

D6T

MEMS Thermal Sensors

High Sensitivity Enables Detection of Stationary Human Presence

- OMRON's unique MEMS and ASIC technology achieve a high SNR.
- Superior noise immunity with a digital output.
- High-precision area temperature detection with low cross-talk field of view characteristics.



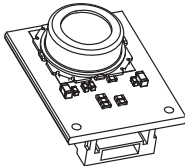
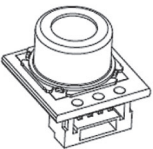
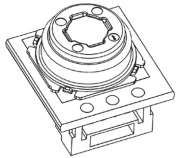
RoHS Compliant



Refer to *Safety Precautions* on page 6.

Ordering Information

Thermal Sensors

Element type	Model	Shape
4×4	D6T-44L-06	
1×8	D6T-8L-09	
1×1	D6T-1A-01	
	D6T-1A-02	

Accessories (Sold separately)

Type	Model
Cable Harness	D6T-HARNESS-02

Ratings, Specifications, and Functions

Ratings

Item	Model	D6T-44L-06	D6T-8L-09	D6T-1A-01	D6T-1A-02
Power supply voltage		4.5 to 5.5 VDC			
Storage temperature range		-10 to 60°C	-20 to 80°C	-20 to 80°C	-40 to 80°C
		(with no icing or condensation)			
Operating temperature range		0 to 50°C	0 to 60°C	0 to 60°C	-40 to 80°C
		(with no icing or condensation)			
Storage humidity range		85% max.	95% max.	95% max.	95% max.
		(with no icing or condensation)			
Operating humidity range		20% to 85%	20% to 95%	20% to 95%	20% to 95%
		(with no icing or condensation)			

Characteristics

Item	Model	D6T-44L-06	D6T-8L-09	D6T-1A-01	D6T-1A-02
View angle ^{*1}	X direction	44.2°	54.5°	58.0°	26.5°
	Y direction	45.7°	5.5°	58.0°	26.5°
Object temperature output accuracy ^{*2}	Accuracy 1	±1.5°C max. Measurement conditions: Vcc = 5.0 V (1) Tx = 25°C, Ta = 25°C (2) Tx = 45°C, Ta = 25°C (3) Tx = 45°C, Ta = 45°C			
	Accuracy 2	±3.0°C max. Measurement conditions: Vcc = 5.0 V (4) Tx = 25°C, Ta = 45°C			
Current consumption		5 mA typical		3.5 mA typical	

Functions

Item	Model	D6T-44L-06	D6T-8L-09	D6T-1A-01	D6T-1A-02
Object temperature detection range ^{*2}		5 to 50°C	5 to 50°C	5 to 50°C	-40 to 80°C
Reference temperature detection range ^{*2}		5 to 45°C	5 to 45°C	5 to 45°C	-40 to 80°C
Output specifications		Digital values that correspond to the object temperature (Tx) and reference temperature (Ta) are output from a serial communications port.			
Output form		Binary code (10 times the detected temperature (°C))			
Communications form		I2C compliant			
Temperature resolution (NETD) ^{*3}		0.06°C	0.03°C	0.02°C	0.06°C

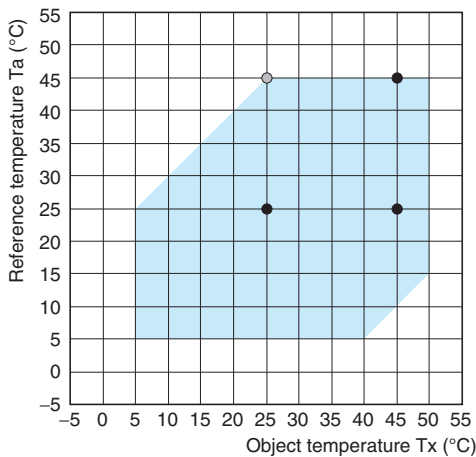
*1. Refer to *Field of View Characteristics*.

*2. Refer to *Object Temperature Detection Range*.

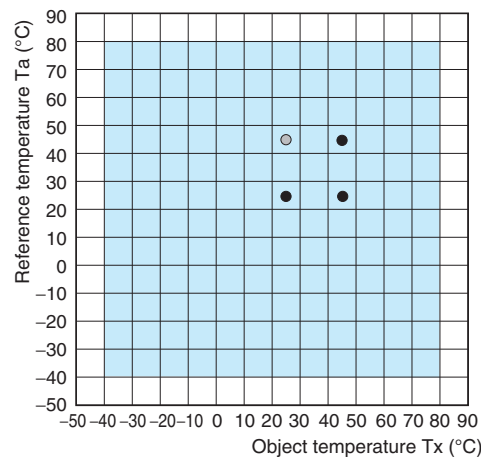
*3. Reference data

Object Temperature Detection Range

D6T-44L-06, D6T-8L-09, D6T-1A-01



D6T-1A-02



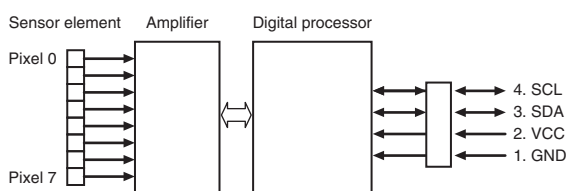
● : Inspection point for accuracy 1

○ : Inspection point for accuracy 2

■ : Object temperature detection range

Connections

Thermal Sensor Configuration Diagram



Note: The 4×4 type has pixels 0 to 15.
The 1×1 type has pixel 0.

Terminal Arrangement

Terminal	Name	Function	Remarks
1	GND	Ground	
2	VCC	Positive power supply voltage input	
3	SDA	Serial data I/O line	Connect the open-drain SDA terminal to a pull-up resistor.
4	SCL	Serial clock input	Connect the open-drain SCL terminal to a pull-up resistor.