

Digital ST60 Thermopile Product Information



PRELIMINARY

Dexter Research is proud to announce a low-cost, non-contact, digital infrared thermopile. Dexter's ST60 Digital Single Channel Thermopile is based on our leadership in thermopile technology and includes digital SMBus addressable output that support multi sensor applications and has flexible power requirements. Applications include environmental monitoring, HVAC control, control of smart homes, buildings and manufacturing equipment and applications requiring low power and those that are battery powered.

Also available: ST60 dual and quad channel configurations.

1. Features

- Dexter Research's superior thermopile technology.
- 2 wire SMBus
- Software programmable amp
- Digital output
- Business addressable to 127 devices
- 17 Bit A-D converter
- Error check and correction (ECC) via PEC for reliable data communications
- Low cost, competitive pricing
- Four encapsulation gas options
- Filter options: See Standard Filters and Windows on web site
- Reduces system component count
- Reduces assembly costs
- Digital gas sensor in a TO-5 package for NDIR
- Single and multi-channel configurations available



Detector circuit overlay

Superior Digital performance
driven by **Dexter Research**
thermopile technology.

IT ALL BEGINS HERE.

Dexter Research is ISO 9001:2008 Certified

Digital ST60 Thermopile

Technical Specifications

Specifications apply at 23°C with Nitrogen encapsulating gas

Parameter	Min	Typical	Max	Symbol	Units	Comments
Active Area size		.61 x .61		AA	mm	Hot junction size, per element.
Element Area		.37		A	mm ²	
Number of Junctions		80				Per element.
Number of Channels		1				Per detector package.
Digital Output		1120			Counts	With KBr window. DC, H=330μW/cm ² (3)
Digital Output		770			Counts	With CaF2 window. DC, H=330μW/cm ² (3)
Temperature Coefficient of \mathcal{R}		-.04			%/°C	Best linear fit, 0° to 85°C (1)
Time Constant		18		τ	ms	Chopped, -3dB point (1)
Field of View		64°/81°		FOV	Degrees	See Assembly Drawings for FOV Description.
Package Type		TO-5				Standard package hole size: \varnothing .150"
Operating Temperature	-40		85		°C	
Temperature Sensor	6638	6670	6707		Counts	
Temperature Coefficient of Temperature Sensor		22.9			Counts / °C	

General Specifications: Flat spectral response from 100nm to > 100μm. Linear signal output from 10⁴ to 0.1W/cm². Maximum incident radiance 0.1W/cm², damage threshold \geq .5W/cm²

Notes: (1) Parameter is not 100% tested, 90% of all units meet these specifications. (2) A is detector area in cm². (3) Test Conditions: 500K Blackbody source; Detector active surface 10cm from 0.6513cm Diameter Blackbody Aperture.

Maximum Ratings

Parameter	5 Volt devices	3 Volt devices
Supply Voltage, V_{DD} (over voltage)	7 V	5 V
Supply Voltage, V_{DD} (operating)	5.5 V	3.6 V
Reverse Voltage	0.4 V	
Operating Temperature Range, T_A	-40...+85°C	
Storage Temperature Range, T_S	-40...+125°C	
ESD Sensitivity (AEC Q100 002)	2 kV	
DC Current into SCL / Vz (Vz mode)	2 mA	
DC Sink Current, SDA / PWM pin	25 mA	
DC Source Current, SDA / PWM pin	25 mA	
DC Clamp Current, SDA / PWM pin	25 mA	
DC Clamp Current, SCL pin	25 mA	

Exceeding the absolute maximum ratings may affect device reliability and/or cause permanent damage.

Pin Description

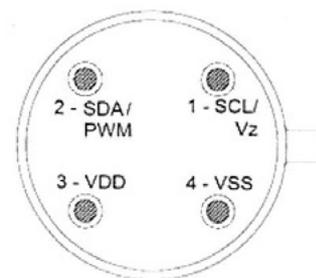


Figure 4. Package Top View