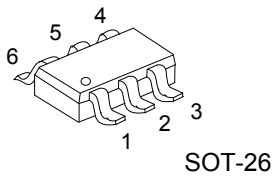
HIGH SIDE POWER SWITCHES



SOT-26

■ DESCRIPTION

The UTC **US94060** are high-side load switches incorporating a low on-resistance P-channel MOSFET which provides customers over 2A continuous current.

The UTC **US94060** is characterized by a fast turn on function. The UTC **US94060** keeps in a floating state when an active pull-down signals is on the enable input until a high level signal applies on the EN pin. Built-in level shift circuitry allows low voltage logic signals to switch to higher supply voltages, on the contrary, high level logic signals can control low level voltages.

The UTC **US94060**'s operating voltage varies from 1.8V ~ 5.5V which makes these devices suitable for 1-cell Lithium ion and 2- to 3-cell NiMH/NiCad/Alkaline powered systems as well as all 5V applications. The 2μA low operating current and low shutdown current(less than1μA) make the battery life longer.

The UTC **US94060** is generally suitable for applications, such as load switch in portable devices: cellular phones, PDAs, MP3 players, digital Cameras, portable instrumentation, battery switch-over circuits and level translators.

■ FEATURES

* Operating voltage range:1.8V ~ 5.5V
* Providing 2A continuous operating current
* P-channel MOSFET's $R_{DS(ON)}$:90mΩ typical
* Built-in level shift for control logic
* Quiescent current is as low as 2μA
* Micro-power shutdown less than 1μA

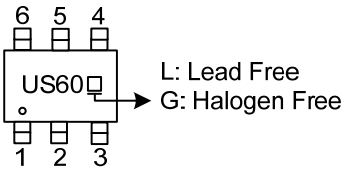
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
US94060L-AG6-R	US94060G-AG6-R	SOT-26	Tape Reel

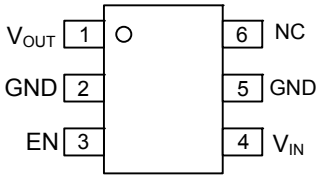
US94060G-AG6-R
(1)Packing Type
(2)Package Type
(3)Green Package

(1) R: Tape Reel
(2) AG6: SOT-26
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



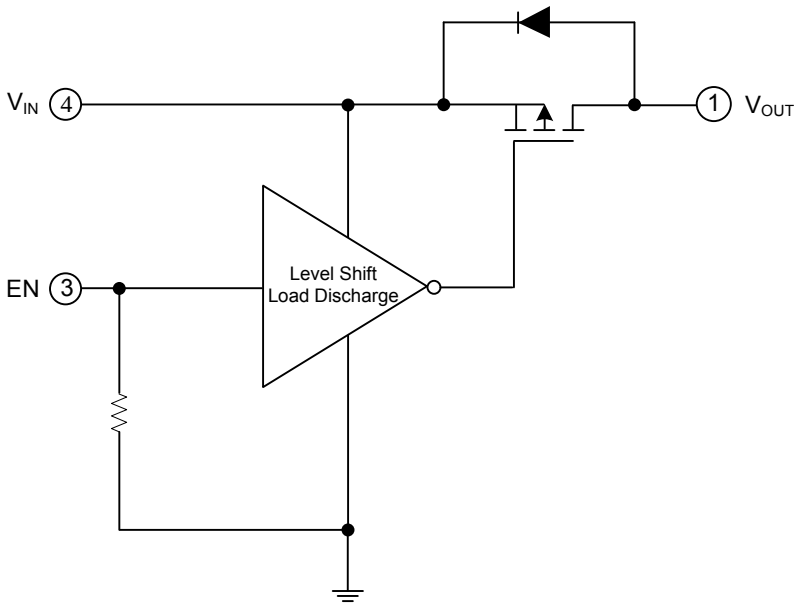
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	V_{OUT}	Drain of P-channel MOSFET.
2, 5	GND	Ground connections. (Should both be connection to electrical ground).
3	EN	Enable (Input): Active-high CMOS compatible control input. Do not leave floating..
4	V_{IN}	Source of P-channel MOSFET.
6	NC	No connect

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATINGS	UNIT
Input Voltage		V_{IN}	+6	V
Enable Voltage		V_{EN}	+6	V
Continuous Drain Current (Note 3)	T_A= 25°C	I_D	±2	A
	T_A= 85°C		±1.4	
Pulsed Drain Current (Note 5)		I_{DP}	±6	A
Continuous Diode Current (Note 7)		I_S	-50	mA
Power Dissipation (Note 3)(T_A= 85°C)		P_D	270	mW
Operating Ratings (Note 2)				
Input Voltage Range		V_{IN}	+1.8 ~ +5.5	V
Junction Temperature		T_J	+150	°C
Storage Temperature (Note 4)		T_{STG}	-55~+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.

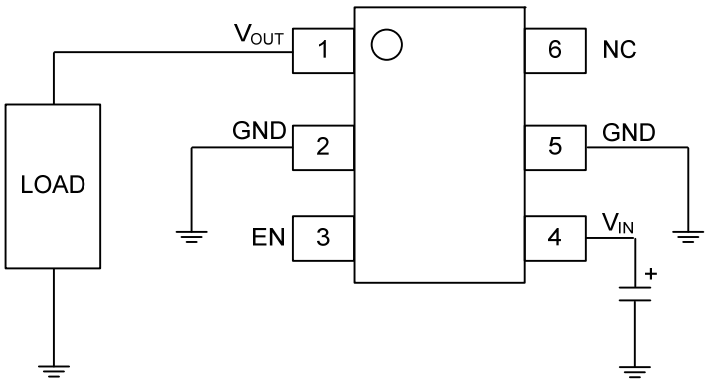
■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (Note 3)	θ_{JA}	240	°C/W

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
STATIC						
EN Threshold Voltage	$V_{THD(EN))}$	V_{IN}= 1.8V ~ 4.5V, I_D= -250μA	0.5		1.2	V
EN Input Current (Quiescent Current)	$I_{Q(EN)}$	V_{IN}= V_{EN}= 5.5V		2	4	μA
OFF State Leakage Current	I_{LEAK}	V_{EN}= OPEN or 0V, V_{IN}= +5.5V			1	μA
P-Channel Drain-Source On-Resistance	$R_{DS(ON)}$	V_{IN}= 4.5V, I_D= -100 mA, V_{EN}= 1.5V		90	125	mΩ
		V_{IN}= 3.6V, I_D= -100 mA, V_{EN}= 1.5V		95	135	
		V_{IN}= 2.5V, I_D= -100 mA, V_{EN}= 1.5V		115	150	
		V_{IN}= 1.8V, I_D= -100 mA, V_{EN}= 1.5V		165	200	
DYNAMIC (NOTE 6)						
Turn-ON Delay Time	$t_{D(ON)}$	V_{IN}= 3.6V, I_D= -100mA, V_{EN}= 1.5V		850	1500	ns
Turn-ON Rise Time	t_R	V_{IN}= 3.6V, I_D= -100mA, V_{EN}= 1.5V	0.5	1	5	μs
Turn-OFF Delay Time	$t_{D(OFF)}$	V_{IN}= 3.6V, I_D= -100mA, V_{EN}= 1.5V		100	150	ns
Turn-OFF Fall Time	t_F	V_{IN}= 3.6V, I_D= -100mA, V_{EN}= 1.5V		60	100	ns

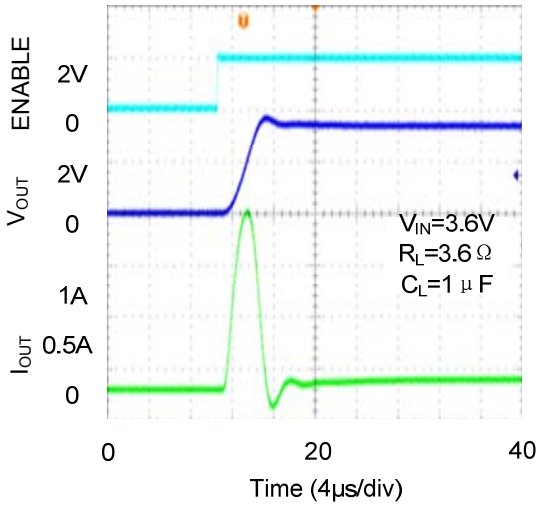
■ TYPICAL APPLICATION CIRCUIT



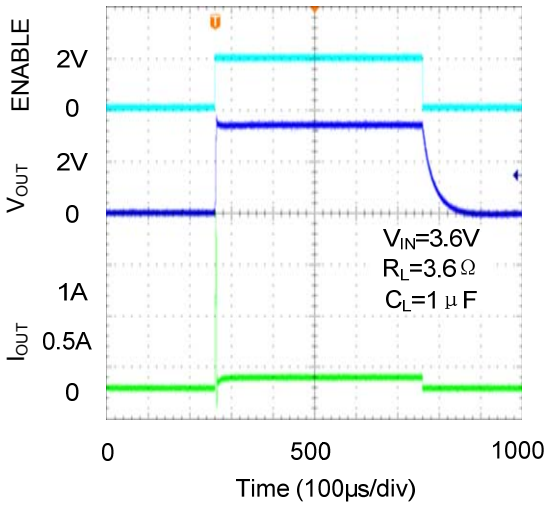
Load Switch Application with Capacitive Load Discharge

■ TYPICAL CHARACTERISTICS

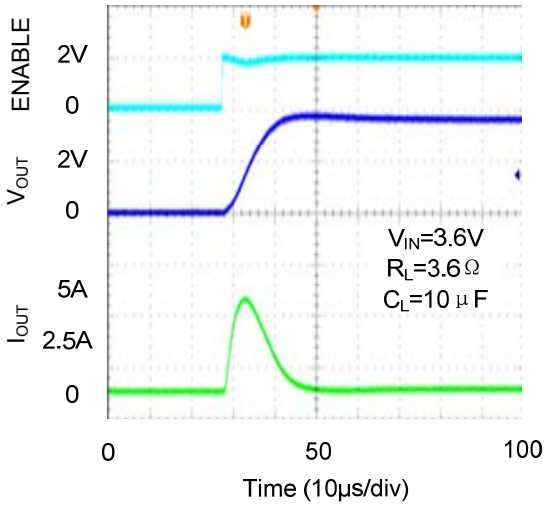
Turn-on/Turn-off Timming



Turn-on/Turn-off Timming



Turn-on/Turn-off Timming



Turn-on/Turn-off Timming