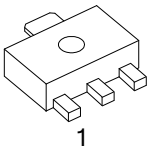
TEMPERATURE COMPENSATION BIPOLAR HALL EFFECT SENSOR



SOT-89

■ DESCRIPTION

UTC **USS443** is a semiconductor integrated circuit utilizing the Hall effect. It has been so designed as to operate in the alternating magnetic field especially at low supply voltage and operation over extended temperature. This Hall IC is suitable for being used as solid state electrical switch in automotive, industrial electrical and electrical home appliances products.

■ FEATURES

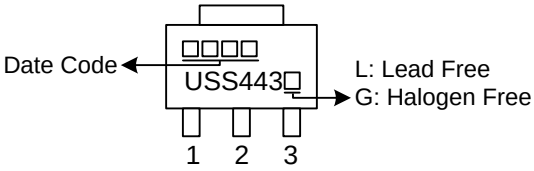
*Small size package
* High sensitivity and fast response
* Withstand voltage 50V
* TTL and MOS IC are directly drivable by the output
* Reverse Battery Protection
* Sensitivity to temperature compensation

■ ORDERING INFORMATION

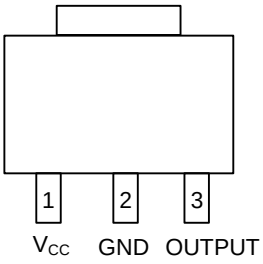
Ordering Number		Package	Packing
Lead Free	Halogen Free		
USS443L-AB3-R	USS443G-AB3-R	SOT-89	Tape Reel

USS443G-AB3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AB3: SOT-89 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



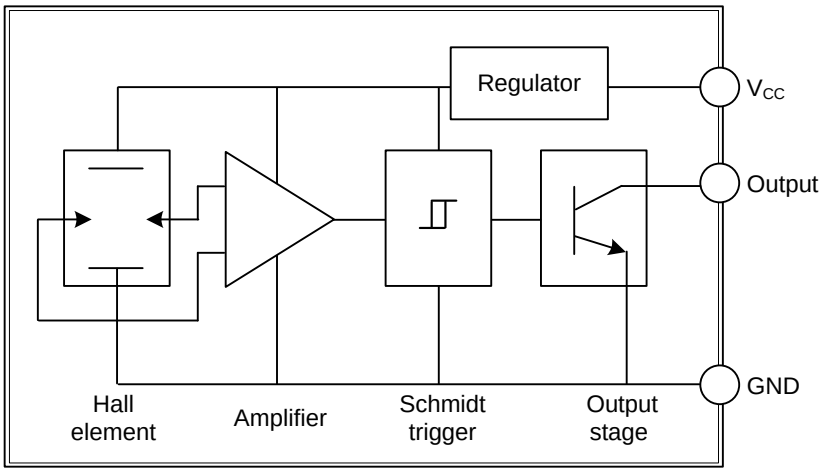
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	V_{CC}	Power supply
2	GND	Ground pin
3	OUTPUT	Output pin

■ BLOCK DIAGRAM



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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	50	V
Reverse Battery Voltage	V_{RCC}	-24	V
Magnetic Flux Density	B	Unlimited	
Output OFF Voltage	V_{OUT}	30	V
Continuous Output Current	I_{OUT}	50	mA
Operating Temperature Range	T_A	-40 ~ +125	°C
Storage Temperature Range	T_{STG}	-65 ~ +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 RESISTANCES CHARACTERISTICS

(T_A = 25°C, V_{CC}=12 V, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}	Operating	4.5		24	V
Supply Current	I_{CC}	Vcc=12V		5.0	10.0	mA
Output Saturation Voltage	$V_{OUT(SAT)}$	I_{OUT}=20mA, B>BOP		150	450	mV
Output Current	I_{ON}	B>BOP			50	mA
Output Leakage Current	I_{OFF}	B<BRP			10	μA
Output Rise Time	T_R	R_L=1100Ω, C_L=20pF		0.2	1.0	μs
Output Fall Time	T_F	R_L= 1100Ω, C_L=20pF		0.2	1.0	μs

■ MAGNETIC CHARACTERISTICS (V_{CC}=12V, T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operate Point	B_{OP}		80		180	G_S
Release Point	B_{RP}		20		150	G_S
Hysteresis	B_{hys}		30	50	60	G_S

Notes: 1. B_{OP}=operate point (output turns ON); B_{RP}=release point (output turns OFF); B_{hys}=hysteresis (B_{OP}-B_{RP})
2. 1 gauss (G_S) is exactly equal to 0.1 millitesla (mT)

■ MAGNETIC CHARACTERISTIC CURVE