



UMH9

Preliminary

NPN SILICON TRANSISTOR

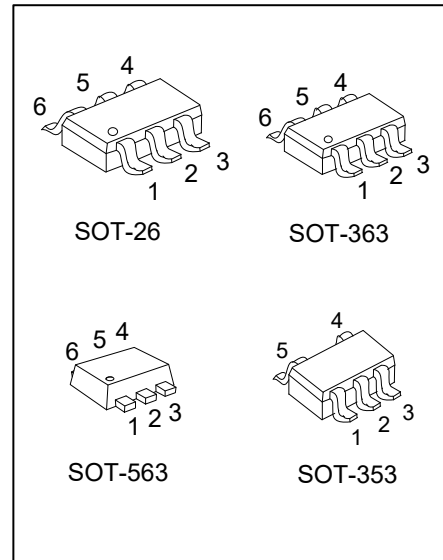
DUAL NPN DIGITAL TRANSISTOR (BUILT- IN BIAS RESISTORS)

■ DESCRIPTION

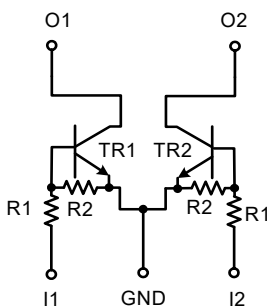
The UTC **UMH9** is an dual transistor; it uses UTC's advanced technology to provide the customers with low collector -emitter saturation voltage, etc.

■ FEATURES

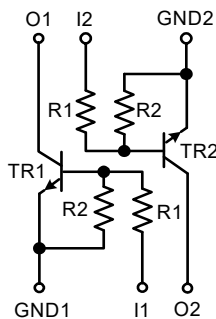
- * NPN silicon transistor (Built-in resistor type)
- * 100 mA output current capability
- * Built-in bias resistors
- * Simplifies circuit design
- * Reduces component count
- * Reduces pick and place costs



■ EQUIVALENT CIRCUIT



SOT-353



SOT-26 / SOT-363 / SOT-563

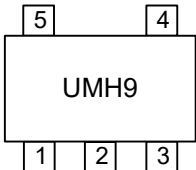
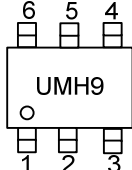
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
UMH9L-AG6-R	UMH9G-AG6-R	SOT-26	G1	I1	O2	G2	I2	O1	Tape Reel
UMH9L-AL5-R	UMH9G-AL5-R	SOT-353	I1	G	I2	O2	O1	-	Tape Reel
UMH9L-AL6-R	UMH9G-AL6-R	SOT-363	G1	I1	O2	G2	I2	O1	Tape Reel
UMH9L-AN6-R	UMH9G-AN6-R	SOT-563	G1	I1	O2	G2	I2	O1	Tape Reel

Note: Pin Assignment: G: GND I: IN O: OUT

<p>UMH9G-AG6-R</p> <ul style="list-style-type: none"> (1)Packing Type (2)Package Type (3)Green Package 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) AG6: SOT-26, AL5: SOT-353, AL6: SOT-363 AN6: SOT-563 (3) G: Halogen Free and Lead Free, L: Lead Free
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■ MARKING

SOT-353	SOT-26 / SOT-363 / SOT-563
 <p>The diagram shows a rectangular SOT-353 package with the text "UMH9" in the center. It has five pins: pin 5 is at the top-left, pin 4 is at the top-right, pin 1 is at the bottom-left, pin 2 is at the bottom-middle, and pin 3 is at the bottom-right.</p>	 <p>The diagram shows a rectangular SOT-26 / SOT-363 / SOT-563 package with the text "UMH9" in the center. It has six pins: pins 6, 5, and 4 are at the top; pin 1 is at the bottom-left, pin 2 is at the bottom-middle, and pin 3 is at the bottom-right. There is a small circle on the left side of the package, between pins 6 and 1.</p>

■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V _{CBO}	50	V
Collector-Emitter Voltage		V _{CEO}	50	V
Emitter-Base Voltage		V _{EBO}	6	V
Input Voltage		V _{IN}	-6 ~ +40	V
Output Current		I _{OUT}	100	mA
Collector Power dissipation	SOT-26	P _C	420	mW
	SOT-353		200	mW
	SOT-363		300	mW
	SOT-563		250	mW
Junction Temperature		T _J	+150	°C
Ambient Temperature		T _A	-55 ~ +150	°C
Storage Temperature		T _{STG}	-55 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-26	θ _{JA}	298	°C/W
	SOT-353		625	°C/W
	SOT-363		417	°C/W
	SOT-563		500	°C/W

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

■ ELECTRICAL SPECIFICATIONS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	V _{(BR)CBO}	I _C =100μA, I _E =0A	50			V
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C =2mA, I _B =0A	50			V
Collector-Base Cut-Off Current	I _{CBO}	V _{CB} =50V, I _E =0A			100	nA
Collector-Emitter Cut-Off Current	I _{CEO}	V _{CE} =30V, I _B =0A			100	nA
Emitter-Base Cut-Off Current	I _{EBO}	V _{EB} =5V, I _C =0A			150	μA
DC Current Gain	h _{FE}	V _{CE} =5V, I _C =5mA	100			
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	I _C =5mA, I _B =0.25mA			100	mV
Off-State Input Voltage	V _{I(OFF)}	V _{CE} =5V, I _C =100μA			0.8	V
On-State Input Voltage	V _{I(ON)}	V _{CE} =0.3V, I _C =1mA	3			V
Input Resistance	R ₁		7	10	13	KΩ
Resistor Ratio	R ₂ /R ₁		3.7	4.7	5.7	
Transition Frequency	f _T	V _{CE} =10V, I _E = -5mA, f=100MHz		250		MHz

Note: Transition frequency of the device.

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