19-1280; Rev 5; 10/06

MAXIM

Low-Cost, +2.7V to +5.5V, Micropower Temperature Switches in SOT23 and TO-220

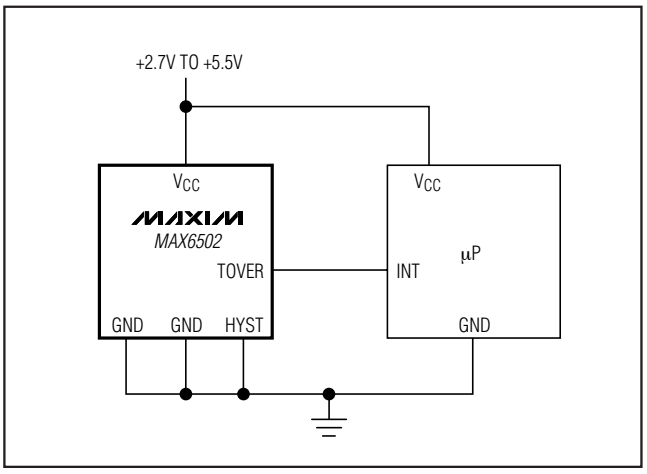
General Description

The MAX6501–MAX6504 low-cost, fully integrated temperature switches assert a logic signal when their die temperature crosses a factory-programmed threshold. Operating from a +2.7V to +5.5V supply, these devices feature two on-chip, temperature-dependent voltage references and a comparator. They are available with factory-trimmed temperature trip thresholds from -45°C to +125°C in 10°C increments, and are accurate to ±0.5°C (typ) or ±6°C (max). These devices require no external components and typically consume 30µA supply current. Hysteresis is pin-selectable at +2°C or +10°C.

The MAX6501/MAX6503 have an active-low, open-drain output intended to interface with a microprocessor (µP) reset input. The MAX6502/MAX6504 have an active-high, push-pull output intended to directly drive fan-control logic. The MAX6501/MAX6502 are offered with hot-temperature thresholds (+35°C to +125°C), asserting when the temperature is above the threshold. The MAX6503/MAX6504 are offered with cold-temperature thresholds (-45°C to +15°C), asserting when the temperature is below the threshold.

The MAX6501–MAX6504 are offered in eight standard temperature versions; contact the factory for pricing and availability of nonstandard temperature versions. They are available in 5-pin SOT23 and 7-pin TO-220 packages.

Typical Operating Circuit



Selector Guide and Pin Configurations appear at end of data sheet.

Features

- **±0.5°C (typical) Threshold Accuracy Over Full Temperature Range**
- **No External Components Required**
- **Low Cost**
- **30µA Supply Current**
- **Factory-Programmed Thresholds from -45°C to +125°C in 10°C Increments**
- **Open-Drain Output (MAX6501/MAX6503) Push-Pull Output (MAX6502/MAX6504)**
- **Pin-Selectable +2°C or +10°C Hysteresis**
- **SOT23-5 and TO220-7 Packages**

Ordering Information

PART*	TEMP RANGE	PIN-PACKAGE
MAX6501UK_ _ _ _-T	-55°C to +125°C	5 SOT23-5
MAX6501CM_ _ _ _-T	-55°C to +125°C	7 TO-220-7
MAX6502UK_ _ _ _-T	-55°C to +125°C	5 SOT23-5
MAX6502CM_ _ _ _-T	-55°C to +125°C	7 TO-220-7
MAX6503UK_ _ _ _-T	-55°C to +125°C	5 SOT23-5
MAX6503CM_ _ _ _-T	-55°C to +125°C	7 TO-220-7
MAX6504UK_ _ _ _-T	-55°C to +125°C	5 SOT23-5
MAX6504CM_ _ _ _-T	-55°C to +125°C	7 TO-220-7

**These parts are offered in eight standard temperature versions with a minimum order of 2,500 pieces. To complete the suffix information, add P or N for positive or negative trip temperature, and select an available trip point in degrees centigrade. For example, the MAX6501UKP065-T describes a MAX6501 in a SOT23-5 package with a +65°C threshold. Contact the factory for pricing and availability of nonstandard temperature versions (minimum order 10,000 pieces).*

Applications

µP Temperature Monitoring in High-Speed Computers

Temperature Control

Temperature Alarms

Fan Control

†*Patents pending*

For pricing, delivery, and ordering information, please contact Maxim/Dallas Direct! at 1-888-629-4642, or visit Maxim's website at www.maxim-ic.com.

Low-Cost, +2.7V to +5.5V, Micropower Temperature Switches in SOT23 and TO-220

ABSOLUTE MAXIMUM RATINGS

Supply Voltage (V_{CC}) .....-0.3V to +7V
$\overline{TOVER}$ (MAX6501) .....-0.3V to +7V
TOVER (MAX6502) .....-0.3V to (V_{CC} + 0.3V)
$\overline{TUNDER}$ (MAX6503) .....-0.3V to +7V
TUNDER (MAX6504) .....-0.3V to (V_{CC} + 0.3V)
All Other Pins .....-0.3V to (V_{CC} + 0.3V)
Input Current (all pins) 20mA
Output Current (all pins) 20mA
Continuous Power Dissipation (T_A = +70°C)
5-Pin SOT23-5 (derate 7.1mW/°C above +70°C) 571mW
Operating Temperature Range .....-55°C to +135°C
Storage Temperature Range .....-65°C to +165°C
Lead Temperature (soldering, 10sec) .....+300°C

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

(V_{CC} = +2.7V to +5.5V, $R_{PULL-UP}$ = 100kΩ (MAX6501/MAX6503 only), T_A = T_{MIN} to T_{MAX}, unless otherwise noted. Typical values are at T_A = +25°C.) (Note 1)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Supply Voltage Range	V_{CC}		2.7		5.5	V
Supply Current	I_{CC}			30	85	µA
Temperature Threshold Accuracy (Note 2)	ΔT_{TH}	-45°C to -25°C	-6	±0.5	+6	°C
		-15°C to +15°C	-4	±0.5	+4	
		+35°C to +65°C	-4	±0.5	+4	
		+75°C to +125°C	-6	±0.5	+6	
Temperature Threshold Hysteresis	T_{HYST}	HYST = GND		2		°C
		HYST = V_{CC}		10		
HYST Input Threshold (Note 3)	V_{IH}		0.8 x V_{CC}			V
	V_{IL}				0.2 x V_{CC}	
Output Voltage High	V_{OH}	I_{SOURCE} = 500µA, V_{CC} > 2.7V (MAX6502/MAX6504 only)	0.8 x V_{CC}			V
		I_{SOURCE} = 800µA, V_{CC} > 4.5V (MAX6502/MAX6504 only)	V_{CC} - 1.5			
Output Voltage Low	V_{OL}	I_{SINK} = 1.2mA, V_{CC} > 2.7V			0.3	V
		I_{SINK} = 3.2mA, V_{CC} > 4.5V			0.4	
Open-Drain Output Leakage Current		V_{CC} = 2.7V, $V_{\overline{TUNDER}}$ = 5.5V (MAX6503), $V_{\overline{TOVER}}$ = 5.5V (MAX6501)		10		nA

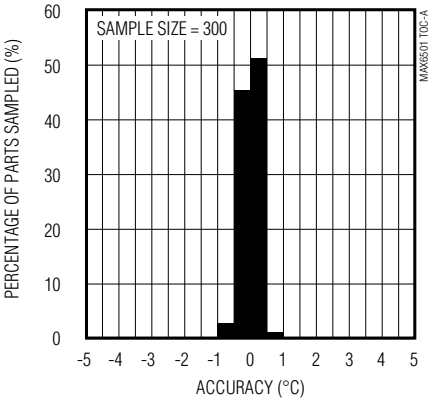
Note 1: 100% production tested at T_A = +25°C. Specifications over temperature limits are guaranteed by design.
Note 2: The MAX6501–MAX6504 are available with internal, factory-programmed temperature trip thresholds from -45°C to +125°C in +10°C increments *(see Selector Guide).*
Note 3: Guaranteed by design.

Low-Cost, +2.7V to +5.5V, Micropower Temperature Switches in SOT23 and TO-220

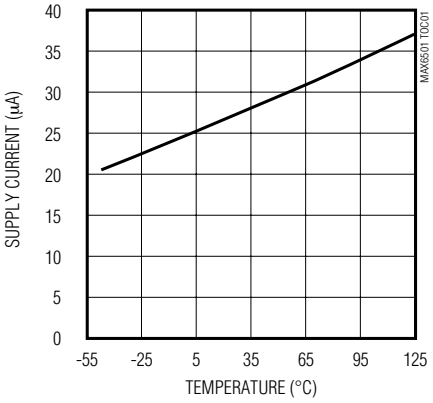
Typical Operating Characteristics

(V_{CC} = +5V, $R_{PULL-UP}$ = 100kΩ (MAX6501/MAX6503), T_A = +25°C, unless otherwise noted.)

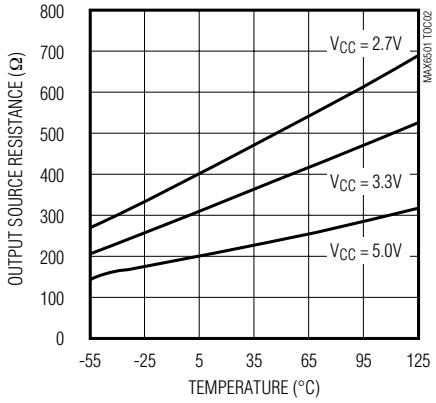
TRIP THRESHOLD ACCURACY



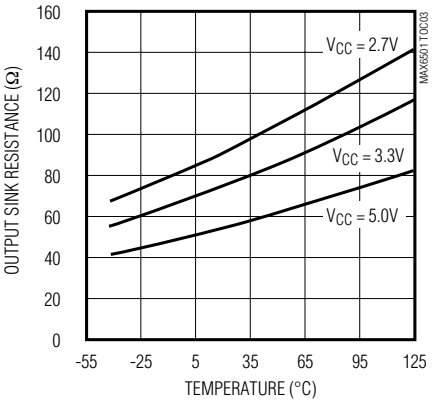
SUPPLY CURRENT vs. TEMPERATURE



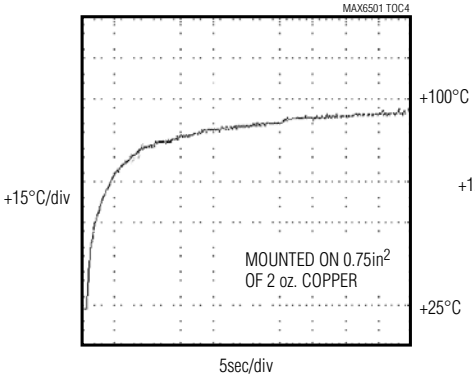
MAX6502/MAX6504 OUTPUT SOURCE RESISTANCE vs. TEMPERATURE



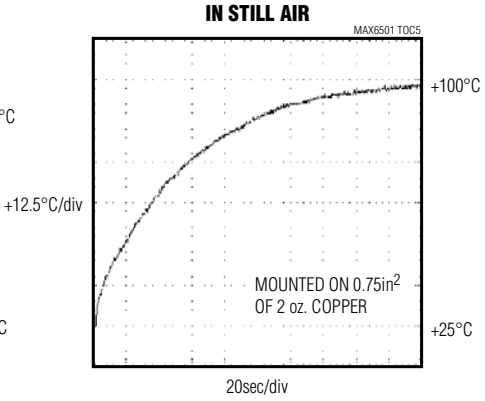
OUTPUT SINK RESISTANCE vs. TEMPERATURE



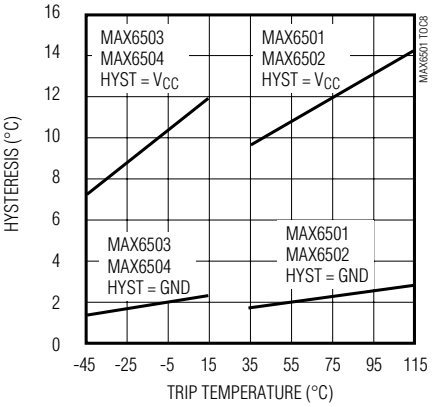
SOT23 THERMAL STEP RESPONSE IN PERFLUORINATED FLUID



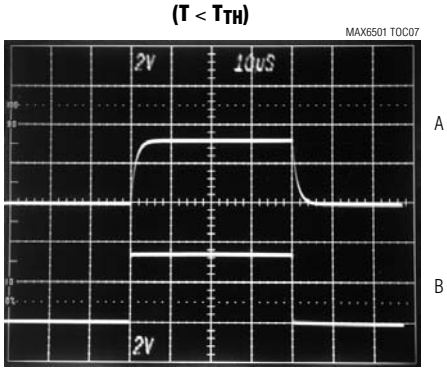
SOT23 THERMAL STEP RESPONSE IN STILL AIR



HYSTERESIS vs. TRIP TEMPERATURE

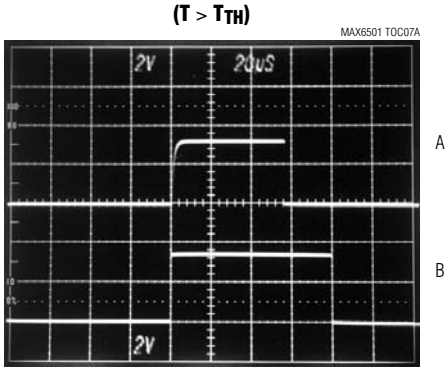


MAX6501 START-UP AND POWER-DOWN ($T < T_{TH}$)



TRACE A: $\overline{TOVER}$ VOLTAGE, $R_{PULL-UP}$ = 100kΩ
TRACE B: V_{CC} PULSE DRIVEN FROM 3.3V CMOS LOGIC OUTPUT

MAX6501 START-UP DELAY ($T > T_{TH}$)



TRACE A: $\overline{TOVER}$ VOLTAGE, $R_{PULL-UP}$ = 100kΩ
TRACE B: V_{CC} PULSE DRIVEN FROM 3.3V CMOS LOGIC OUTPUT

Low-Cost, +2.7V to +5.5V, Micropower Temperature Switches in SOT23 and TO-220

Pin Description

PIN				NAME	FUNCTION
MAX6501	MAX6502	MAX6503	MAX6504		
1, 2	1, 2	1, 2	1, 2	GND	Ground. Not internally connected. Tie both ground pins together close to the chip. Pin 2 provides the lowest thermal resistance to the die.
3	3	3	3	HYST	Hysteresis Input. Connect HYST to GND for +2°C hysteresis, or connect to V_{CC} for +10°C hysteresis.
4	4	4	4	V_{CC}	Supply Input (+2.7V to +5.5V)
5	—	—	—	$\overline{TOVER}$	Open-Drain, Active-Low Output. $\overline{TOVER}$ goes low when the die temperature exceeds the factory-programmed temperature threshold. Connect to a 100kΩ pull-up resistor. May be pulled up to a voltage higher than V_{CC}.
—	5	—	—	TOVER	Push-Pull Active-High Output. TOVER goes high when the die temperature exceeds the factory-programmed temperature threshold.
—	—	5	—	$\overline{TUNDER}$	Open-Drain, Active-Low Output. $\overline{TUNDER}$ goes low when the die temperature goes below the factory-programmed temperature threshold. Connect to a 100kΩ pull-up resistor. May be pulled up to a voltage higher than V_{CC}.
—	—	—	5	TUNDER	Push-Pull Active-High Output. TUNDER goes high when the die temperature falls below the factory-programmed temperature threshold.

General Description

The MAX6501–MAX6504 fully integrated temperature switches incorporate two temperature-dependent references and a comparator. One reference exhibits a positive temperature coefficient and the other a negative temperature coefficient (Figure 1). The temperature at which the two reference voltages are equal determines the temperature trip point. Pin-selectable +2°C or +10°C hysteresis keeps the output from oscillating when the die temperature approaches the threshold temperature. The MAX6501/MAX6503 have an active-low, open-drain output structure that can only sink current. The MAX6502/MAX6504 have an active-high, push-pull output structure that can sink or source current. The internal power-on reset circuit guarantees the output is at T_{TH} = +25°C state at start-up for 50µs.

The MAX6501–MAX6504 are available with factory-preset temperature thresholds from -45°C to +125°C in 10°C increments. Table 1 lists the available temperature threshold ranges. The MAX6501/MAX6503 outputs are intended to interface with a microprocessor (µP) reset input (Figure 2). The MAX6502/MAX6504 outputs are intended for applications such as driving a fan control (Figure 3).

Table 1. Factory-Programmed Threshold Range

PART	THRESHOLD (T_{TH}) RANGE
MAX6501	+35°C < T_{TH} < +125°C
MAX6502	+35°C < T_{TH} < +125°C
MAX6503	-45°C < T_{TH} < +15°C
MAX6504	-45°C < T_{TH} < +15°C

Hysteresis Input

The HYST pin is a CMOS-compatible input that selects hysteresis at either a high level (+10°C for HYST = V_{CC}) or a low level (+2°C for HYST = GND). Hysteresis prevents the output from oscillating when the temperature approaches the trip point. The HYST pin should not float. Drive HYST close to ground or V_{CC}. Other input voltages cause increased supply current. The actual amount of hysteresis depends on the part's programmed trip threshold (see the *Typical Operating Characteristics*).

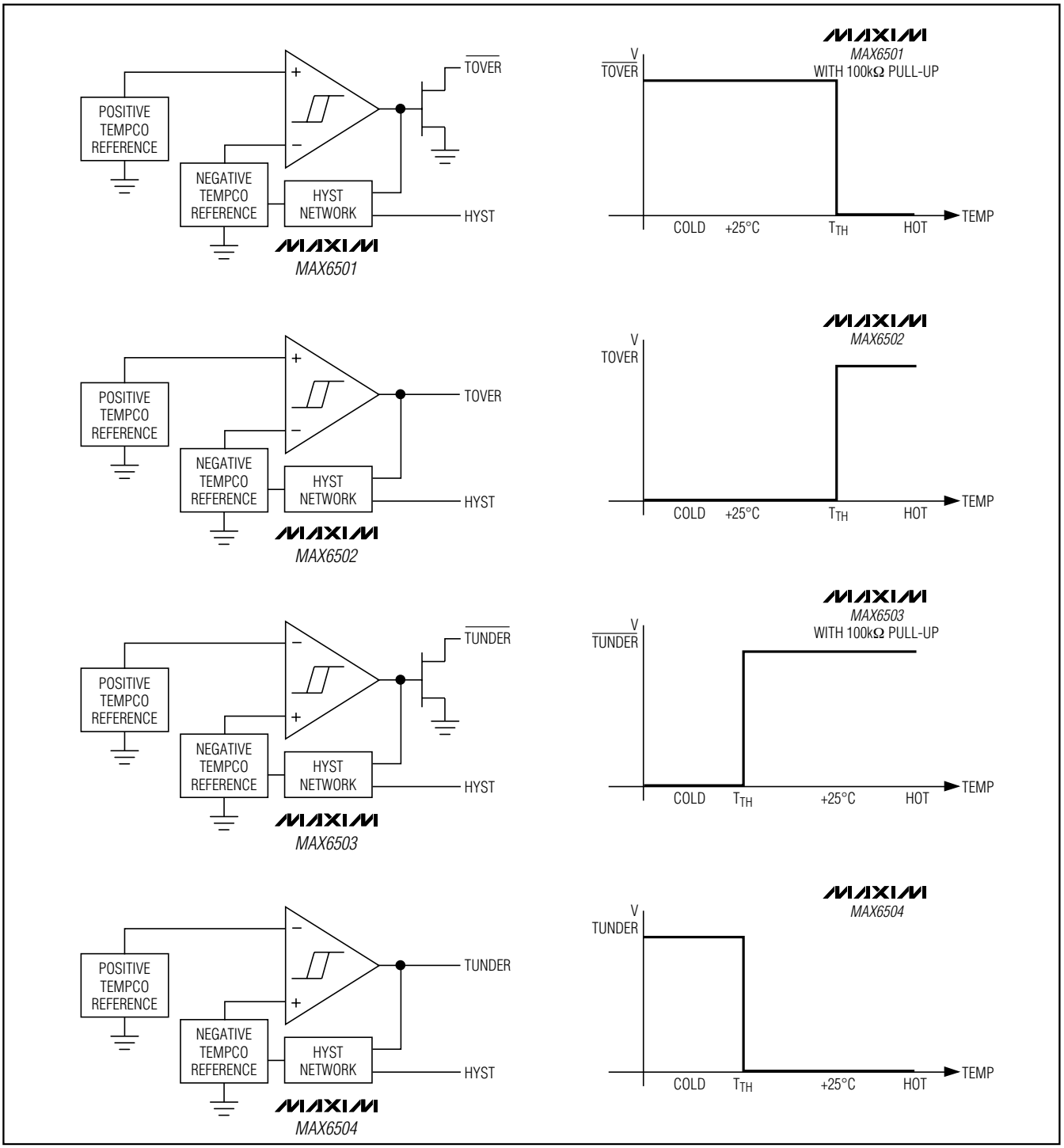


Figure 1. Block and Functional Diagrams

Low-Cost, +2.7V to +5.5V, Micropower Temperature Switches in SOT23 and TO-220

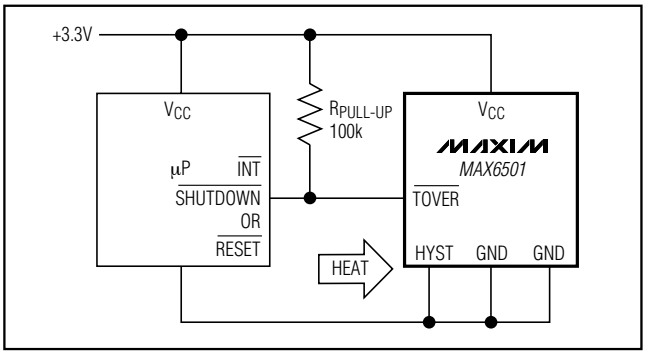


Figure 2. Microprocessor Alarm/Reset

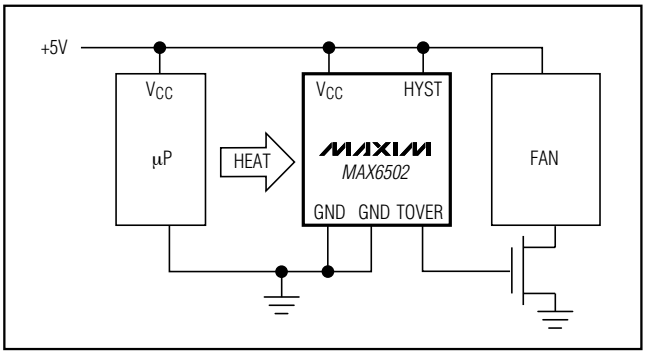


Figure 3. Overtemperature Fan Control

Applications Information

Thermal Considerations

The MAX6501–MAX6504 supply current is typically 30µA. When used to drive high-impedance loads, the devices dissipate negligible power. Therefore, the die temperature is essentially the same as the package temperature. The key to accurate temperature monitoring is good thermal contact between the MAX6501–MAX6504 package and the device being monitored. In some applications, the SOT23-5 package may be small enough to fit underneath a socketed µP, allowing the device to monitor the µP's temperature directly. The TO-220 package can monitor the temperature of a heat sink directly, and presents the lower thermal resistance of the two packages. Use the monitor's output to reset the µP, assert an interrupt, or trigger an external alarm.

Accurate temperature monitoring depends on the thermal resistance between the device being monitored and the MAX6501–MAX6504 die. Heat flows in and out of plastic packages, primarily through the leads. Pin 2 of the SOT23-5 package provides the lowest thermal resistance to the die. Short, wide copper traces leading to the temperature monitor ensure that heat transfers quickly and reliably.

The rise in die temperature due to self-heating is given by the following formula:

$$\Delta T_J = P_{DISSIPATION} \times \theta_{JA}$$

where $P_{DISSIPATION}$ is the power dissipated by the MAX6501–MAX6504, and θ_{JA} is the package's thermal resistance.

The typical thermal resistance is 140°C/W for the SOT23-5 package and 75°C/W for the TO-220 package. To limit the effects of self-heating, minimize the output currents. For example, if the MAX6501 or MAX6503 sink 1mA, the output voltage is guaranteed to be less than 0.3V. Therefore, an additional 0.3mW of power is dissipated within the IC. This corresponds to a 0.042°C shift in the die temperature in the SOT23-5.

Temperature-Window Alarm

The MAX6501–MAX6504 temperature switch outputs assert when the die temperature is outside the factory-programmed range. Combining the outputs of two devices creates an over/undertemperature alarm. The MAX6501/MAX6503 and the MAX6502/MAX6504 are designed to form two complementary pairs, each containing one cold trip-point output and one hot trip-point output. The assertion of either output alerts the system to an out-of-range temperature. The MAX6502/MAX6504 push/pull output stages can be ORed to produce a thermal out-of-range alarm. More favorably, a MAX6501/MAX6503 can be directly wire-ORed with a single external resistor to accomplish the same task (Figure 4).

The temperature window alarms shown in Figure 4 can be used to accurately determine when a device's temperature falls out of the -5°C to +75°C range. The thermal-overrange signal can be used to assert a thermal shutdown, power-up, recalibration, or other temperature-dependent function.

Low-Cost, Fail-Safe Temperature Monitor

In high-performance/high-reliability applications, multiple temperature monitoring is important. The high-level integration and low cost of the MAX6501–MAX6504 facilitate the use of multiple temperature monitors to increase system reliability. Figure 5's application uses two MAX6502s with different temperature thresholds to ensure that fault conditions that can overheat the monitored device cause no permanent damage. The first temperature monitor activates the fan when the die temperature exceeds +45°C. The second MAX6502 triggers a system shutdown if the die temperature reaches +75°C. The second temperature monitor's output asserts when a wide variety of destructive fault conditions occur, including latchups, short circuits, and cooling-system failures.

Low-Cost, +2.7V to +5.5V, Micropower Temperature Switches in SOT23 and TO-220

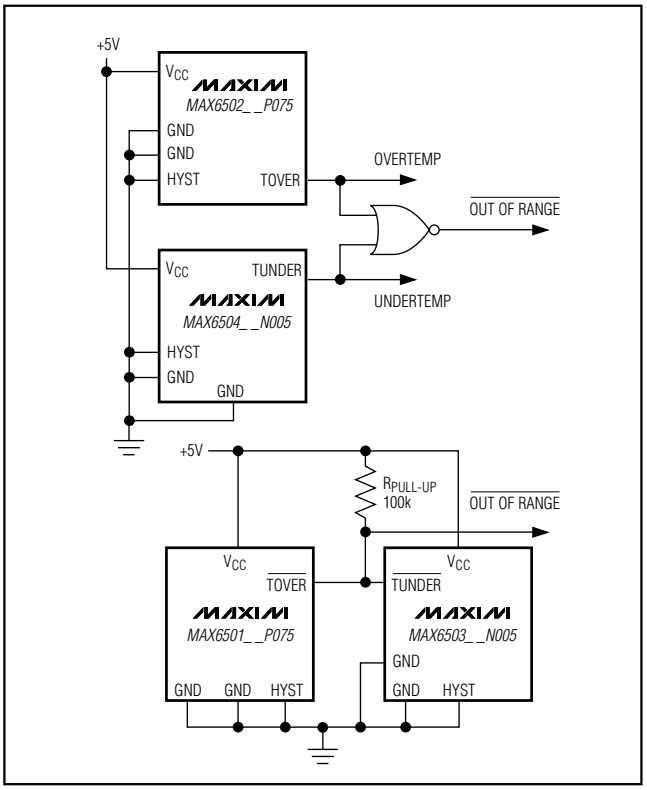


Figure 4. Temperature-Window Alarms

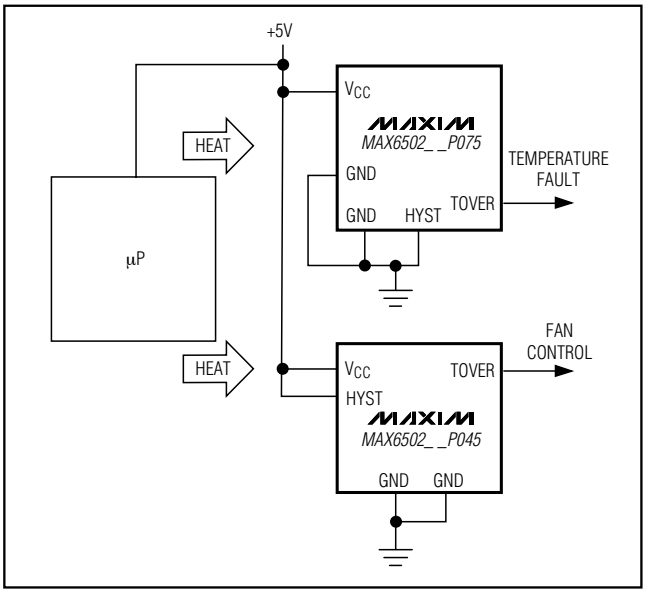


Figure 5. Low-Power, High-Reliability, Fail-Safe Temperature Monitor

Table 2. Device Marking Codes for SOT23-5 Package

DEVICE	CODE	MINIMUM ORDER
MAX6501UKP035	ABZF	10k
MAX6501UKP045	ABZR	2.5k
MAX6501UKP055	ACFW	2.5k
MAX6501UKP065	ABZS	2.5k
MAX6501UKP075	ACFV	2.5k
MAX6501UKP085	ACDP	2.5k
MAX6501UKP095	ABZT	2.5k
MAX6501UKP105	ACFU	10k
MAX6501UKP115	ACAG	2.5k
MAX6501UKP125	ADQK	2.5k
MAX6502UKP035	ABZG	10k
MAX6502UKP045	ABZU	2.5k
MAX6502UKP055	ACGC	2.5k
MAX6502UKP065	ABZV	2.5k
MAX6502UKP075	ACGB	2.5k
MAX6502UKP085	ACGA	2.5k
MAX6502UKP095	ABZW	2.5k

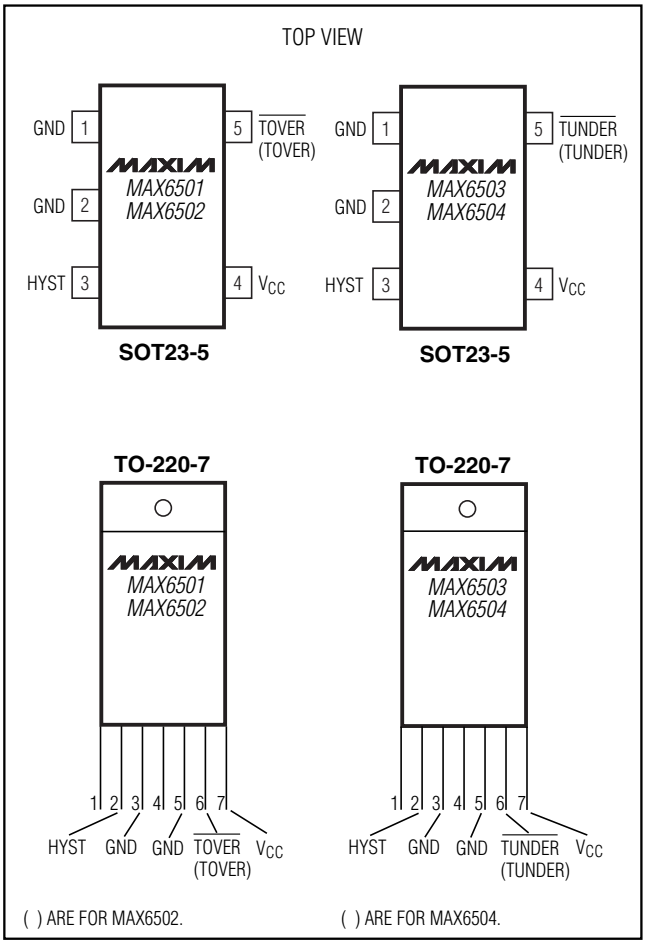
DEVICE	CODE	MINIMUM ORDER
MAX6502UKP105	ACFZ	10k
MAX6502UKP115	ACFY	2.5k
MAX6502UKP125	ADUD	2.5k
MAX6503UKN045	ADIZ	10k
MAX6503UKN035	ADVS	10k
MAX6503UKN025	ADVR	10k
MAX6503UKN015	ACFX	2.5k
MAX6503UKN005	ADNZ	10k
MAX6503UKP005	ABZX	2.5k
MAX6503UKP015	ADPN	10k
MAX6504UKN045	ACAX	10k
MAX6504UKN035	ADVU	10k
MAX6504UKN025	ADVT	10k
MAX6504UKN015	ACGD	2.5k
MAX6504UKN005	ADVX	10k
MAX6504UKP005	ABZY	2.5k
MAX6504UKP015	ADKE	10k

Low-Cost, +2.7V to +5.5V, Micropower Temperature Switches in SOT23 and TO-220

Selector Guide

PART		MAX6501	MAX6502	MAX6503	MAX6504
OUTPUT STAGE		Open-Drain	Push-Pull	Open-Drain	Push-Pull
TRIP TEMP THRESHOLD		Hot	Hot	Cold	Cold
STANDARD TEMPERATURE THRESHOLDS (°C)	-45			✓	✓
	-35			✓	✓
	-25			✓	✓
	-15			✓	✓
	-5			✓	✓
	+5			✓	✓
	+15			✓	✓
	+35	✓	✓		
	+45	✓	✓		
	+55	✓	✓		
	+65	✓	✓		
	+75	✓	✓		
	+85	✓	✓		
	+95	✓	✓		
	+105	✓	✓		
	+115	✓	✓		
	+125	✓	✓		

Pin Configurations



Chip Information

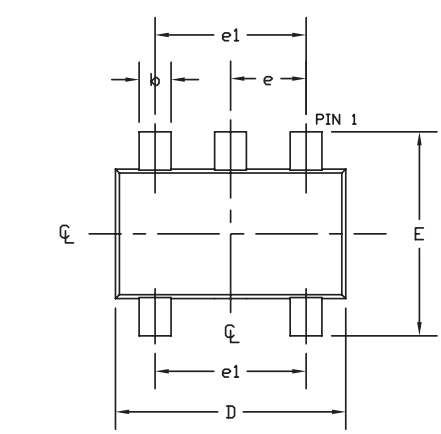
TRANSISTOR COUNT: 237
SUBSTRATE CONNECTED TO GND

Low-Cost, +2.7V to +5.5V, Micropower Temperature Switches in SOT23 and TO-220

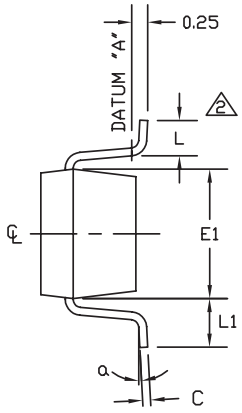
Package Information

(The package drawing(s) in this data sheet may not reflect the most current specifications. For the latest package outline information, go to **www.maxim-ic.com/packages**.)

SOT-23 5L .EPS

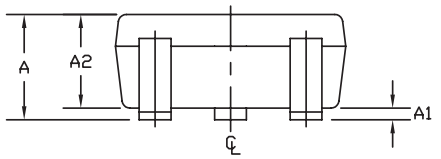


TOP VIEW



SIDE VIEW

SYMBOL	MIN	NOM	MAX
A	0.90	1.25	1.45
A1	0.00	0.05	0.15
A2	0.90	1.10	1.30
b	0.35	0.40	0.50
C	0.08	0.15	0.20
D	2.80	2.90	3.00
E	2.60	2.80	3.00
E1	1.50	1.625	1.75
L	0.35	0.45	0.60
L1	0.60 REF		
e	0.95 BSC.		
e1	1.90 BSC.		
α	0°	2.5°	8°
PKG CODES: U5-1, U5-2			



FRONT VIEW

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. FOOT LENGTH MEASURED AT INTERCEPT POINT BETWEEN DATUM A & LEAD SURFACE.
3. PACKAGE OUTLINE EXCLUSIVE OF MOLD FLASH & METAL BURR. MOLD FLASH, PROTRUSION OR METAL BURR SHOULD NOT EXCEED 0.25 MM.
4. PACKAGE OUTLINE INCLUSIVE OF SOLDER PLATING.
5. MEETS JEDEC MO178, VARIATION AA.
6. LEADS TO BE COPLANAR WITHIN 0.10 mm.
7. SOLDER THICKNESS MEASURED AT FLAT SECTION OF LEAD BETWEEN 0.08mm AND 0.15mm FROM LEAD TIP.

DALLAS SEMICONDUCTOR MAXIM
PROPRIETARY INFORMATION

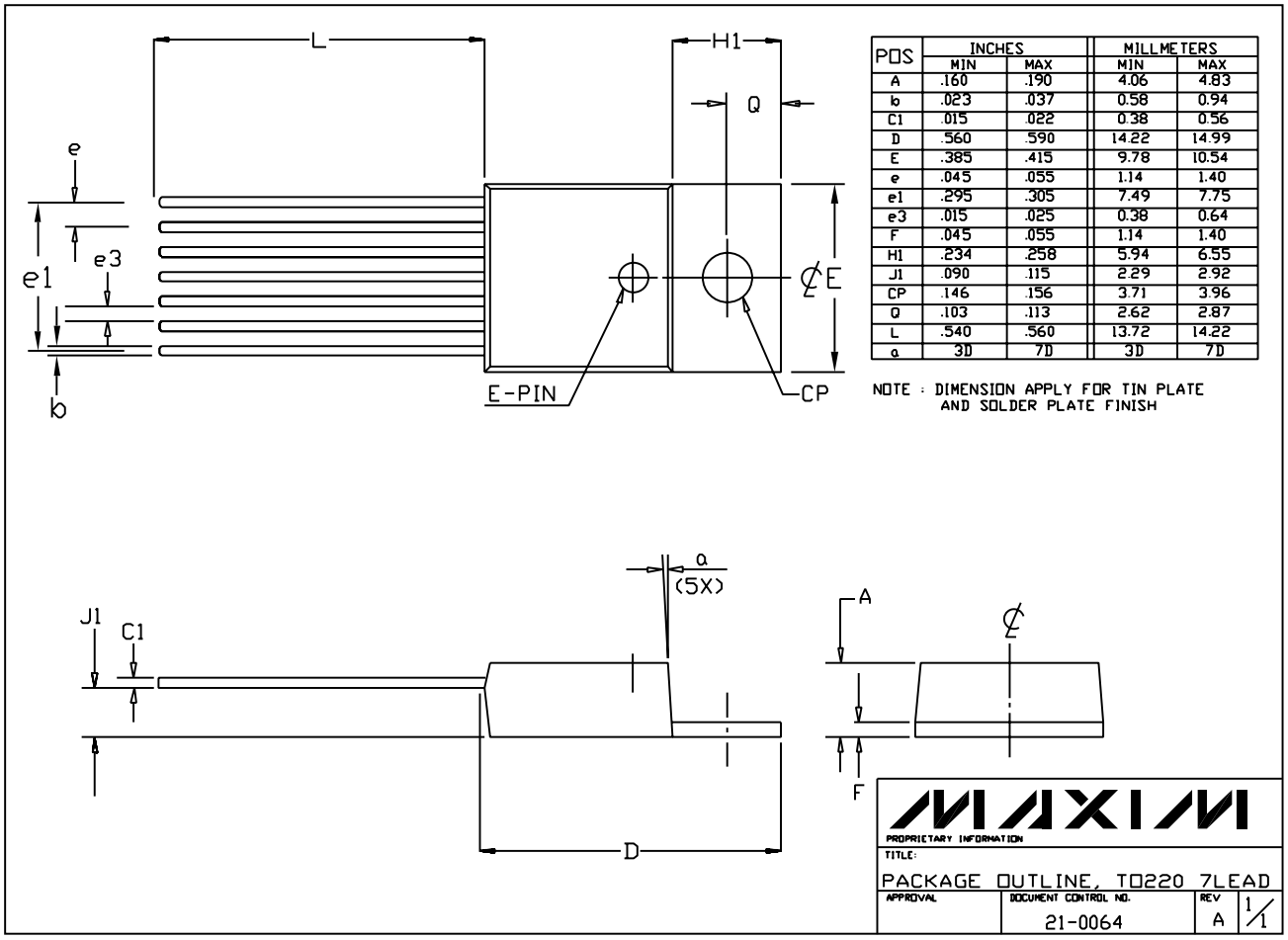
TITLE: PACKAGE OUTLINE, SOT-23, 5L

APPROVAL	DOCUMENT CONTROL NO.	REV.	
	21-0057	F	1/1

Low-Cost, +2.7V to +5.5V, Micropower Temperature Switches in SOT23 and TO-220

Package Information (continued)

(The package drawing(s) in this data sheet may not reflect the most current specifications. For the latest package outline information, go to **www.maxim-ic.com/packages**.)



POS	INCHES		MILLMETERS	
	MIN	MAX	MIN	MAX
A	.160	.190	4.06	4.83
b	.023	.037	0.58	0.94
C1	.015	.022	0.38	0.56
D	.560	.590	14.22	14.99
E	.385	.415	9.78	10.54
e	.045	.055	1.14	1.40
e1	.295	.305	7.49	7.75
e3	.015	.025	0.38	0.64
F	.045	.055	1.14	1.40
H1	.234	.258	5.94	6.55
J1	.090	.115	2.29	2.92
CP	.146	.156	3.71	3.96
Q	.103	.113	2.62	2.87
L	.540	.560	13.72	14.22
a	3D	7D	3D	7D

Revision History

Pages changed at Rev 5: 1, 2, 4, 7, 9, 10

Maxim cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a Maxim product. No circuit patent licenses are implied. Maxim reserves the right to change the circuitry and specifications without notice at any time.

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MAX6501

Part Number Table

Notes:

1. See the MAX6501 QuickView Data Sheet for further information on this product family or download the MAX6501 full data sheet (PDF, 368kB).
2. Other options and links for purchasing parts are listed at: http://www.maxim-ic.com/sales.
3. Didn't Find What You Need? Ask our applications engineers. Expert assistance in finding parts, usually within one business day.
4. Part number suffixes: T or T&R = tape and reel; + = RoHS/lead-free; # = RoHS/lead-exempt. More: See full data sheet or Part Naming Conventions.
5. * Some packages have variations, listed on the drawing. "PkgCode/Variation" tells which variation the product uses.

Part Number	Free Sample	Buy Direct	Package: TYPE PINS SIZE DRAWING CODE/VAR *	Temp	RoHS/Lead-Free? Materials Analysis
MAX6501CMP045		Buy	Plastic TO-220;7 pin;- Dwg: 21-0064B (PDF) Use pkgcode/variation: C227-1*		RoHS/Lead-Free: No Materials Analysis
MAX6501CMP065	Sample	Buy	Plastic TO-220;7 pin;- Dwg: 21-0064B (PDF) Use pkgcode/variation: C227-1*		RoHS/Lead-Free: No Materials Analysis
MAX6501CMP085	Sample	Buy	Plastic TO-220;7 pin;- Dwg: 21-0064B (PDF) Use pkgcode/variation: C227-1*		RoHS/Lead-Free: No Materials Analysis
MAX6501UKP120+	Sample	Buy		-40°C to +85°C	RoHS/Lead-Free: Yes
MAX6501UKP075	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP075+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF)	-40°C to +85°C	RoHS/Lead-Free: Yes

			Use pkgcode/variation: U5+2*		Materials Analysis
MAX6501UKP065	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP065+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP055+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP057	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP055	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP045	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP045+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP035	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP085+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP085	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP090+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP125	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP125+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP105+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis

MAX6501UKP115	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP115+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP105	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP095	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP095+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP090	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP125-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP120+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP090+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP045+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP125+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP035-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP045-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP055-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP057-T			SOT-23;5 pin;	-40°C to +85°C	RoHS/Lead-Free: No

	Buy	Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*		Materials Analysis
MAX6501UKP075-T	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP085-T	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP090-T	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP095-T	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP105-T	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP115-T	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP105+T	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP065-T	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6501UKP055+T	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP065+T	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP115+T	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP095+T	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP085+T	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6501UKP075+T	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF)	-40°C to +85°C	RoHS/Lead-Free: Yes

		Use pkgcode/variation: U5+2*	Materials Analysis
MAX6501CMP035	Sample	Buy	RoHS/Lead-Free: No
MAX6501CMP055	Sample	Buy	RoHS/Lead-Free: No
MAX6501CMP075	Sample	Buy	RoHS/Lead-Free: No
MAX6501CMP095	Sample	Buy	RoHS/Lead-Free: No
MAX6501CMP115	Sample	Buy	RoHS/Lead-Free: No
MAX6501CMP125	Sample	Buy	RoHS/Lead-Free: No
MAX6501CMP105	Sample	Buy	RoHS/Lead-Free: No

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MAX6503

Part Number Table

Notes:

1. See the MAX6503 QuickView Data Sheet for further information on this product family or download the MAX6503 full data sheet (PDF, 368kB).
2. Other options and links for purchasing parts are listed at: http://www.maxim-ic.com/sales.
3. Didn't Find What You Need? Ask our applications engineers. Expert assistance in finding parts, usually within one business day.
4. Part number suffixes: T or T&R = tape and reel; + = RoHS/lead-free; # = RoHS/lead-exempt. More: See full data sheet or Part Naming Conventions.
5. * Some packages have variations, listed on the drawing. "PkgCode/Variation" tells which variation the product uses.

Part Number	Free Sample	Buy Direct	Package: TYPE PINS SIZE DRAWING CODE/VAR *	Temp	RoHS/Lead-Free? Materials Analysis
MAX6503UKP005+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6503UKN025+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6503UKN025	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6503UKN035	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6503UKN045	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6503UKP005	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF)	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis

			Use pkgcode/variation: U5-2*		
MAX6503UKP015	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6503UKP015+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6503UKN005+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6503UKN005+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6503UKN015+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6503UKN015+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6503UKN035+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6503UKN035+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6503UKN045+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6503UKN045+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6503UKP005+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6503UKN015	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6503UKN005	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6503UKN005-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis

MAX6503UKP015+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6503UKN015-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6503UKN025-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6503UKN035-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6503UKN045-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6503UKP005-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6503UKP015-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6503UKN025+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6503CMP045	Sample	Buy			RoHS/Lead-Free: No
MAX6503CMP055	Sample	Buy			RoHS/Lead-Free: No
MAX6503CMP065	Sample	Buy			RoHS/Lead-Free: No
MAX6503CMP075	Sample	Buy			RoHS/Lead-Free: No
MAX6503CMP085	Sample	Buy			RoHS/Lead-Free: No
MAX6503CMP095	Sample	Buy			RoHS/Lead-Free: No
MAX6503CMP105					RoHS/Lead-Free: No

	Sample	Buy	
MAX6503CMP115	Sample	Buy	RoHS/Lead-Free: No
MAX6503CMP035	Sample	Buy	RoHS/Lead-Free: No

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MAX6504

Part Number Table

Notes:

1. See the MAX6504 QuickView Data Sheet for further information on this product family or download the MAX6504 full data sheet (PDF, 368kB).
2. Other options and links for purchasing parts are listed at: http://www.maxim-ic.com/sales.
3. Didn't Find What You Need? Ask our applications engineers. Expert assistance in finding parts, usually within one business day.
4. Part number suffixes: T or T&R = tape and reel; + = RoHS/lead-free; # = RoHS/lead-exempt. More: See full data sheet or Part Naming Conventions.
5. * Some packages have variations, listed on the drawing. "PkgCode/Variation" tells which variation the product uses.

Part Number	Free Sample	Buy Direct	Package: TYPE PINS SIZE DRAWING CODE/VAR *	Temp	RoHS/Lead-Free? Materials Analysis
MAX6504CMP035	Sample	Buy		-40°C to +85°C	RoHS/Lead-Free: No
MAX6504CMP115	Sample	Buy		-40°C to +85°C	RoHS/Lead-Free: No
MAX6504CMP105	Sample	Buy		-40°C to +85°C	RoHS/Lead-Free: No
MAX6504CMP095	Sample	Buy		-40°C to +85°C	RoHS/Lead-Free: No
MAX6504CMP085	Sample	Buy		-40°C to +85°C	RoHS/Lead-Free: No
MAX6504CMP075	Sample	Buy		-40°C to +85°C	RoHS/Lead-Free: No

MAX6504CMP065	Sample Buy		-40°C to +85°C	RoHS/Lead-Free: No
MAX6504CMP055	Sample Buy		-40°C to +85°C	RoHS/Lead-Free: No
MAX6504CMP045	Sample Buy		-40°C to +85°C	RoHS/Lead-Free: No
MAX6504UKP005+	Sample Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6504UKN045	Sample Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6504UKN005	Sample Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6504UKN015	Sample Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6504UKN025	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6504UKN035	Sample Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6504UKP005	Sample Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6504UKP015+	Sample Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6504UKP015	Sample Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6504UKN015+	Sample Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6504UKN045+	Sample Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis

MAX6504UKN025+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6504UKN035+	Sample	Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6504UKN025+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6504UKN015+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6504UKP015+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6504UKN005-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6504UKN015-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6504UKN025-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6504UKN035-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6504UKN045-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6504UKP005-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6504UKP015-T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
MAX6504UKN045+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6504UKP005+T		Buy	SOT-23;5 pin; Dwg: 21-0057F (PDF) Use pkgcode/variation: U5+2*	-40°C to +85°C	RoHS/Lead-Free: Yes Materials Analysis
MAX6504UKN035+T			SOT-23;5 pin;	-40°C to +85°C	RoHS/Lead-Free: Yes

Buy Dwg: 21-0057F (PDF)
Use pkgcode/variation: U5+2*

Materials Analysis

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