



U3144

Preliminary

LINEAR INTEGRATED CIRCUIT

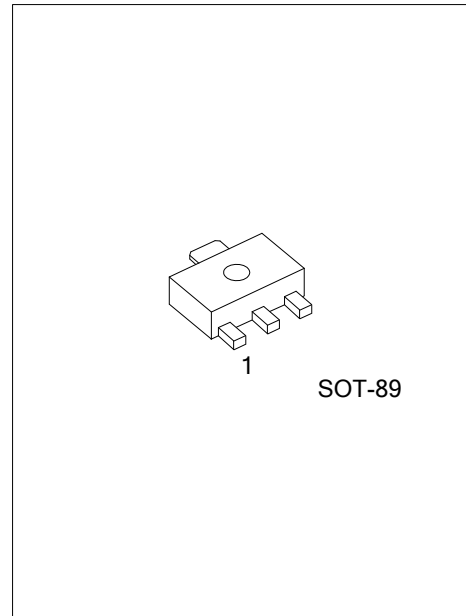
SENSITIVE HALL-EFFECT SWITCHES FOR HIGH-TEMPERATURE OPERATION

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 -40°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

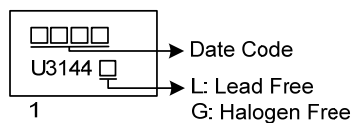


ORDERING INFORMATION

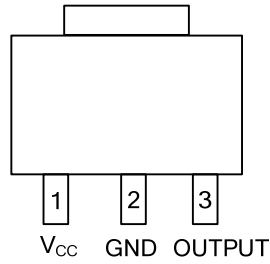
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U3144L-AB3-R	U3144G-AB3-R	SOT-89	Tape Reel

<p>U3144G-AB3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) AB3: SOT-89</p> <p>(3) G : Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



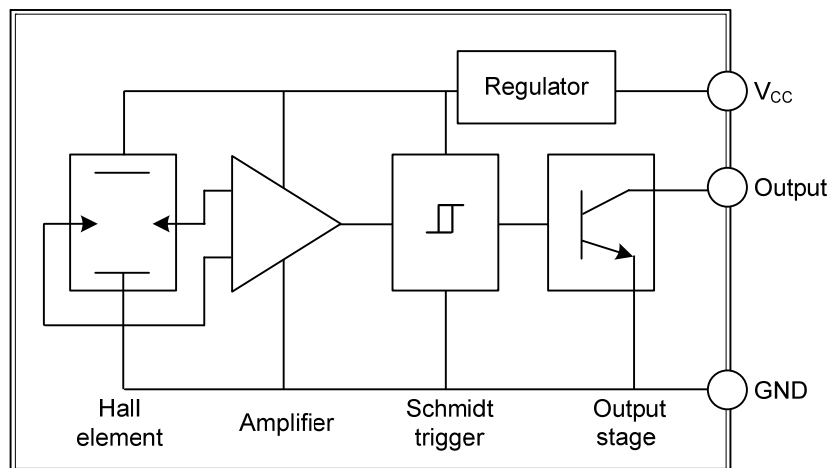
■ PIN CONFIGURATION



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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	28	V
Reverse Battery Voltage	V_{RCC}	-35	V
Magnetic 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	$^\circ\text{C}$
Storage Temperature Range,	T_{STG}	-65 ~ +170	$^\circ\text{C}$

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 RESISTANCES CHARACTERISTICS ($V_{CC}=8\text{ V}$ over operating temperature range)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}	Operating	4.5		24	V
Output Saturation Voltage	$V_{OUT(SAT)}$	$I_{OUT}=20\text{mA}$, $B>BOP$		175	400	mV
Output Leakage Current	I_{OFF}	$V_{OUT}=24\text{V}$, $B<BRP$		<1.0	10	μA
Supply Current	I_{CC}	$B<BRP$ (Output OFF)		4.4	9.0	mA
Output Rise Time	t_r	$R_L=820\Omega$, $C_L=20\text{pF}$		0.04	2.0	μs
Output Fall Time	t_f	$R_L=820\Omega$, $C_L=20\text{pF}$		0.18	2.0	μs

■ MAGNETIC CHARACTERISTICS IN GAUSS OVER OPERATING SUPPLY VOLTAGE RANGE

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

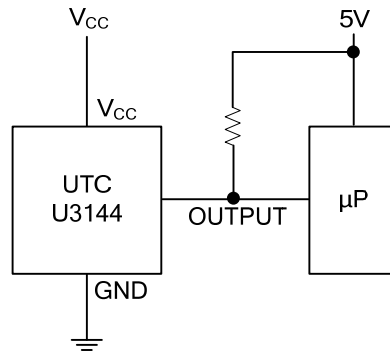
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operate Point	B_{OP}		70		350	G
Release Point	B_{RP}		50		330	G
Hysteresis	B_{hys}			25		G

Notes: 1. Typical values are at $T_A=+25^\circ\text{C}$ and $V_{CC}=8\text{ V}$

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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