



UHC288

Preliminary

CMOS IC

HIGH VOLTAGE BUILT-IN PULL HIGH RES OMNIPOLAR HALL EFFECT SWITCH

DESCRIPTION

UTC **UHC288** Hall effect switch is a temperature stable, Superior high-temperature performance is made possible through a dynamic offset cancellation that utilizes chopper-stabilization.

UTC **UHC288** includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifies the Hall voltage, and a Schmitt trigger to provide switching hysteresis for noise rejection, and built-in pull high resistance output.

This device requires the presence of omni-polar magnetic fields for operation.

The package type is in a Halogen Free version was verified by third party Lab.

FEATURES

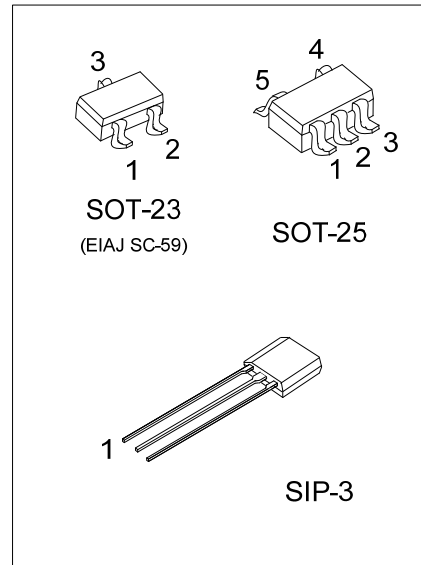
- * Operation range from 3.0V to 26V
- * Omni polar, output switches with absolute value of North or South pole from magnet
- * Reverse bias protection on power supply pin
- * High Sensitivity for reed switch replacement applications
- * Low sensitivity drift in crossing of Temp range

ORDERING INFORMATION

Ordering Number		Package	Pin Assignment					Packing
Lead Free	Halogen Free		1	2	3	4	5	
UHC288L-AE3-R	UHC288G-AE3-R	SOT-23	I	O	G	-	-	Tape Reel
UHC288L-AF5-R	UHC288G-AF5-R	SOT-25	N	G	N	O	I	Tape Reel
UHC288L-G03-B	UHC288G-G03-B	SIP-3	I	G	O	-	-	Tape Box
UHC288L-G03-K	UHC288G-G03-K	SIP-3	I	G	O	-	-	Bulk

Note: Pin Assignment: I: V_{DD} G: GND O: Output N: No Connection

<p>UHC288G-AE3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Green Package</p>	<p>(1) R: Tape Reel, B: Tape Box, K: Bulk</p> <p>(2) AE3: SOT-23, AF5: SOT-25, G03: SIP-3</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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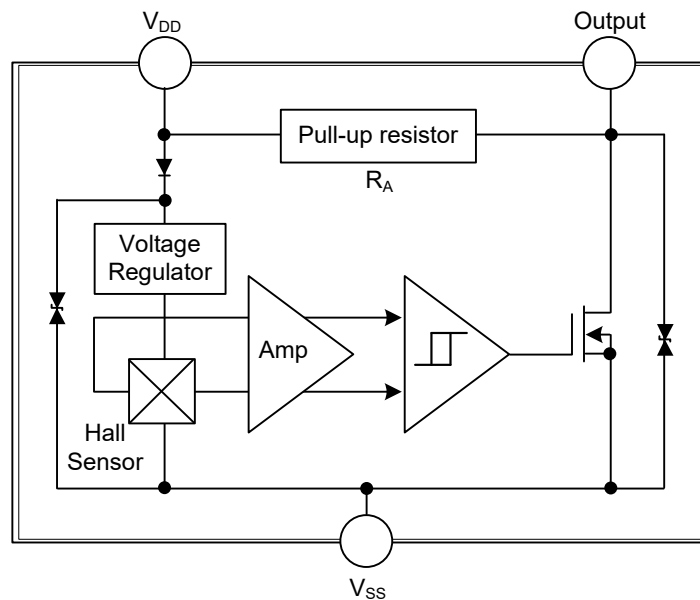
MARKING

SOT-23	SOT-25	SIP-3

PIN DESCRIPTION

PIN NAME	DESCRIPTION
V _{DD}	Supply voltage
GND	Ground
Output	Output voltage
NC	No Connection

BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{DD}	28	V
Output Voltage		V_{OUT}	28	V
Reverse Voltage		V_{DD} / V_{OUT}	-28 / -0.3	V
Power Dissipation	SOT-23	P_D	200	mW
	SOT-25		250	mW
	SIP-3		400	mW
Output Current		I_{SINK}	25	mA
Operating Temperature Range		T_A	-40 ~ +85	$^\circ\text{C}$
Junction Temperature		T_J	+125	$^\circ\text{C}$
Storage Temperature Range		T_{STG}	-55 ~ +150	$^\circ\text{C}$

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.

■ ELECTRICAL CHARACTERISTICS

(DC Operating Parameters $V_{DD}=12\text{V}$, $T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{DD}	Operating	3.0		26	V
Supply Current	I_{DD}	B<BOP		2.5	5.0	mA
Output Saturation Voltage	V_{DSON}	$I_{out}=20\text{mA}$, B>BOP		300	550	mV
Output Leakage Current	I_{OFF}	I_{OFF} B< B_{BRP} , $V_{OUT} = 20\text{V}$			10.0	μA
Output Switch Frequency	F_{SW}		3			kHz
Pull-up Resistor	R_A			10		K Ω

■ MAGNETIC CHARACTERISTICS ($V_{DD}=12\text{V}$, $T_A=25^\circ\text{C}$, unless otherwise specified)

For UHC288-A

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operate Point, BOPS	B_{OPN}	$B > B_{OPS}$ ($B < B_{OPN}$), V_{OUT} On	35 (-85)	60 (-60)	85 (-35)	Gauss
Release Point, BRPS	B_{RPN}	$B < B_{RPS}$ ($B > B_{RPN}$), V_{OUT} Off	15 (-65)	40 (-40)	65 (-15)	Gauss
Hysteresis	B_{HYS}	$ B_{OP} - B_{RP} $		20		Gauss

For UHC288-B

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operate Point, BOPS	B_{OPN}	$B > B_{OPS}$ ($B < B_{OPN}$), V_{OUT} On	50 (-110)	80 (-80)	110 (-50)	Gauss
Release Point, BRPS	B_{RPN}	$B < B_{RPS}$ ($B > B_{RPN}$), V_{OUT} Off	30 (-90)	60 (-60)	90 (-30)	Gauss
Hysteresis	B_{HYS}	$ B_{OP} - B_{RP} $		20		Gauss

Note: 1. Note: 1mT=10 Gauss.

2. The magnetic pole is applied facing the branded side of the SIP-3 package.

■ CHYSTERESIS CHARACTERISTICS

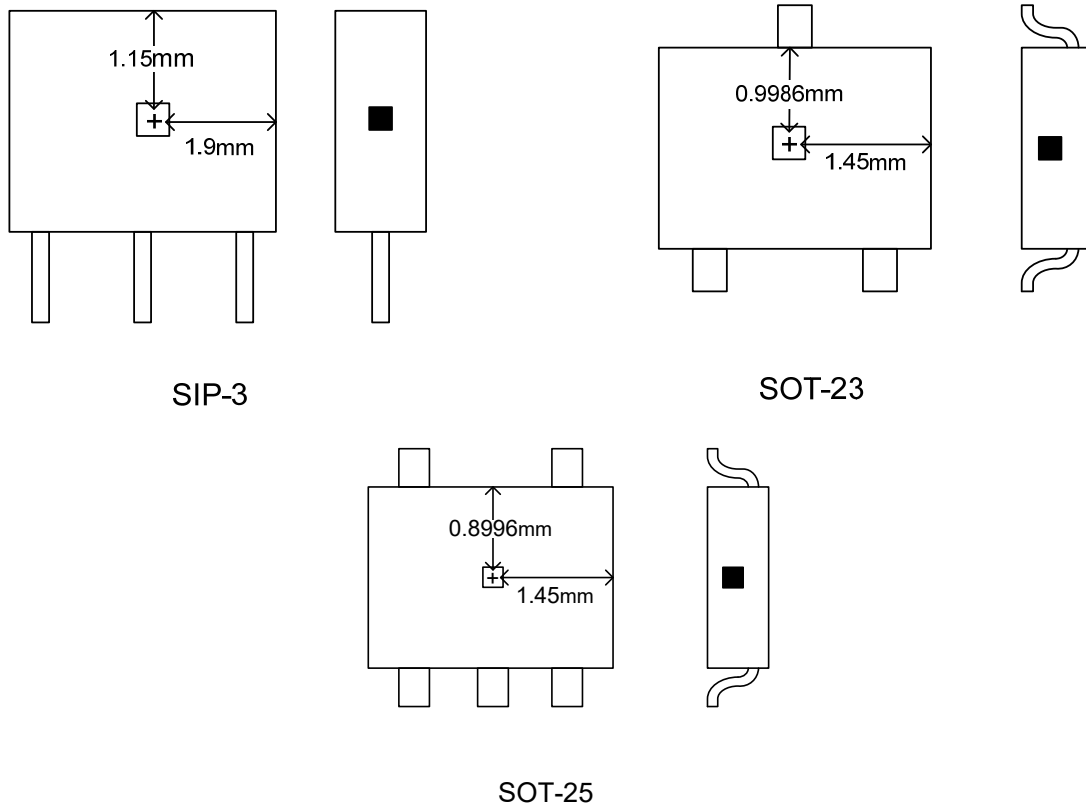


Fig. 1 SENSOR LOCATIONS

■ CHYSTERESIS CHARACTERISTICS (Cont.)

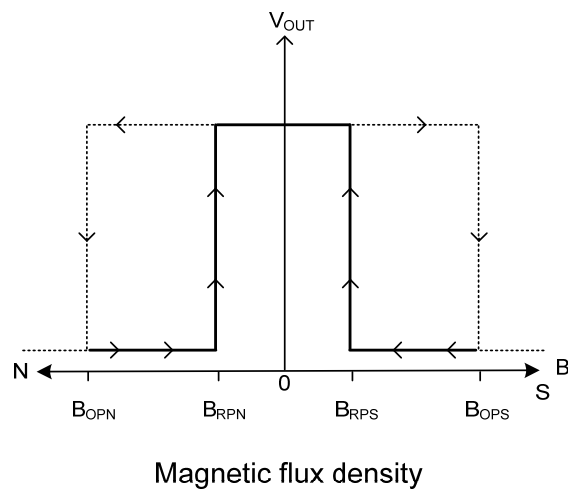
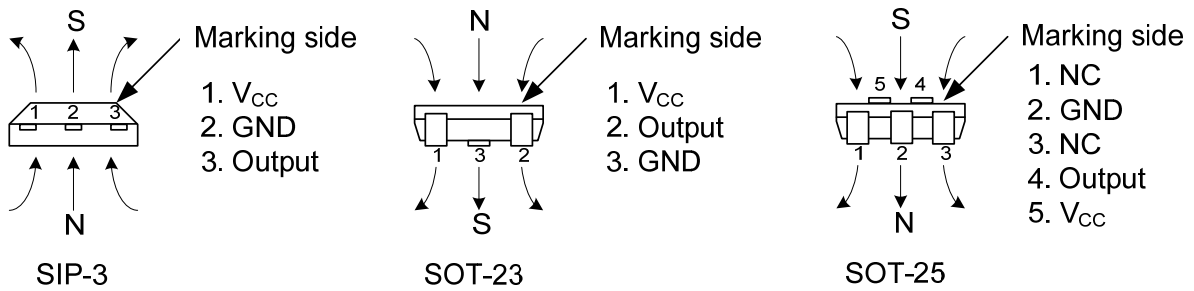
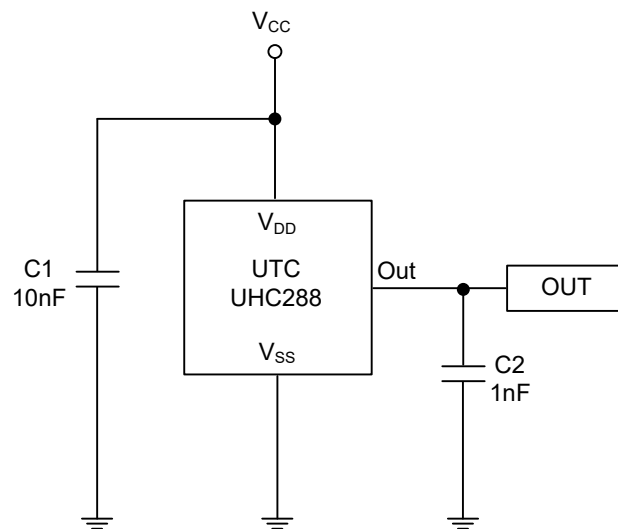


Fig. 2 APPLYING DIRECTION OF MAGNETIC FLUX

■ TYPICAL APPLICATION CIRCUIT



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