

## SOLID-STATE TEMPERATURE SENSOR

### FEATURES

- 2 kV ESD Protection on All Pins
- On-Chip Temperature Sensing
- Replaces Mechanical Thermostats and Switches
- TO-220 package for "Hot Spot" Mounting
- TO-92 Package for Direct Circuit Board Mounting
- $\pm 3^{\circ}\text{C}$  Absolute Temperature Accuracy
- 10 mA Output Signal TO-92 Package
- 50 mA Output Signal TO-220 Package

### APPLICATIONS

- System Overtemperature Shutdown
- Advanced Thermal Warning
- Fan Speed Control Circuits
- Vibration-Immune Temperature Sensing
- Accurate Appliance Temperature Sensing

### GENERAL DESCRIPTION

The TC626 is a solid-state temperature sensor designed to replace mechanical switches in temperature-sensing applications. The ambient temperature is sensed and compared to an internal programmed temperature. The preset internal temperatures can be ordered in  $5^{\circ}\text{C}$  increments, from  $0^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$ .

Our proprietary technology provides high, absolute temperature accuracy ( $\pm 3^{\circ}\text{C}$ ). Since there are no moving parts, the TC626 is rugged and works well in harsh environments that could damage and reduce the life of mechanical temperature sensors. Automotive and industrial users will benefit from its immunity to vibration.

### DESIGN PARAMETERS

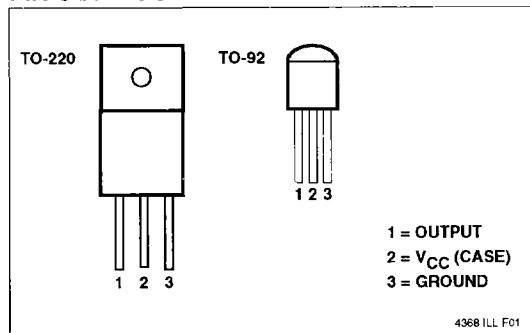
The output will remain low until the internally programmed temperature is reached. The device then switches its output high. This output signal can source and sink up to 10 mA (TO-92 package) and 50 mA (TO-220 package).

The heat-sinking ability of the surface to which the device is attached can permit higher power applications since the internal heating of the device will be negligible compared to the ambient temperature.

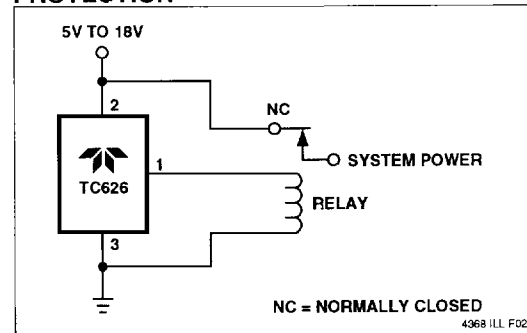
The hysteresis of the TC626 is 5 degrees at  $20^{\circ}\text{C}$ . At higher temperatures, it increases.

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### PIN CONFIGURATIONS



### SYSTEM OVERTEMPERATURE PROTECTION



## TC626

## ORDERING INFORMATION

Part Number*	Package	Temperature Range
TC626XXXCAB	3-Pin TO-220	0°C to +70°C
TC626XXXEAB	3-Pin TO-220	-40°C to +85°C
TC626XXXVAB	3-Pin TO-220	-40°C to +125°C
TC626XXXCZB	3-Pin TO-92	0°C to +70°C
TC626XXXEZB	3-Pin TO-92	-40°C to +85°C
TC626XXXVZB	3-Pin TO-92	-40°C to +125°C

\* XXX is temperature in 5°C increments, from 0 to +125°C (a 50°C part would be TC626050CAB).

**ELECTRICAL CHARACTERISTICS:**  $V_{DD} = +5V$  unless otherwise specified.

Parameter	Test Conditions	Min	Typ	Max	Units
Supply Voltage		4.5	—	18	V
Supply Current		—	300	600	$\mu A$
Output Resistance	Output High or Low	—	—	75	$\Omega$
Output Current	Source/Sink, $V_{CC} = 18V$	—	—	25	mA
	Source/Sink, $V_{CC} = 4.5V$	—	—	10	mA
Absolute Accuracy		T-3	T	T+3	°C
Differential		3.5	5	6.5	°C

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## SWITCHING LOGIC

