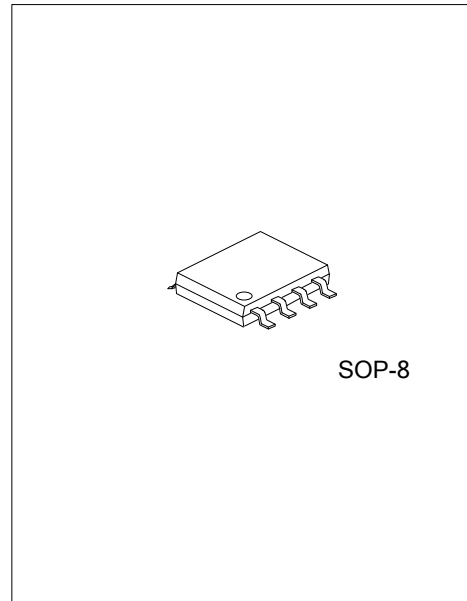




### LED DISPLAY CONTROL CIRCUIT WITH GHOSTING EFFECT ELIMINATION



#### DESCRIPTION

UTC **UD8973** is a ghosting effect elimination and control circuit designed for LED display. The device has constant charge absorbing circuit which can eliminate ghosting effect, improve refresh rate, and also can eliminate the caterpillar phenomena caused by LED leakage current and short circuit. The short circuit and over current protection make the device useful in application.

#### FEATURES

- \* Integrated ghosting effect elimination
- \* Greatly improve refresh rate
- \* Eliminate the caterpillar phenomena caused by LED leakage current and short circuit
- \* Short-circuit and over-current protection

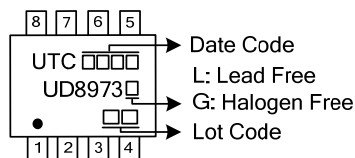
#### ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
UD8973L-S08-R	UD8973G-S08-R	SOP-8	Tape Reel

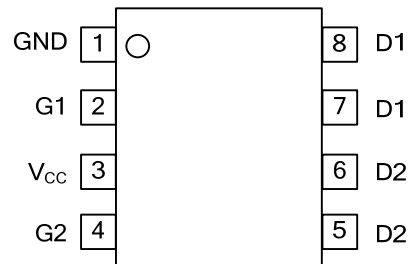
Note: xx: Output Voltage, refer to Marking Information.

<p>UD8973G-S08-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) S08: SOP-8 (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	GND	Ground
2	G1	Left channel control signal input
3	V <sub>CC</sub>	Supply voltage
4	G2	Right channel control signal input
5, 6	D2	Right channel output
7, 8	D1	Left channel output

■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_{DD}$	0~6.5	V
Gate Voltage	$V_G$	$V_{DD}$	V
Power Dissipation	$P_D$	0.7	W
Storage Temperature Range	$T_{STG}$	-55 ~ +150	°C
Operating Temperature Range	$T_{OPR}$	-40 ~ +85	°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.

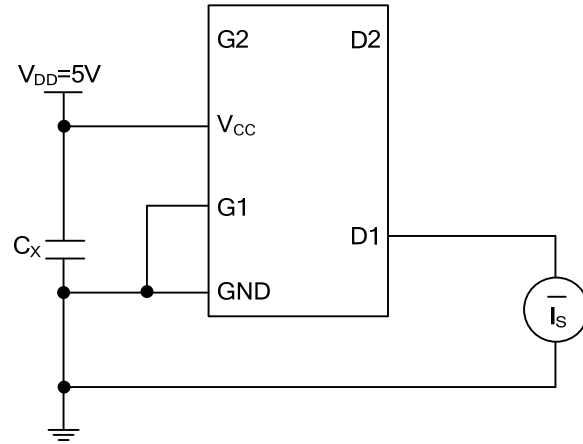
■ THERMAL INFORMATION

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	178	°C/W

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

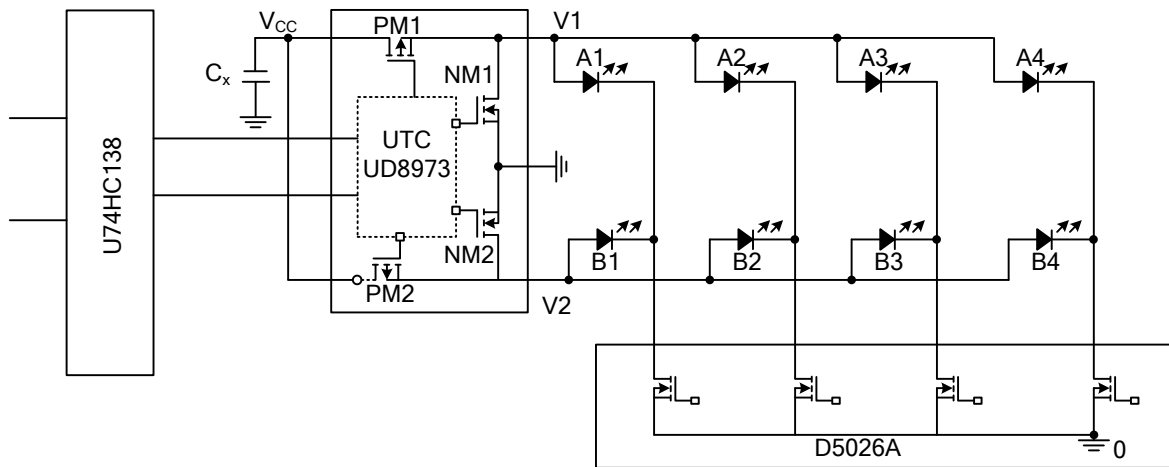
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Current	$I_{DD}$	$V_{DD}=5V$		220		$\mu\text{A}$
Switch On-Resistance	$R_{DS}$	$V_{DD}=5V, I_O=1A$		100		$\text{m}\Omega$
		$V_{DD}=3.8V, I_O=1A$		110		$\text{m}\Omega$
Output Current	$I_O$	$V_{DD}=5V$		3.0		A
Short-Circuit Current	$\bar{I}_S$	TEST CIRCUIT 1			50	mA

■ TEST CIRCUIT



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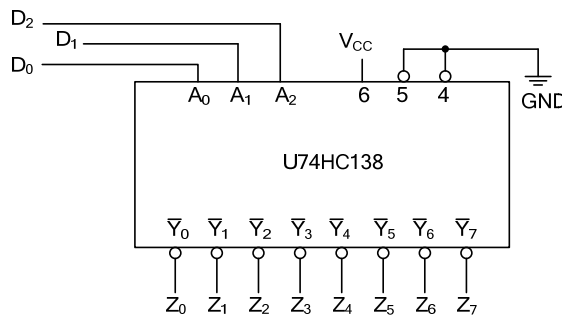
■ TYPICAL APPLICATION CIRCUIT



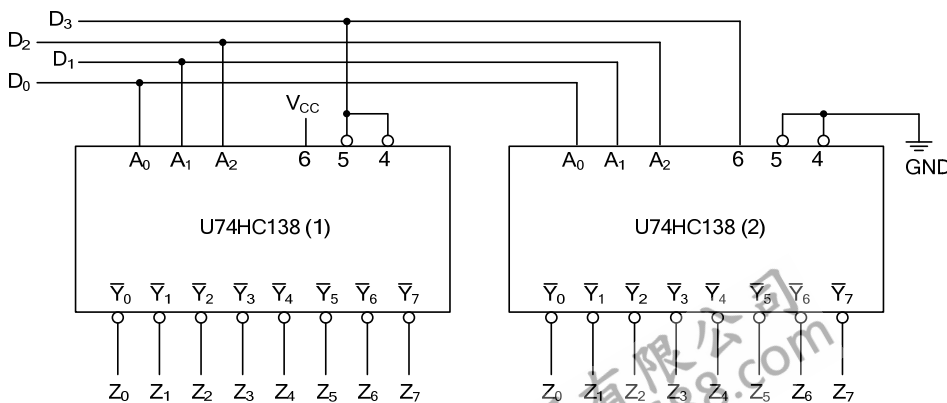
Note:  $C_x$  are decoupling capacitors of UTC UD8973 which improve the reliability of UTC UD8973 application. Considering different conditions,  $C_x$  can range from 0.1uF to 1uF.

- Special notices
1. Gates of UTC UD8973 must not be putted in high frequency signals.
  2. Gates of UTC UD8973 connect with outputs of U74HC138. When EN of U74HC138 connect with 5026's high frequency EN signal, U74HC138 will put high frequency signal in UTC UD8973's gates, which may influence the function of ghosting effect elimination. To avoid this condition, there are two kinds of U74HC138 connections:

(1) 8 Bits U74HC138 Connection

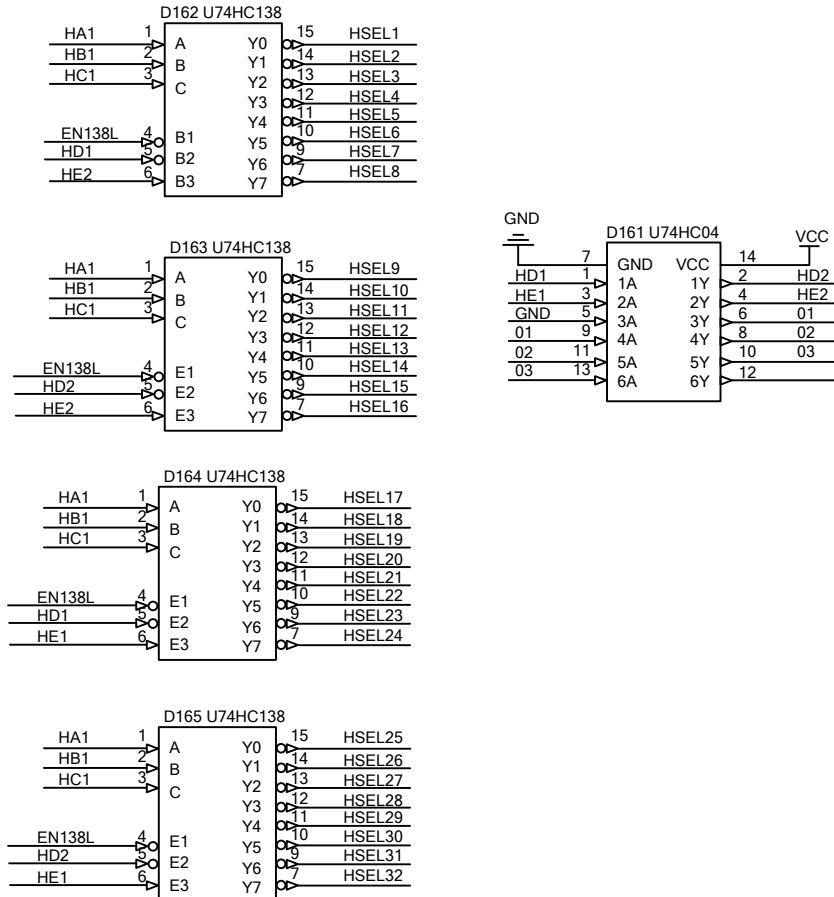


(2) 16 Bits U74HC138 Connection



■ TYPICAL APPLICATION CIRCUIT (Cont.)

(3) 32 Bits U74HC138 Connection



- Note 1. EN138L can be connected to U74HC138 outputs or ground.  
 2. All above only describe connections of signal A, B, C, D and E. U74HC138's and other devices' decoupling capacitors  $C_x$  should be connected with power supply and ground as normal.

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