



USS50A

Preliminary

LINEAR INTEGRATED CIRCUIT

BIPOLAR LATCH TYPE HALL EFFECT FOR HIGH-TEMPERATURE OPERATION

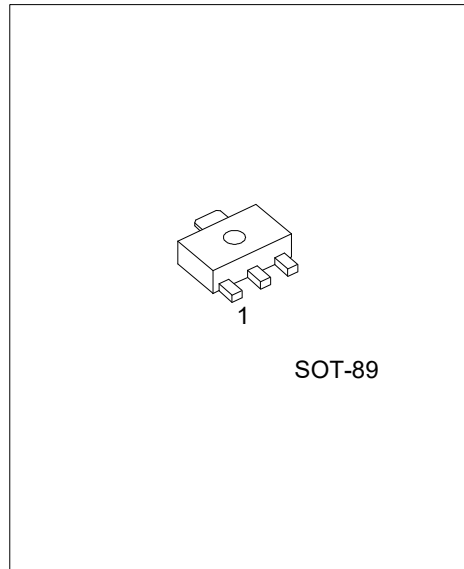
DESCRIPTION

The UTC **USS50A** is a semiconductor integrated circuit utilizing the Hall effect. It designed to operate in the alternating magnetic field especially at low supply voltage and operation over extended temperature ranges to +125°C.

This Hall IC is suitable for application to various kinds of sensors, contact-less switches, such as Speed sensor, Position sensor, Rotation sensor, Contact-less sensor, and Motor control.

FEATURES

- * Wide Temperature Operation Range of -30°C ~ +125°C
- * Alternating Magnetic Field Operation
- * Built-in Protection Diode
- * TTL and MOS IC are Directly Drivable by the Output
- * The life is Semi Permanent because it Employs Contact-Less Parts



SOT-89

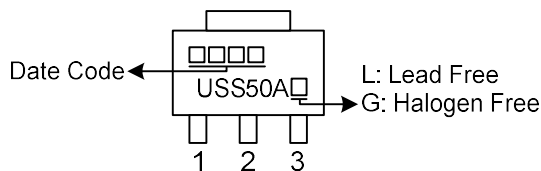
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
USS50AL-AB3-R	USS50AG-AB3-R	SOT-89	I	G	O	Tape Reel

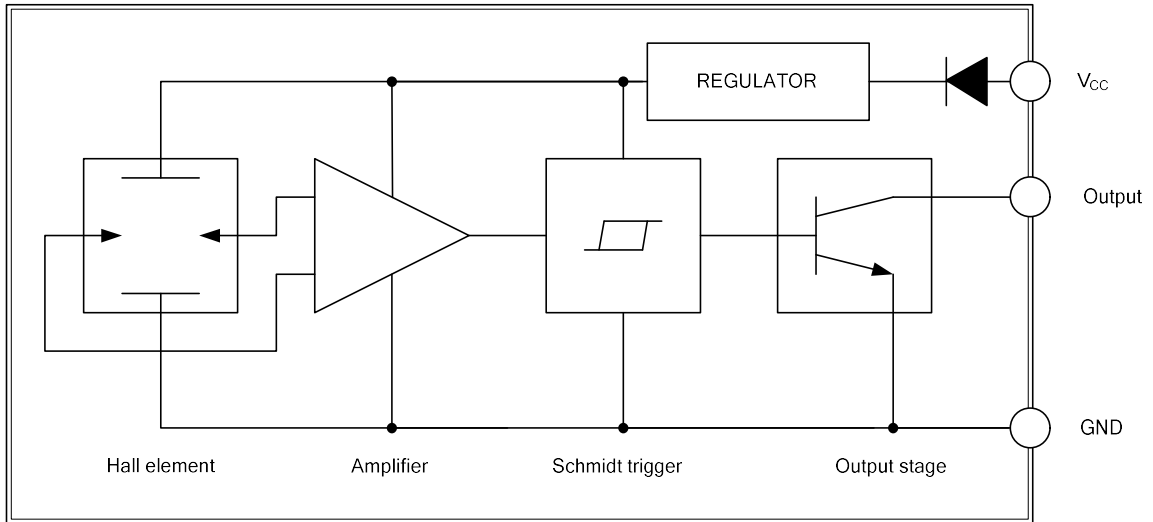
Note: Pin Assignment: I: V_{CC} G: GND O: V_{OUT}

USS50AG-AB3-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AB3: SOT-89
	(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

MARKING



■ BLOCK DIAGRAM



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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V _{CC}	28	V
Supply Current	I _{CC}	10	mA
Circuit Current	I _O	20	mA
Power Dissipation	P _D	500	mW
Operating Temperature	T _{OPR}	-30 ~ +125	°C
Storage Temperature	T _{STG}	-40 ~ +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.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage Range	V _{DD}	Operating	4.5		28	V
Low-Level Output Voltage	V _{OL}	V _{CC} = 16V, I _{OUT} =12mA, B > 110 Gauss		0.2	0.4	V
		V _{CC} =4.5V, I _{OUT} =12mA, B > 110 Gauss		0.3	0.4	V
Output Leakage Current	I _{LEAK}	V _{CC} =16V, B=<-110Gauss		1	10	μA
Supply Current	I _{CC}	V _{CC} =16V		6	10	mA
		V _{CC} =4.5V		5.5	10	mA
Output Switching Time	T _R	V _{CC} =16V, R _L =10KΩ, C _L =10pF			5	μS
	T _F	V _{CC} =16V, R _L =10KΩ, C _L =10pF			1	μS
MAGNETIC CHARACTERISTICS						
Operate Point	B _{OP}	At T _A =25°C		45	110	Gauss
Release Point	B _{RP}	At T _A =25°C	-110	-45		Gauss
Hysteresis	B _{HYS}	At T _A =25°C	50	90	220	Gauss

Notes: 1. B_{OP}=operate point (output turns ON); B_{RP} =release point (output turns OFF); B_{HYS} =hysteresis(B_{OP} – B_{RP}).

As used here, negative flux densities are defined as less than zero (algebraic convention). Typical values are at T_A=25°C and V_{CC} =12V.

2. 1mT=10 gauss.

■ PACKAGE INFORMATION

SOT-89

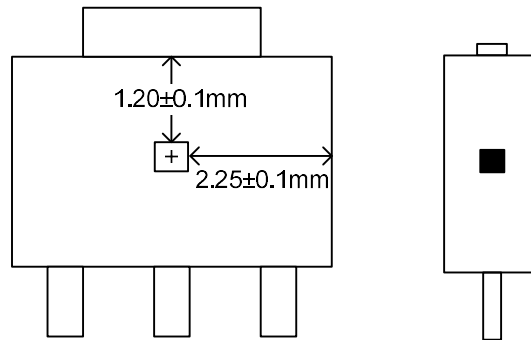


Fig. 1 SENSOR LOCATIONS

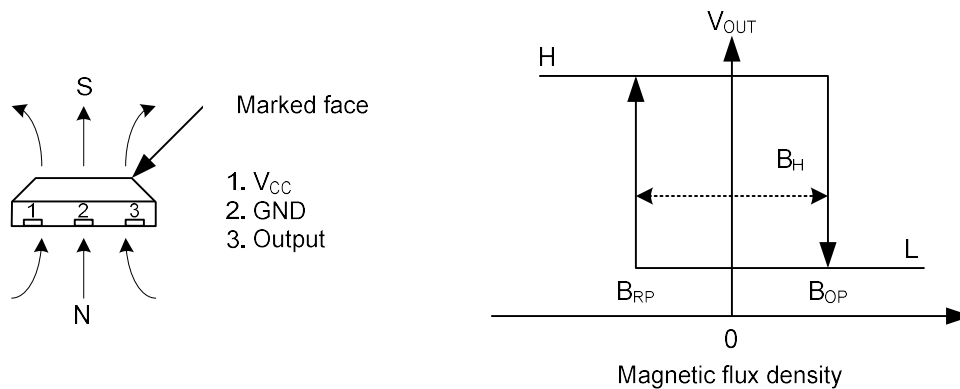
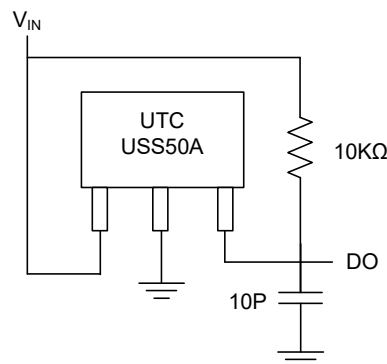
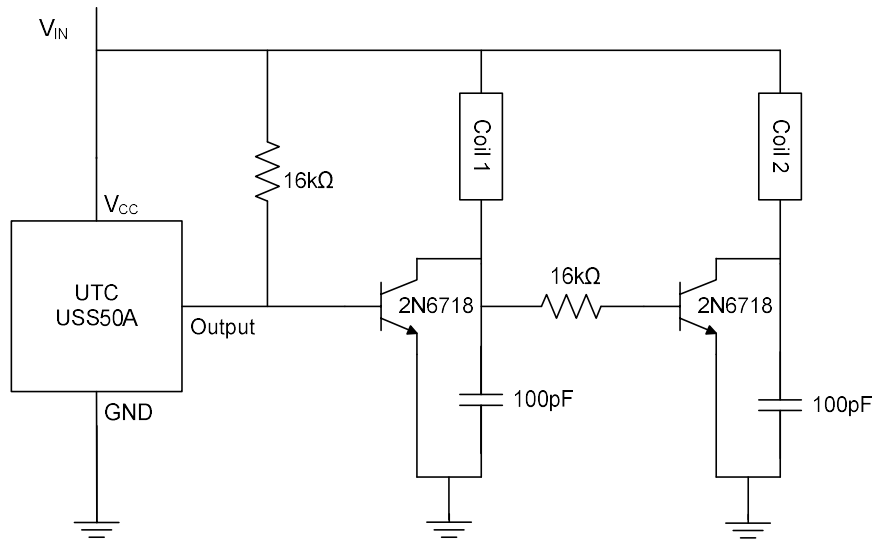


Fig. 2 APPLYING DIRECTION OF MAGNETIC FLUX

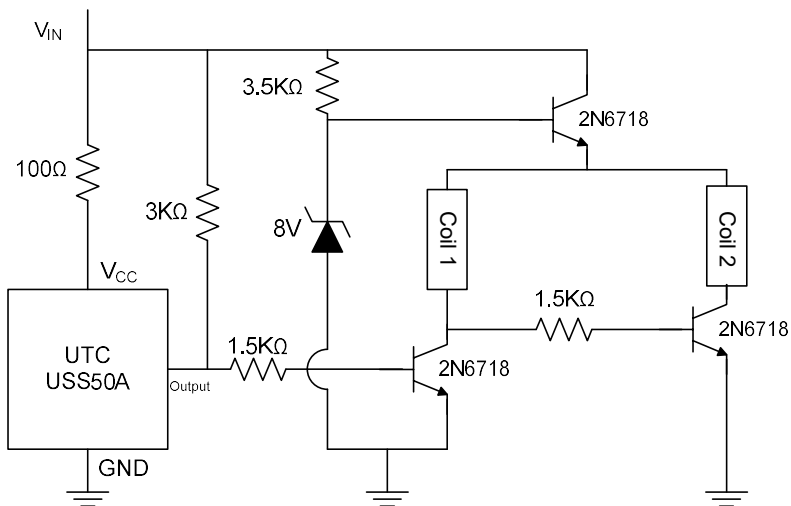
■ TEST CIRCUIT



■ TYPICAL APPLICATION CIRCUIT



FOR DC FAN 1



FOR DC FAN 2

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