{C}$ )

Model No.		PIN1000-17-D			PIN1000-17V-D			PIN2000-17-D			PIN2000-17V-D			PIN3000-17-D		
<sup>1</sup> Spectral Range ( $\mu\text{m}$ )		0.9 – 1.7			0.6 – 1.7			0.9 – 1.7			0.6 – 1.7			0.9 – 1.7		
Parameter	Unit	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.
Dark Current @ -5 V	nA	---	2	5	---	2	5	---	10	20	---	10	20	---	15	30
Shunt Resistance @ -10mV	M $\Omega$	25	100	---	20	80	---	10	40	---	5	20	---	5	20	---
Capacitance @ 1MHz	pF															
@ 0V		---	120	150	---	120	150	---	360	500	---	360	500	---	900	1200
@ -5 V		---	60	75	---	60	75	---	200	250	---	200	250	---	500	600
3dB Bandwidth @ -5 V, 50 $\Omega$	MHz	30	40	---	30	40	---	12	15	---	12	15	---	5	6	---
Responsivity @ 0 V	A/W															
@ 0.65 $\mu\text{m}$		---	---	---	0.20	0.30	---	---	---	---	0.20	0.30	---	---	---	---
@ 0.85 $\mu\text{m}$		0.10	0.20	---	0.35	0.45	---	0.10	0.20	---	0.35	0.45	---	0.10	0.20	---
@ 1.30 $\mu\text{m}$		0.85	0.95	---	0.80	0.90	---	0.85	0.95	---	0.80	0.90	---	0.85	0.95	---
@ 1.55 $\mu\text{m}$		0.95	1.00	---	0.90	0.95	---	0.95	1.00	---	0.90	0.95	---	0.95	1.00	---
<sup>2</sup> Saturation Power @ 1.55 $\mu\text{m}$ , 0V, -0.2 dB	mW	5.0	7.0	---	0.5	2	---	2.0	4.0	---	0.2	0.5	---	1.5	3.0	---
NEP @ 1.55 $\mu\text{m}$ 0V, 1KHz	$10^{-14}$ W/ $\sqrt{\text{Hz}}$	---	1.2	2.4	---	2.5	5.0	---	2.4	4.8	---	6.0	12.0	---	4.0	8.0

<sup>1</sup>1.2 – 2.2  $\mu\text{m}$  wavelength range is also available. Please contact us for further information.

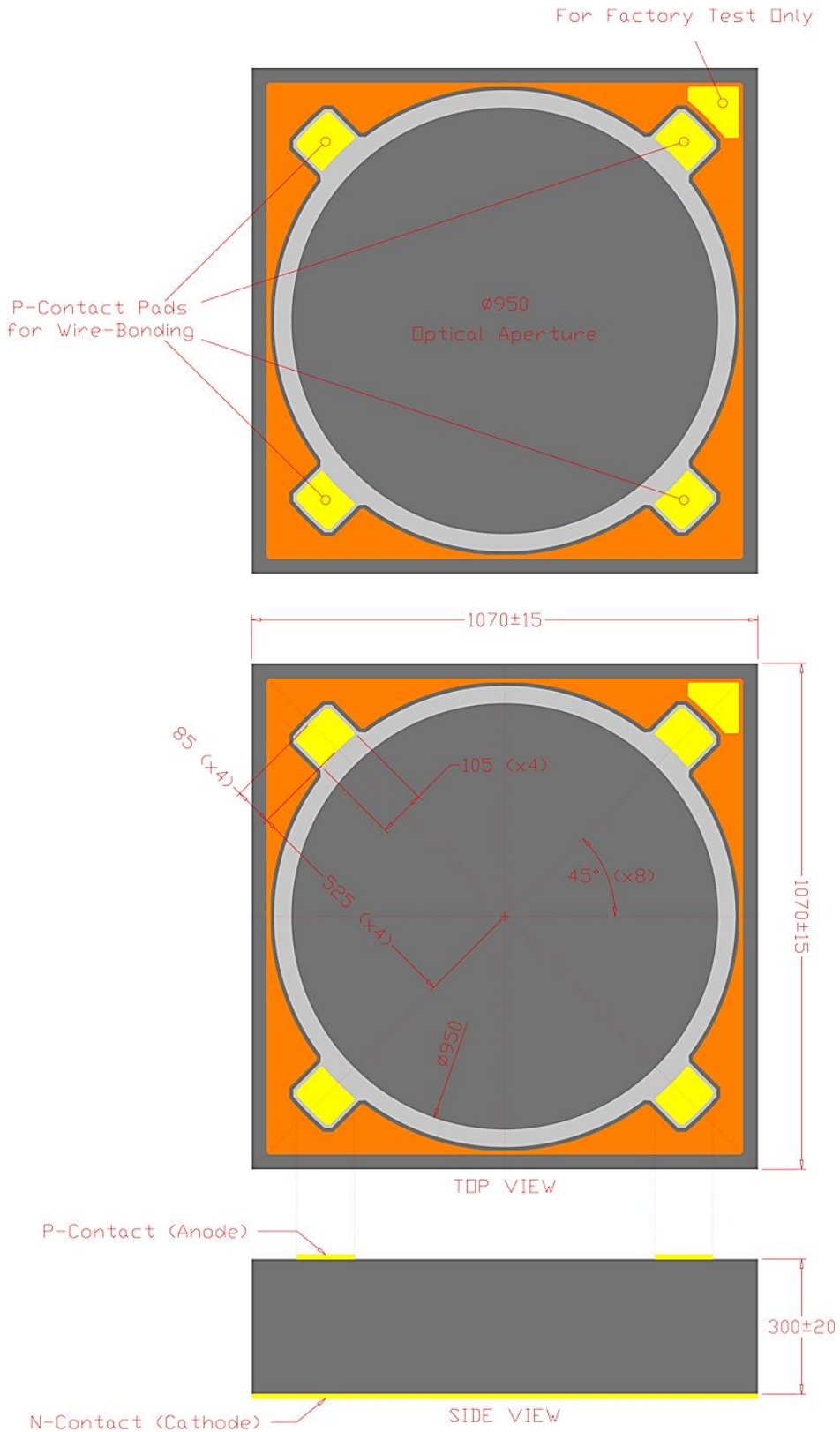
<sup>2</sup>Measured at the aperture center with an  $1/e^2$  beam diameter of 250  $\mu\text{m}$ .

## ABSOLUTE MAXIMUM RATINGS ( $T_{\text{AMB}} = 23^{\circ}\text{C}$ )

Model No.		PIN1000-17-D		PIN1000-17V-D		PIN2000-17-D		PIN2000-17V-D		PIN3000-17-D	
Parameter	Unit	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Reverse Voltage	V	---	20	---	10	---	15	---	10	---	10
Reverse Current	mA	---	10	---	2	---	10	---	2	---	10
Forward Current	mA	---	10	---	5	---	10	---	5	---	10
Operating Temperature	$^{\circ}\text{C}$	-40	+85	-40	+85	-40	+85	-40	+85	-40	+85
Storage Temperature	$^{\circ}\text{C}$	-40	+85	-40	+85	-40	+85	-40	+85	-40	+85

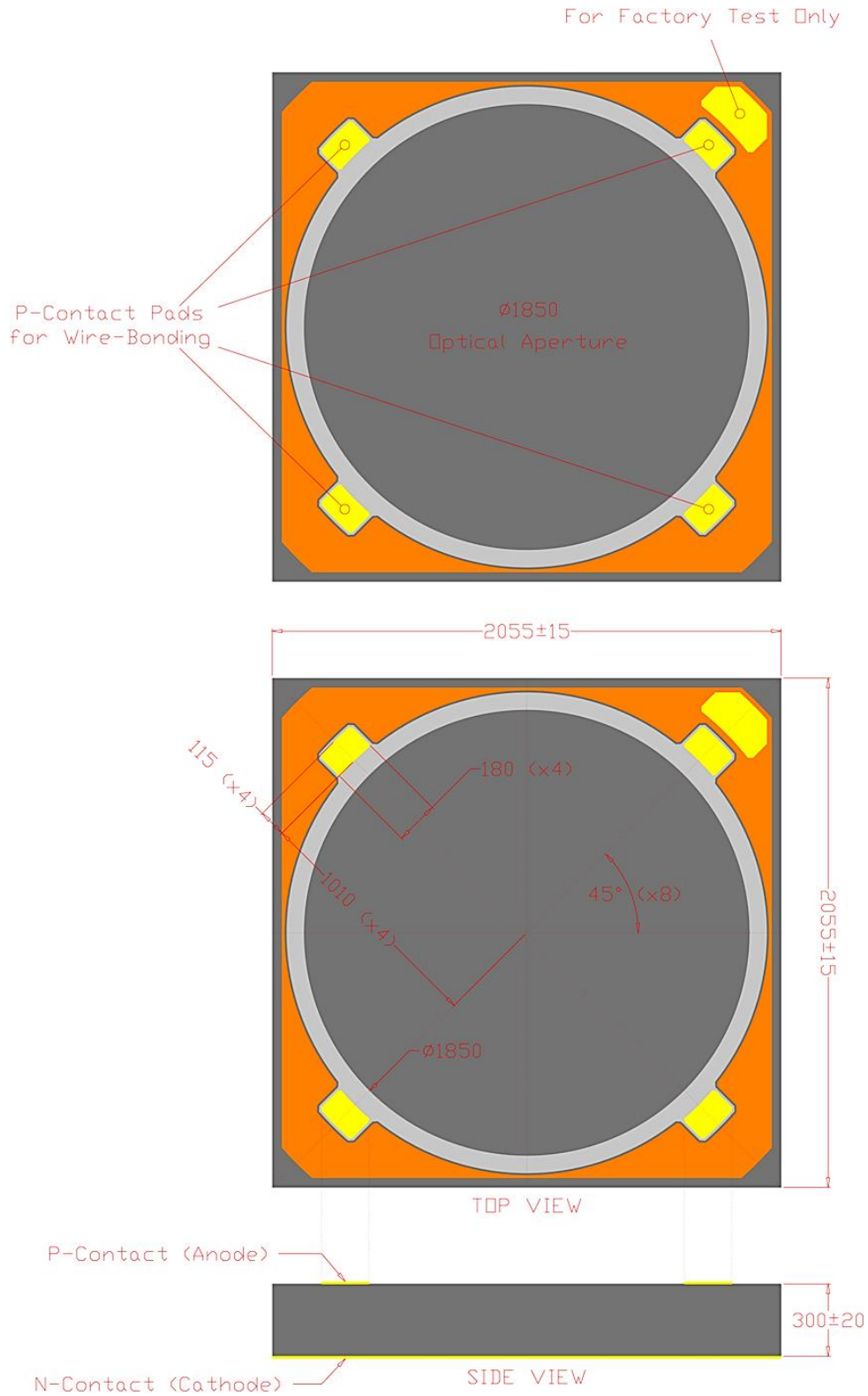


### Chip Diagram of PIN1000-17-D (Unit: $\mu\text{m}$ )



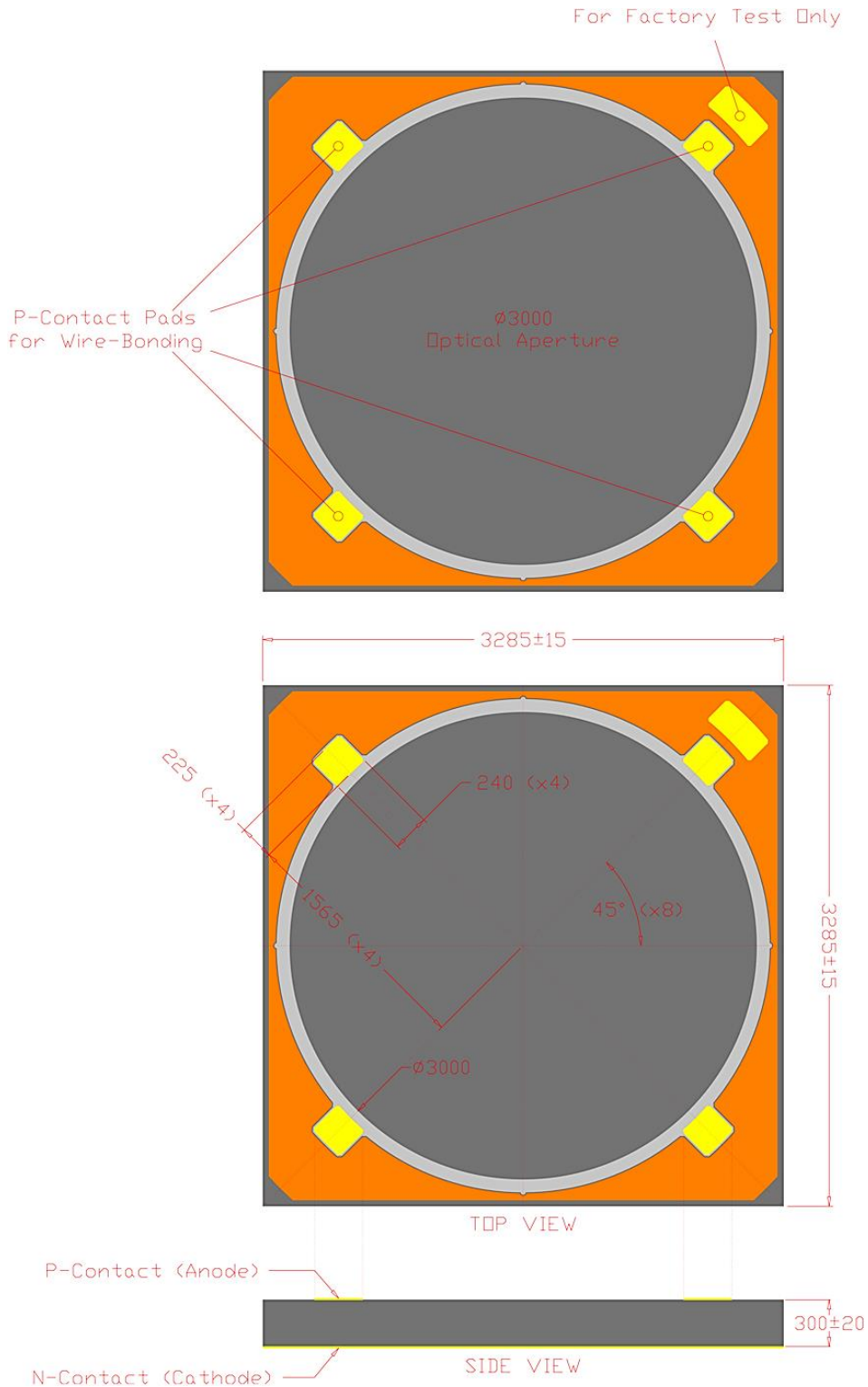


### Chip Diagram of PIN2000-17-D (Unit: $\mu\text{m}$ )



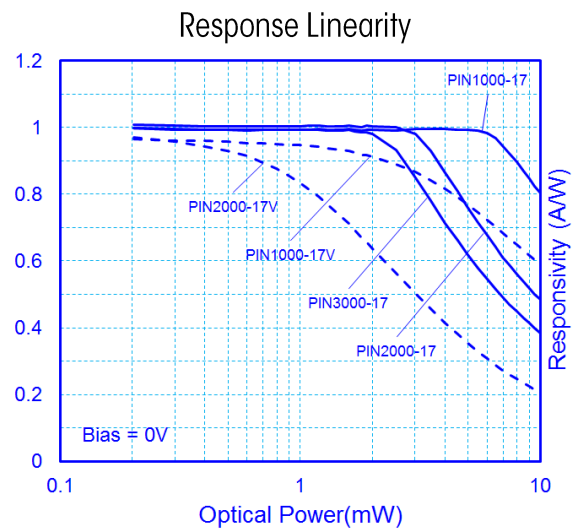
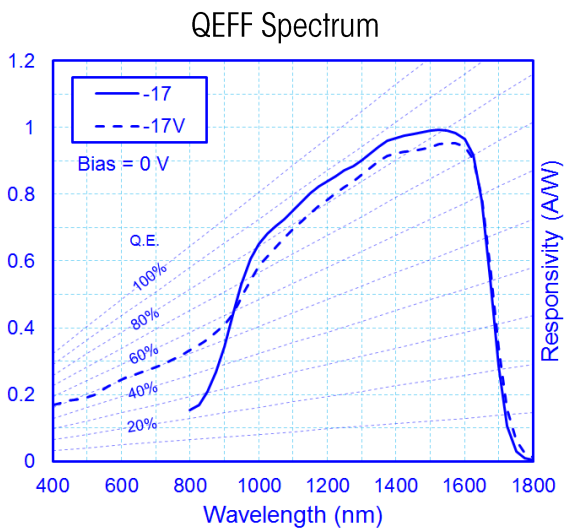
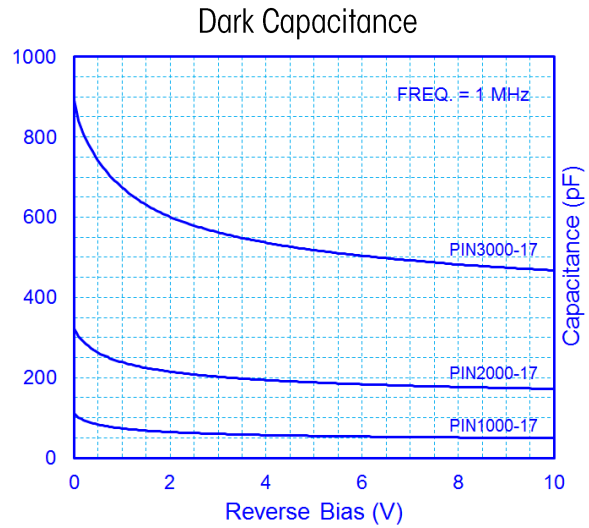
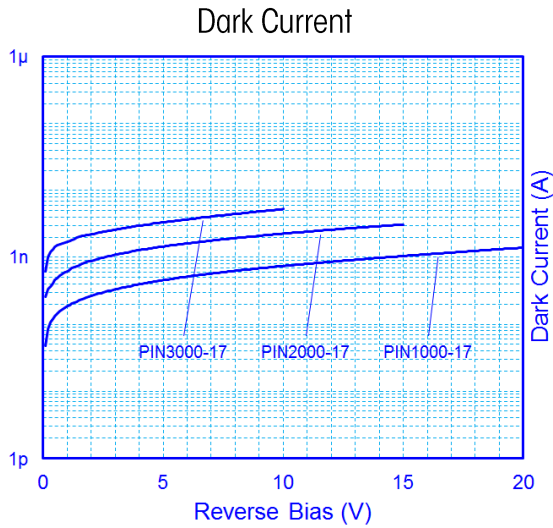


### Chip Diagram of PIN3000-17-D (Unit: $\mu\text{m}$ )





EXAMPLE CURVES ( $T_{\text{AMB}} = 23^{\circ}\text{C}$ )



Note: The example curves are subject to change without notice.