

Thermopile Line Array

For Non-Contact Temperature Sensing

TPiL 8T 2246 L3.9, TPiL 16T 3x46 L3.9, TPL 32C 3343 L4.7 Line Arrays

Target Applications

- Non-Contact Temperature Measurement
- Household Appliances: Microwave Ovens
- Printer/Copier Applications

Features and Benefits

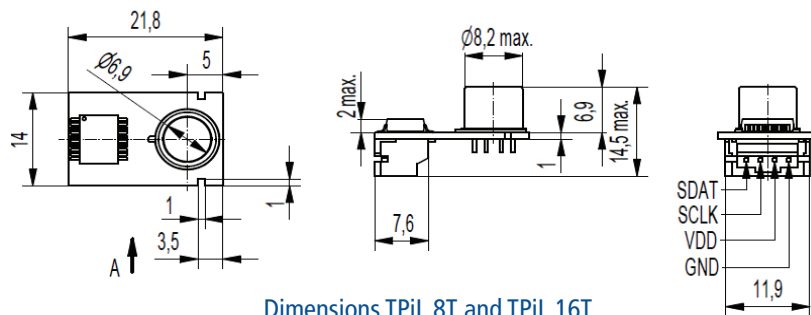
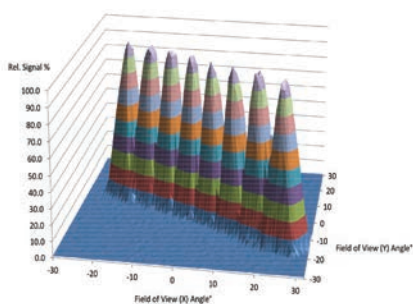
- Digital SMBus
- Factory Calibration
- Ambient Temperature Output
- Noise Reduction Filter

Product Description

The Excelitas Thermopile Line Array family includes three major versions of modules for non-contact temperature measurement applications. All modules consist of an array sensor with multiplexed output signal which is transferred into a calibrated Signal by a microprocessor located on the modules board. The microprocessor also acts as the SMBus interface. All modules are supplied with connector.

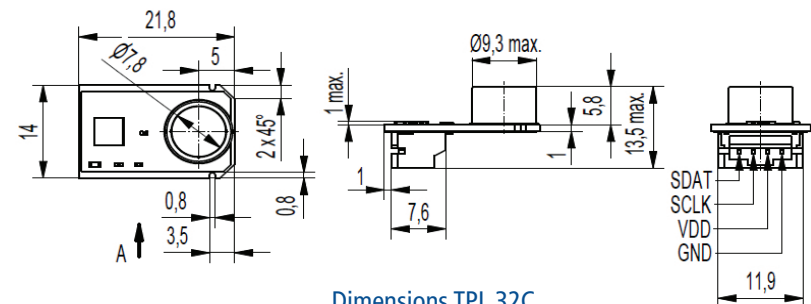
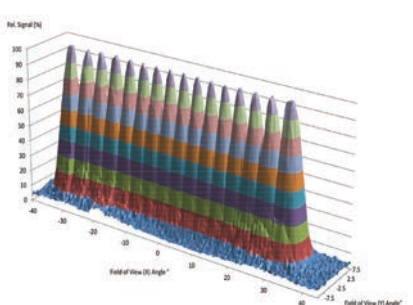
The offerings include an 8-Element Line Array and a 16-Element Line Array for either 60°C max temperature or 120°C max target temperature and a 32-Element Line Array for max 60°C target temperatures. Customized versions are available upon request.

Field of View TPiL 8T 2246 L3.9



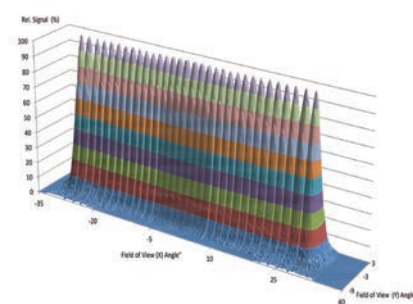
Dimensions TPiL 8T and TPiL 16T

Field of View TPiL 16T 3446 L3.9



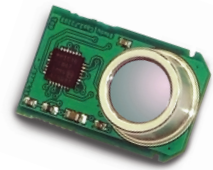
Dimensions TPL 32C

Field of View TPL 32C 3343 L4.7



TPiL 8T 2246 L3.9, TPiL 16T 3x46 L3.9, TPL 32C 3343 L4.7

Parameter	Symbol	TPiL 8T 2246 L3.9	TPiL 16T 3446 L3.9	TPiL 16T 3546 L3.9	TPL 32C 3343 L4.7	Unit	Remark
Sensing Temp. Range		0...60	0...60	0...60	0...60	°C	only A60 Version
Sensing Temp. Range			0...120			°C	only A120 Version
Object Temp. Accuracy		+/- 1,5	+/- 1,5	+/- 1,5	+/- 1,5	°C	
Operating Temp. Range		-25...+100	-25...+100	-25...+100	-25...+100	°C	
Storage Temp. Range		-40...+100	-40...+100	-40...+100	-40...+100	°C	
Supply Voltage	V _{DD}	4,5...5,5	4,5...5,5	4,5...5,5	4,5...5,5	V	
Supply Current	I _{DD}	5	5	5	5	mA	typical
Field of View x direction	FoV _x	50	71	70	59	Degree	peak to peak
Field of View y direction	FoV _y	4	4	4	3	Degree	50% Line
Signal refresh time	t _{refresh}	250	400	400	380	ms	
Digital Interface		SMBus	SMBus	SMBus	SMBus		



Thermopile Line Array

For Non-Contact Temperature Sensing

TPL 32C 3774 L4.7 Fast Line Array

Target Applications

- Non-Contact Temperature Measurement
- Smart Homes
- Scanning Presence Detection

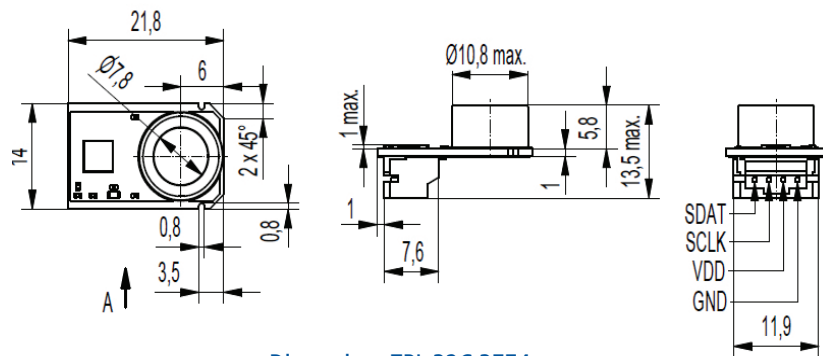
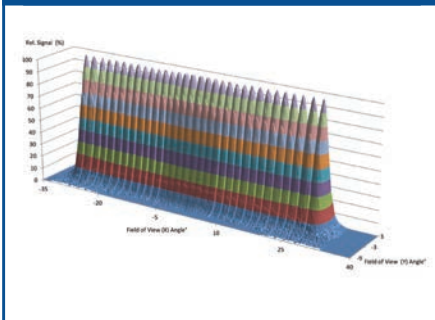
Features and Benefits

- Digital SMBus
- Factory Calibration
- Ambient Temperature Output
- Noise Reduction Filter

Product Description

This new Excelitas Thermopile Line Array represents the improved version of TPL 32C modules for non-contact temperature measurement and scanning applications. It is featured by parallel read out, and as such, is much faster in response. The new module consists of an improved Array Sensor and small microprocessor which provide a calibrated temperature output signal. The microprocessor also acts as the bus interface. The module is supplied with 4-pin connector. The new 32-Element Line array is designed to measure temperatures up to 60°C.

Field of View TPL 32C 3774 L4.7



Dimensions TPL 32C 3774

TPL 32C 3774 L4.7

Parameter	Symbol	TPL 32C 3774 L4.7	Unit	Remark
Sensing Temperature Range		0...60	°C	only A60 Version
Object Temperature Accuracy		+/- 1,5	°C	
Operating Temperature Range		-25...+100	°C	
Storage Temperature Range		-40...+100	°C	
Supply Voltage	V _{DD}	4,5...5,5	V	
Supply Current	I _{DD}	20	mA	max
Field of View x direction	FoV _x	59	Degree	peak to peak
Field of View y direction	FoV _y	3	Degree	50% Line
Signal refresh time	t _{refresh}	100	ms	
Digital Interface		SMBus		

Handling and Precautions

Humidity

All Excelitas IR-detectors shall not increase noise or decrease responsivity when exposed to $\leq 95\%$ R.H. at 30°C . Operation below dew point (i.e. with condensation) might affect performance.

Hermetic seal

All Excelitas IR-detectors are sealed to pass a He-leakage test with maximum leak rate of 5×10^{-8} mbar l /s.

Quality

Excelitas is an ISO 9001-certified manufacturer with established SPC and TQM. Detector outgoing inspections include the parameters Responsivity, Offset, Noise, Gross leak (MIL Std 883 method 1014C1). Individual data are not stored, statistical details can be disclosed on request.

Handling

Electrostatic charges may destroy the detector. We recommend applying precautions necessary for ESD devices to avoid damages. Do not apply physical force to detector leads.

Avoid heat exposure to the top and the window of the part, and keep the window clean. When wiping window use cotton swap with clean alcohol. Do not expose detector to aggressive detergents such as freon, trichloroethylene, etc. Do not scrap the windows.

Since all arrays are supplied as modules with connectors, there is no need to solder the connections to the following circuitry. The modules have fixation holes for easy fixture with small screws to their carrier. Avoid physical stress to the boards when using screw type mounting.

Reliability Standards

International Electrotechnical Commission (IEC) Standards

IEC 60068-2-1	Environmental testing – Part 2: Tests. Tests A: Cold
IEC 60068-2-2	Environmental testing – Part 2: Tests. Tests B: Dry heat
IEC 60068-2-78	Environmental testing – Part 2-78: Tests. Test Cab: Damp heat, steady state
IEC 60068-2-14	Environmental testing – Part 2: Tests. Test N: Change of temperature

Joint Electron Devices Engineering (JEDEC) Standards

JESD-22	Series test methods
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US Military (MIL) Standards

MIL-STD-883	Test methods and procedures for microelectronics
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Reliability Standards

Excelitas' continuous reliability qualification and monitoring program ensures that all outgoing products meet quality and reliability standards. Tests are performed according to approved semiconductor device standards, such as

- IEC
- MIL, and JDEC (see table above).

For detailed information please contact Excelitas.

Distributor



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