

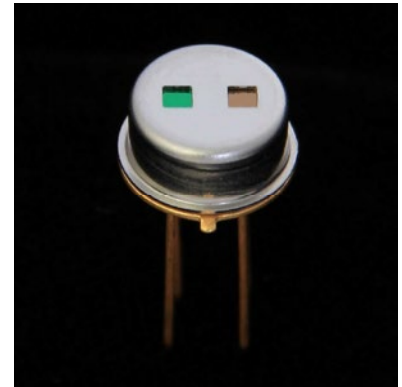
Digital ST60 Dual Thermopile Product Information



PRELIMINARY

The Dexter Research ST60 Digital Dual Channel Thermopile is a digital infrared detector that facilitates ease of integration into numerous applications. Based on Dexter's leadership in thermopile technology, the integrated digital electronics, in a small TO-5 package, incorporates industry standard digital SMBus interface that supports multiple sensor applications. The digital platform supports easy integration and provides rapid development due to the integrated amplifier, A/D, DSP, MUX, and communication protocol.

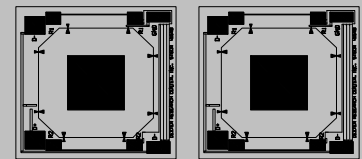
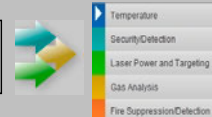
Applications include gas analysis, environmental monitoring, HVAC and smart home/building control, and applications that require low power and battery powered installations.



1. Features

- Digital output
- 2 wire Digital SMBus communications
- 17 Bit A-D converter
- Error check and correction (ECC) via PEC providing reliable data communication
- Software programmable amplifier
- Bus addressable multi-drop to 127 devices
- Many optical filter options: See Standard Filters and Windows on web site
- Facilitates reduced system component count
- Digital sensor in a TO-5 package
- Single and multi-channel configurations available

We've taken the analog out of detector design



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 Dual 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	2					Per detector package.
Digital Output	515	608	700		Counts	With KBr 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		T	ms	Detector without electronics, Chopped, -3dB point (1)
Field of View	25°/55°			FOV	Degrees	See Assembly Drawings for FOV Description.
Package Type	TO-5					Standard package hole size: (2) .060" sq. holes
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 10⁻⁶ to 0.1W/cm². Maximum incident radiance 0.1W/cm², damage threshold ≥ .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

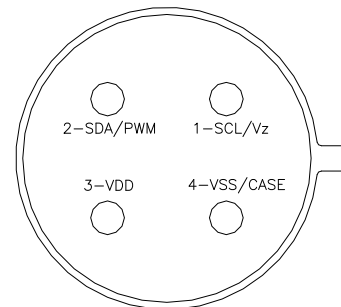


Figure 4. Package Top View