

UTC UNISONIC TECHNOLOGIES CO., LTD

U3144

Preliminary

LINEAR INTEGRATED CIRCUIT

SENSITIVE HALL-EFFECT SWITCHES FOR **HIGH-TEMPERATURE OPERATION**

DESCRIPTION

UTC U3144 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 ranges to +85°C. This Hall IC is suitable for application to various kinds of sensors, contact-less switches, and the like.

FEATURES

- * Wide temperature operation range of -20°C ~ +85°C
- * Wide supply voltage range of 4.5V to 24V
- * TTL and MOS IC are directly drivable by the output
- * Reverse Battery Protection
- * Activate with Small, Commercially Available Permanent Magnets
- * Solid-State Reliability
- * SOT-89 package
- * Resistant to Physical Stress

ORDERING INFORMATION

Ordering Number	Package	Packing
U3144G-AB3-R	SOT-89	Tape Reel

U3144G-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

MARKING





PIN CONFIGURATION



PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	Vcc	Power supply
2	GND	Ground pin
3	OUTPUT	Output pin

BLOCK DIAGRAM





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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V _{cc}	28	V
Reverse Battery Voltage	V _{RCC}	-35	V
Magnetic Flux Density	agnetic Flux Density B Unlimited		
Output OFF Voltage	V _{OUT}	28	V
Reverse Output Voltage	V _{OUT}	-0.5	V
Continuous Output Current	I _{OUT}	25	mA
Operating Temperature Range	T _A	-40 ~ +85	°C
Storage Temperature Range,	T _{STG}	-65 ~ +170	°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 (V_{CC}=8 V over operating temperature range)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	Vcc	Operating	4.5		24	V
Output Saturation Voltage	V _{OUT(SAT)}	I _{OUT} =20mA, B>BOP		175	400	mV
Output Leakage Current	I _{OFF}	V _{OUT} =24V, B <brp< td=""><td></td><td><1.0</td><td>10</td><td>μA</td></brp<>		<1.0	10	μA
Supply Current	Icc	B <brp(output off)<="" td=""><td></td><td>4.4</td><td>9.0</td><td>mA</td></brp(output>		4.4	9.0	mA
Output Rise Time	tr	R _L =820Ω, C _L =20pF		0.04	2.0	μs
Output Fall Time	t _f	R _L = 820Ω, C _L =20pF		0.18	2.0	μs

MAGNETIC CHARACTERISTICS IN GAUSS OVER OPERATING SUPPLY VOLTAGE RANGE

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operate Point	B _{OP}		70		350	G
Release Point	B _{RP}		50		330	G
Hysteresis	B _{hys}			25		G

Notes: 1. Typical values are at T_A =+25°C and V_{CC} =8 V

2. B_{OP}=operate point (output turns ON); B_{RP}=release point (output turns OFF); B_{hys}=hysteresis (B_{OP}-B_{RP})

3. 1 gauss (G) is exactly equal to 0.1 millitesla (mT)

TYPICAL APPLICATION CIRCUIT



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