

## 描述

HR2125是一种双通道、低导通压降的正反向电机驱动芯片，为玩具、打印机和其它电机一体化应用提供一种双通道电机驱动方案。HR2125内置两路H桥驱动，可以驱动两路刷式直流电机，或者一路双极步进电机，或者螺线管或者其它感性负载。

HR2125内部含有过温关断保护。当负载电机是低阻抗的，或者输出端短路，这样使能HR2125的输出电流急剧上升，同时内部温度也急剧上升。当芯片温度超过最大温度阈值（典型150℃），HR2125会关断所有的输出，防止潜在安全隐患。只有当确认了芯片回归到安全的工作温度，内置温度迟滞电路才重新控制驱动电路。

## 应用

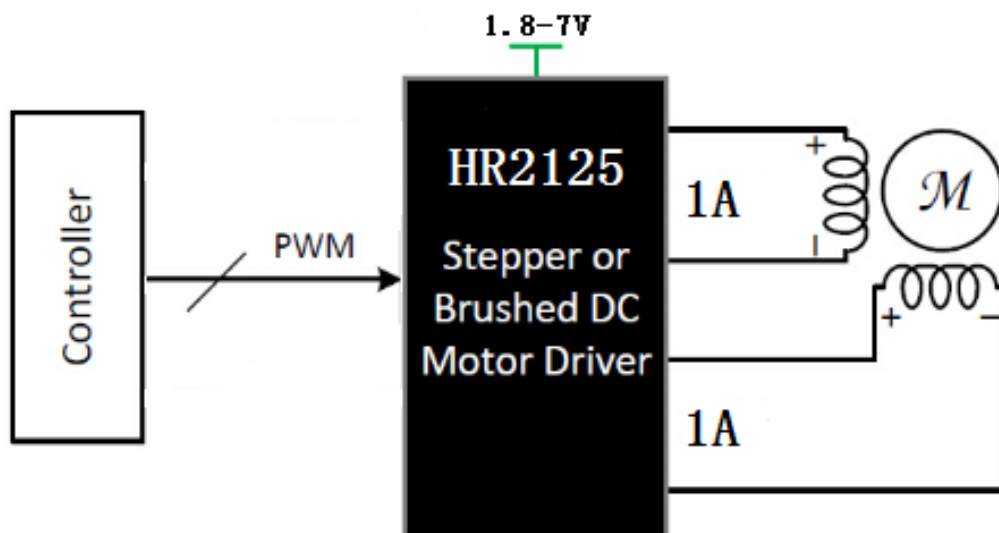
直流电机驱动  
玩具机器人控制  
镜头电机驱动

## 特点

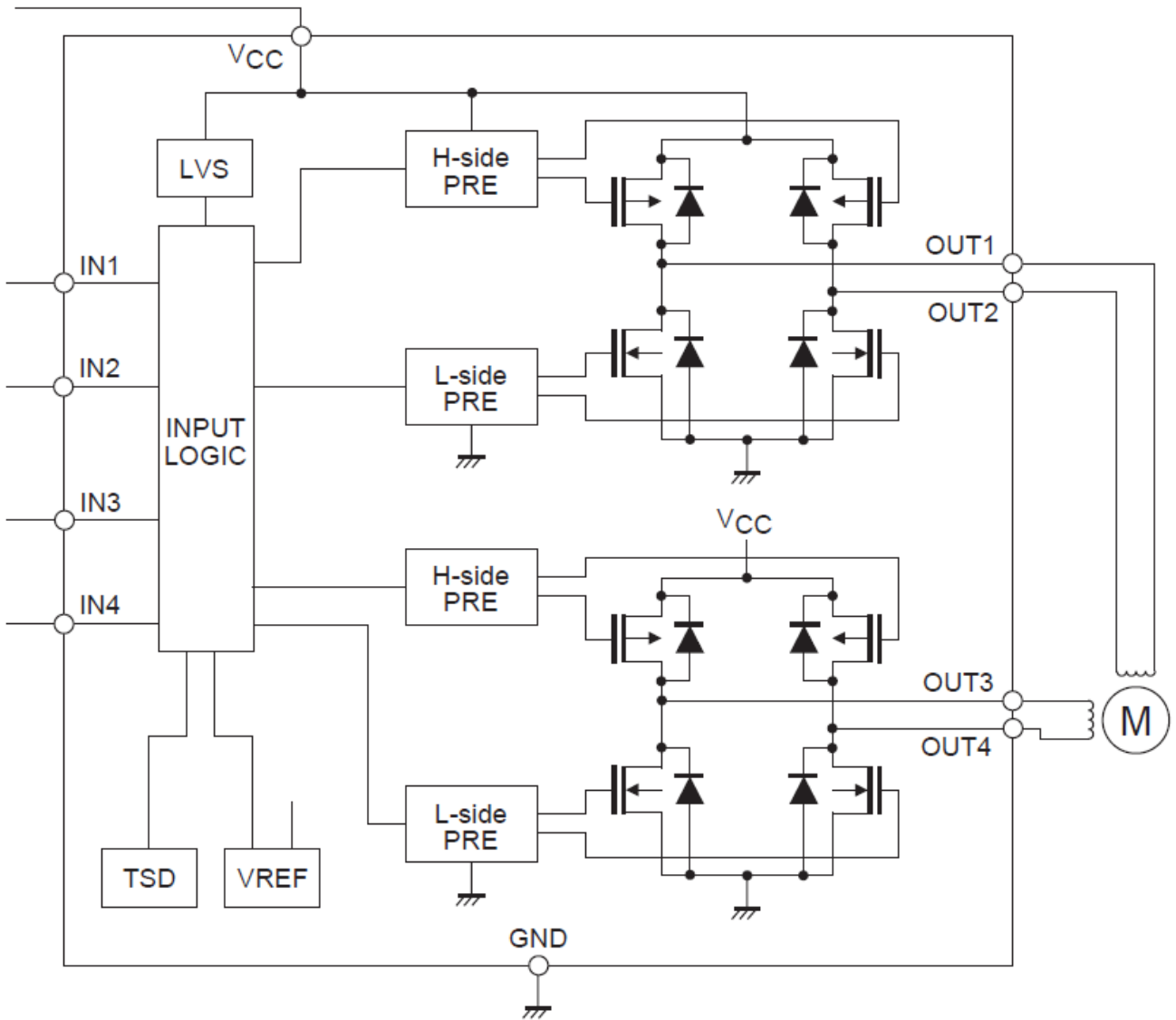
- 双通道H桥电机驱动器
- 驱动两路直流有刷电机或者一路步进电机
- 低电源供电，1.8V-7V
- 低RDS(ON)电阻（0.4Ω），连续输出电流1A
- 支持低功耗待机模式
- 内置过温关断保护电路

## 型号选择

Part Number	Package
HR2125	DFN10



功能模块示意图



### 电路工作极限 at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Logic Supply Voltage	VCC		8	V
Logic Input voltage	V <sub>IN</sub>		6.5	V
Output Current	I <sub>OUT</sub>		±1	A
Peak Out Current	I <sub>op</sub>		3	A
Operating Ambient Temperature	T <sub>A</sub>	Range S	-20 to 85	°C
Maximum Junction	T <sub>J(max)</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to 150	°C

### 推荐工作条件 at Ta = 25°C

		Min	NOM	Max	Unit
Logic Supply Voltage Range	VCC	1.8	-	7	V
Logic Input Voltage Range	VIN	0	-	6.5	V
Continuous RMS or DC output current per bridge	IOUT	-1000		+1000	mA

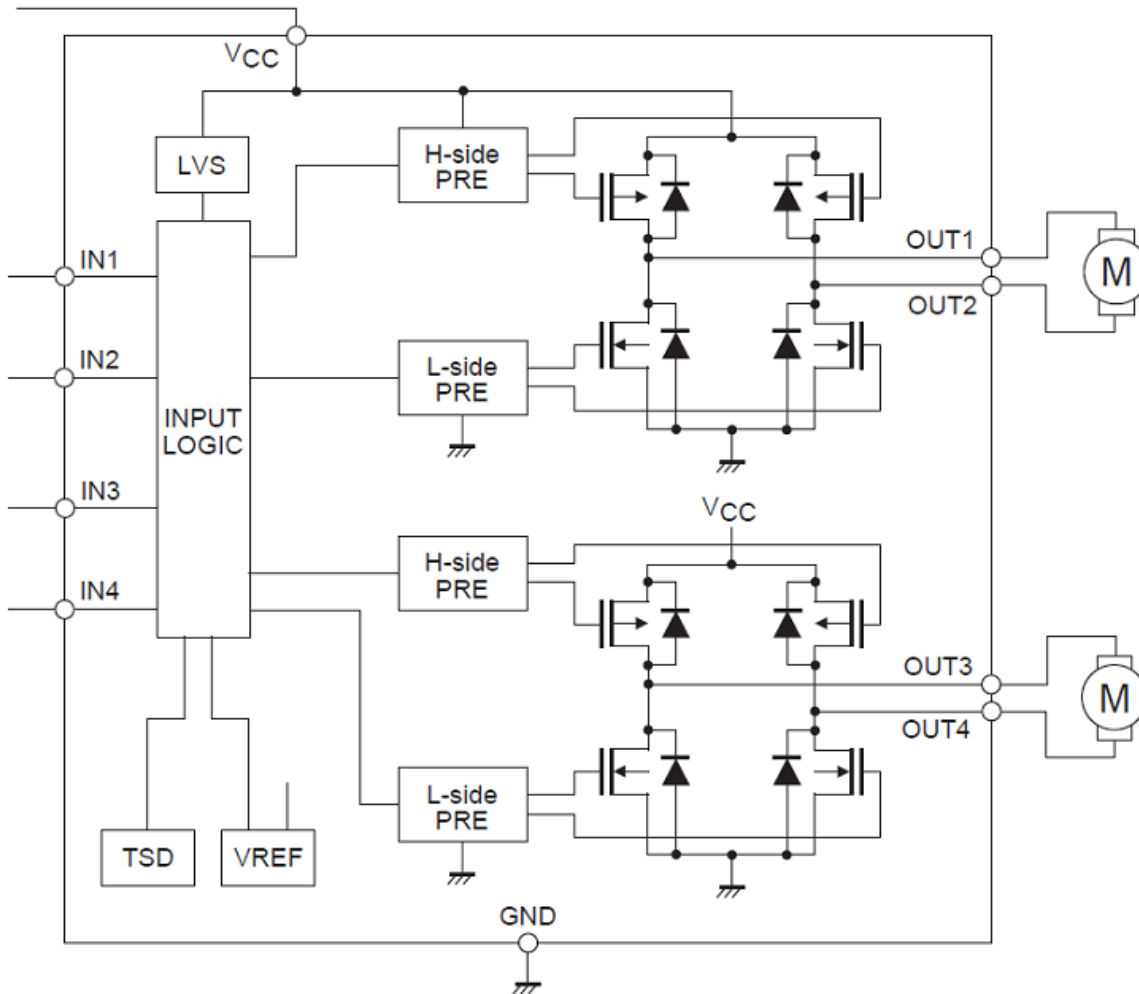
电特性 at Ta = 25 °C, VCC= 3.3 V, RL=15 Ω, unless otherwise noted.

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>POWER SUPPLY</b>						
ICCST	Circuit current at standby	IN1-IN4 all = L		0	10	uA
ICC	Circuit current	VCC=3.3V		0.7	1	mA
		VCC=5V		1.4	2	mA
<b>LOGIC-LEVEL INPUTS</b>						
VINL	Input low voltage				0.7	V
VINH	Input High voltage		1.7			V
RPD	Input pull-down resistance			1.5		MΩ
IINL	Input low current	VIN = 0V	-1	0		uA
IINH	Input high current	VIN = 3.3V		5	20	uA
<b>H-BRIDGE FETS</b>						
RDS(ON)	Output on resistance	IO= ±200 mA		0.4	0.6	Ω
<b>PROTECTION CIRCUITS</b>						
tTSD	Thermal shutdown temperature	Die temperature		150		°C

## 电路应用参考

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### 双路 DC 有刷电机应用



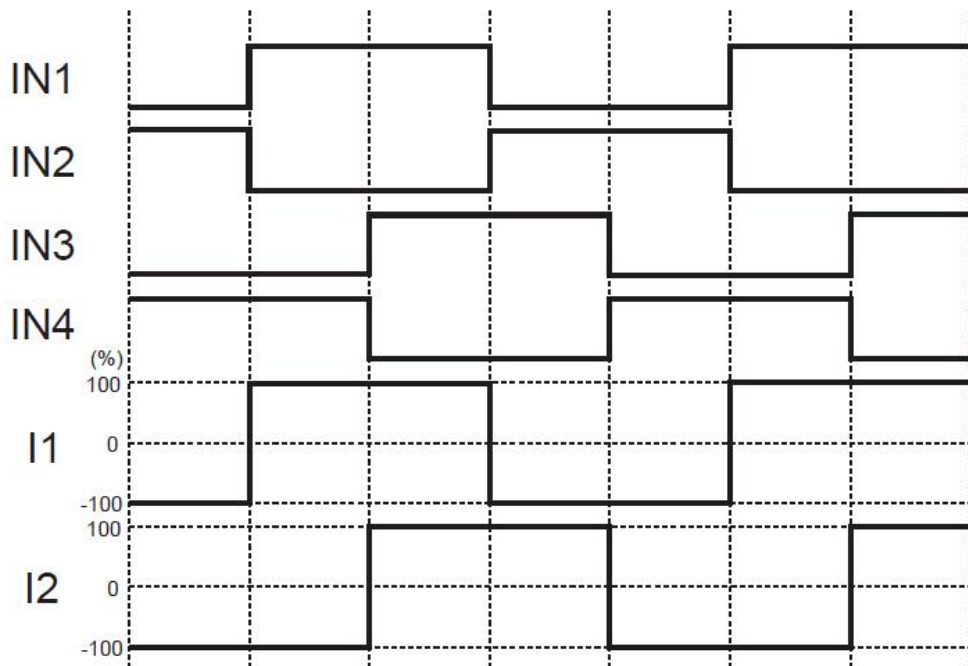
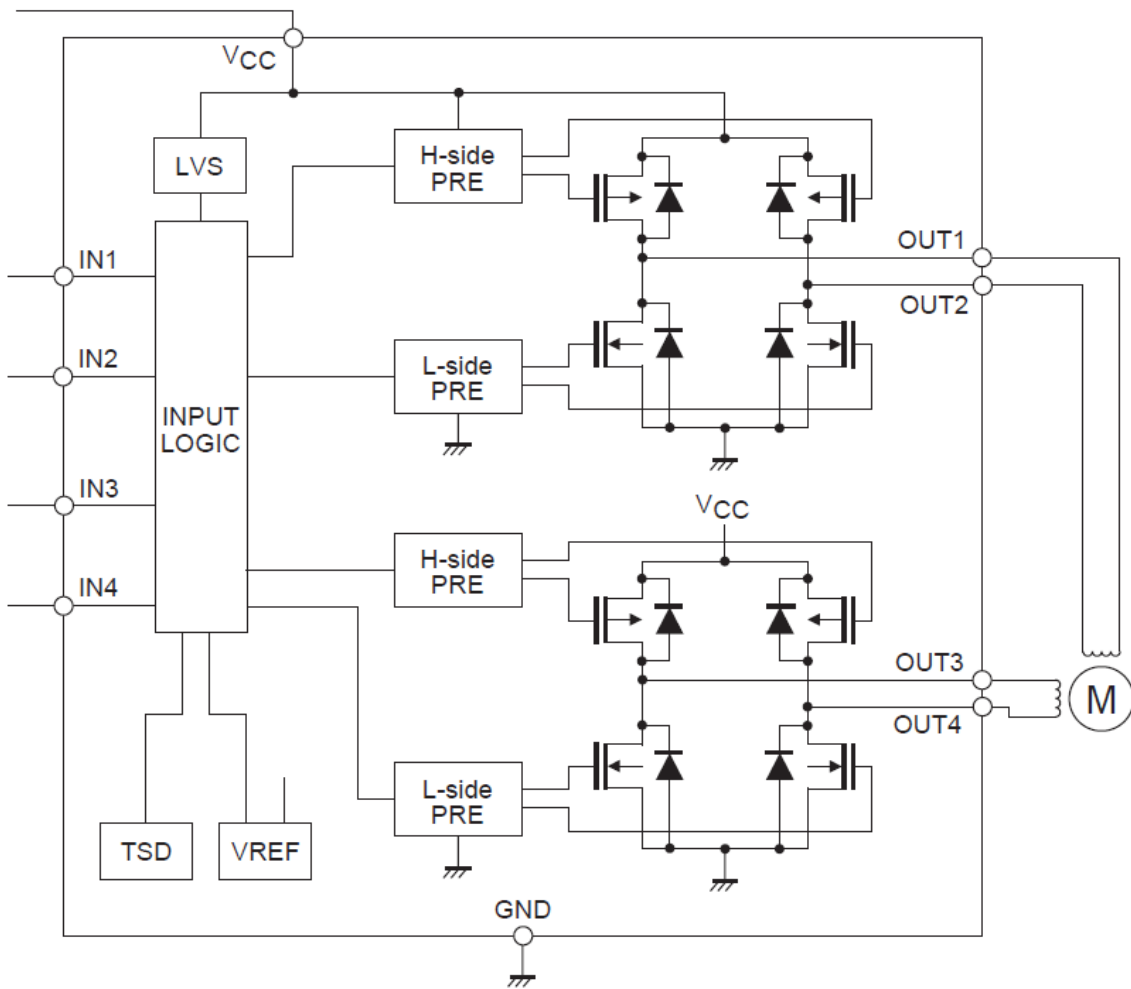
注：1.请做好电源滤波。

2.若接近极限工作电压工作，请在电机两端加 100nF 电容做保护，防止芯片因电机启动、换向时产生的高压导致损坏。

输入输出逻辑表

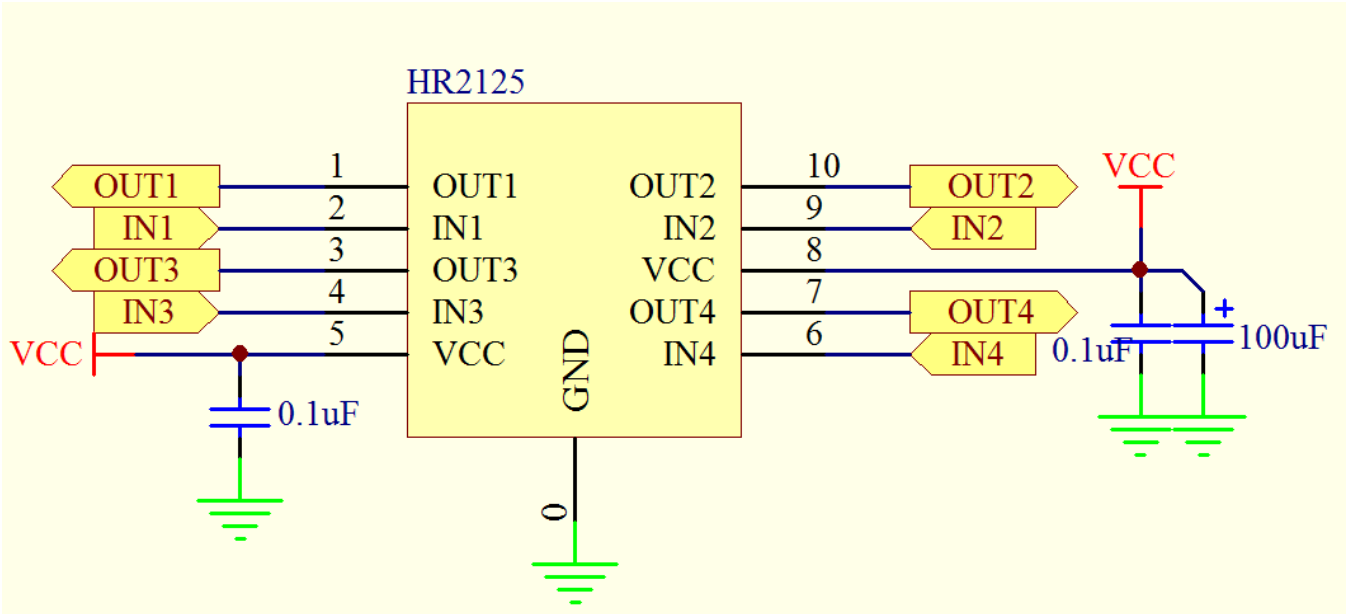
INPUT		OUTPUT		MODE
IN1(3)	IN2(4)	OUT1(3)	OUT2(4)	
L	L	Hi-Z	Hi-Z	Standby (STOP)
H	L	H	L	Forward
L	H	L	H	Reverse
H	H	L	L	Brake

一路双极步进电机应用



整步控制时序

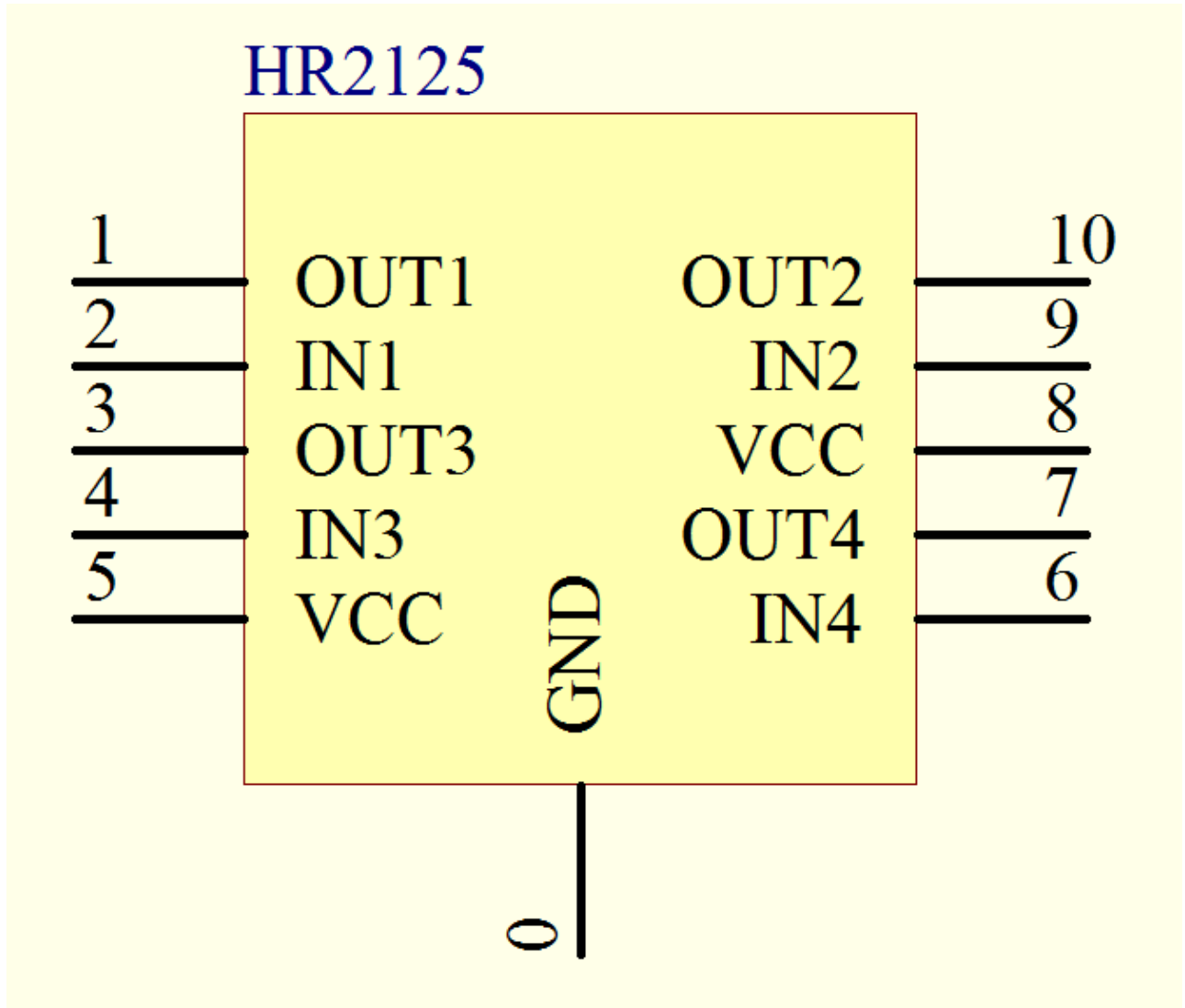
典型原理应用



注意：电源滤波，电解电容尽量靠近芯片 8 脚。  
底部 PAD 为芯片地，切勿悬空，并加强散热。

管脚图

TOP VIEW

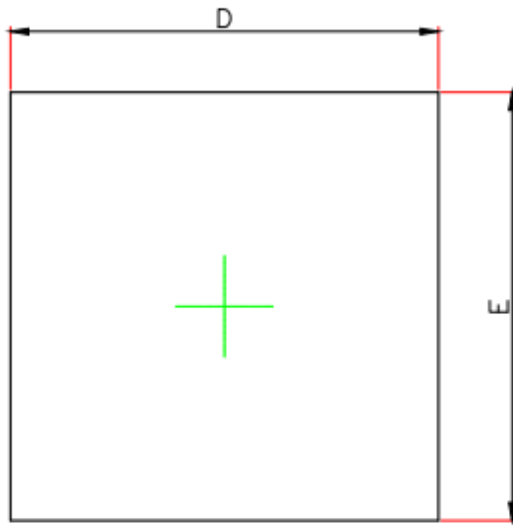


管脚列表

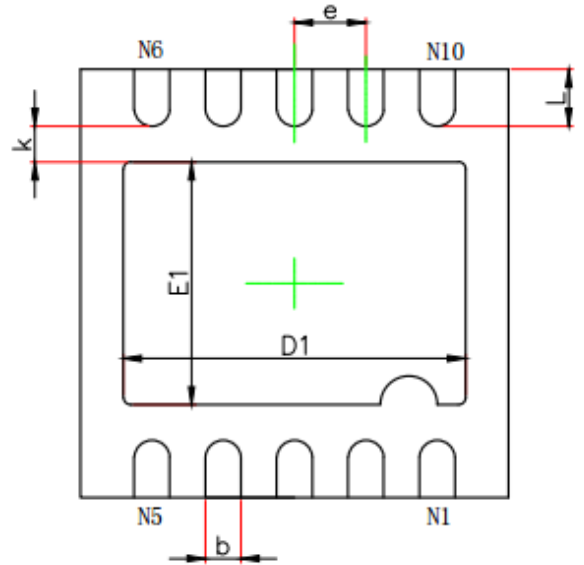
NAME	PIN	IO	Pin Description
OUT1	1	O	H桥1 输出
OUT2	10	O	H桥1 输出
IN1	2	I	H桥1 输入控制
IN2	9	I	H桥1 输入控制
OUT3	3	O	H桥2 输出
OUT4	7	O	H桥2 输出
IN3	4	I	H桥2 输入控制
IN4	6	I	H桥2 输入控制
VCC	5/8	P	芯片电源端，两个管脚接一起，做好电源滤波
GND	0	G	底部PAD为芯片地，切勿悬空



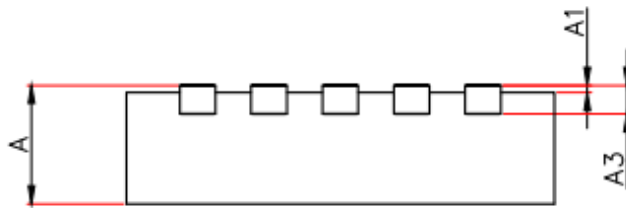
封装信息  
**DFN10**



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700/0.800	0.800/0.900	0.028/0.031	0.031/0.035
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	2.924	3.076	0.115	0.121
E	2.924	3.076	0.115	0.121
D1	2.300	2.500	0.091	0.098
E1	1.600	1.800	0.063	0.071
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.324	0.476	0.013	0.019

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