

MOSFET固态继电器

产品描述

固态继电器(Solid State Relay, SSR)是一种由半导体功率元件构成的无触点开关器件，也被称为“无触点开关”。通过微弱的控制信号来驱动功率半导体器件MOSFET，能够实现无火花、无噪声的接通与断开电路，有效避免了传统继电器中触点磨损和火花产生的问题。

MOSFET固态继电器因其快速的开关速度、无火花、无噪声、低电磁干扰、强大的抗干扰能力、长寿命和高可靠性等卓越性能，被广泛应用于工业控制、通信安防、电力电子、仪器仪表、医疗器械以及智能家居等多个领域，具有广泛的应用前景。

产品特性

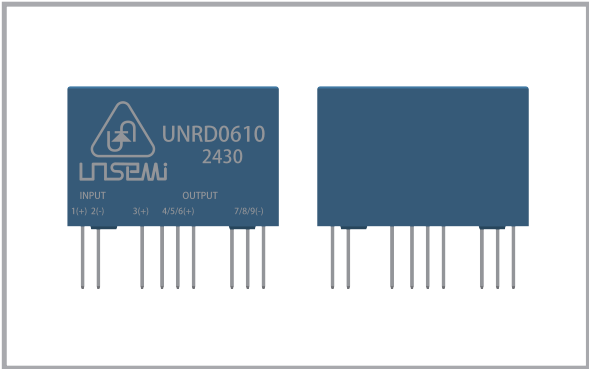
- ◆ 最高负载电压：60V
- ◆ 最大负载电流：10A
- ◆ 快速响应时间：≤1ms
- ◆ 低驱动电流：≤10mA
- ◆ 高绝缘性，输入输出间隔离电压：AC3000V
- ◆ 符合IEC 61000-4-2 ESD标准：±15KV（接触与空气放电）
- ◆ 符合IEC 61000-4-5 Surge标准：±1KV

引脚定义

引脚序号	引脚名称	引脚功能
1	INPUT(+)	输入正极
2	INPUT(-)	输入负极
3/4/5/6	OUTPUT(+)	输出正极
7/8/9	OUTPUT(-)	输出负极

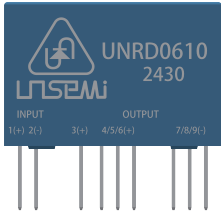


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产品应用

- ◆ 工业设备
- ◆ 电源设备
- ◆ 通信设备
- ◆ 仪器仪表
- ◆ 医疗设备
- ◆ 智能家居
- ◆ 安全设备
- ◆ 交通信号控制



极限参数

参数		符号	最小	典型	最大	单位
输入端	LED正向电流	IF	-	-	50	mA
	LED反向电压	VR	-	-	5	V
	允许功耗	Pin	-	75	-	mW
输出端	负载电压	VL	5	-	60	V
	连续负载电流 ⁽¹⁾	IL	-	-	10	A
	峰值负载电流	IPEAK	-	-	30	A
	允许输出功耗	POUT	-	-	1	W
耐电压		Viso	3000V AC			V
浪涌承受电压		Vs	1000			V
使用环境温度		Topr	-40~+85			℃
保存温度		Tstg	-40~+100			℃

注: (1) 测试条件为100ms (1shot), VL=DCMAX

电性参数

参数		符号	测试条件	最小	典型	最大	单位
输入端	LED 触发电流	IFT	IL=100mA ,VL=10V	-	5	10	mA
	LED正向电压	VF	IF=10mA	-	1.2	1.5	V
输出端	导通电阻	Ron	IF=10mA ,IL=Max.	-	5	8	mΩ
	断态漏电流	IR	IF=0mA ,VL=60V	-	-	10	μA
传输特性	导通时间	Ton	IF=10mA ,IL=1A ,VL=10V	-	0.1	-	ms
	关断时间	Toff	IF=10mA ,IL=1A ,VL=10V	-	1.0	-	ms
	输入/输出间电容	Ciso	F=1MHz	-	1.4	-	pF
	输入/输出间绝缘电阻	Riso	DC500V	1000	-	-	MΩ

命名规则



特性曲线

图 1. 导通与关断时间关系

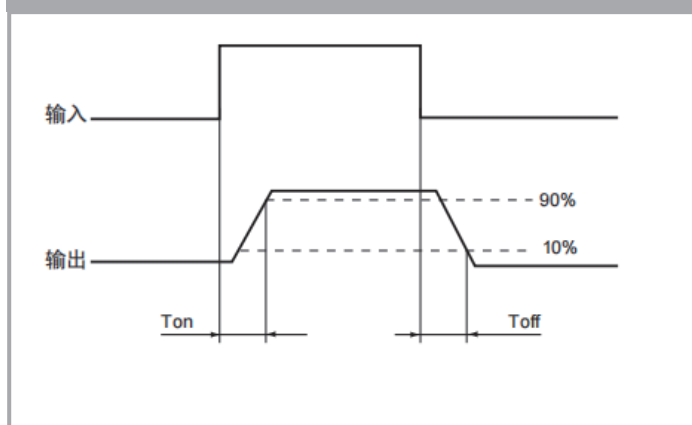


图 2. 负载电流与环境温度关系

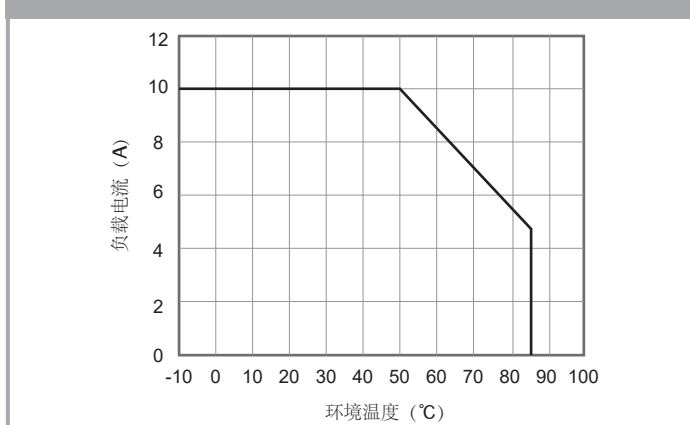
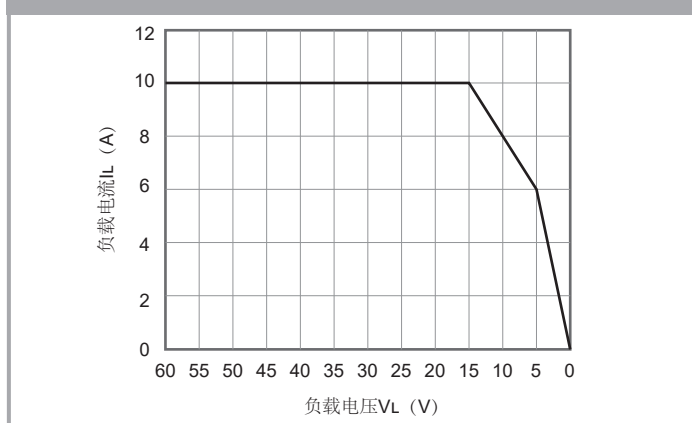
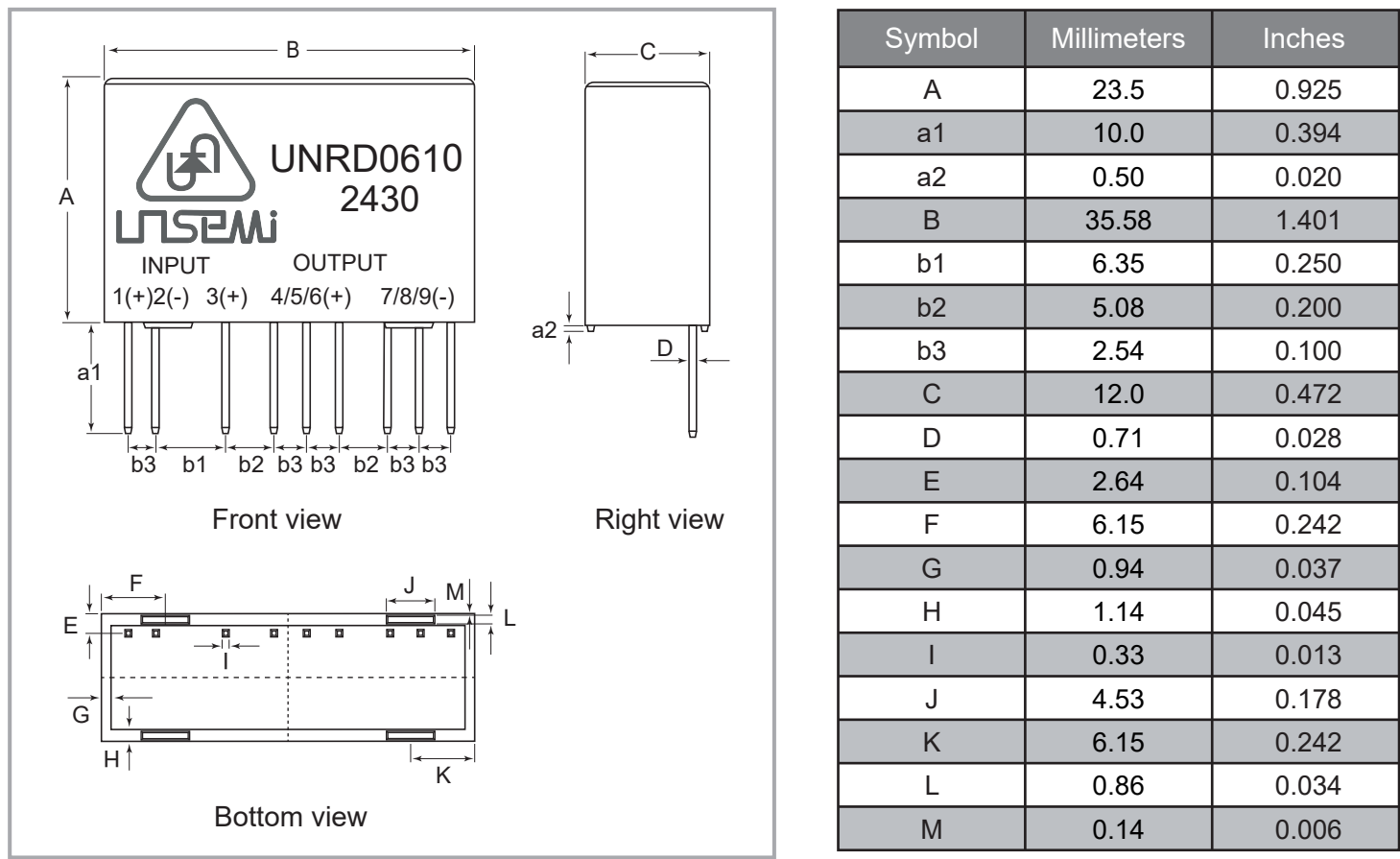


图 3. 负载电流与负载电压关系



外观尺寸图示



安全注意事项

序号	具体事项
1	继电器的各种电气特性受工作温度限制,在工作范围外的温度下使用时, 不仅无法实现电气特性,还会导致继电器加速老化,因此,请事先留意温度特性,并在设计时考虑降额因素,降额曲线参考特性曲线图2。
2	负载电压低于5V时, 器件将无法正常工作, 降额曲线参考特性曲线图3。
3	继电器接线时, 务必保证输入端极性的正确, 以免损坏继电器。
4	请勿在继电器的输入电路/输出电路上施加过电压或过电流。 这可能会导致继电器出现故障或烧毁。
5	如果有短路电流流过, 继电器可能过温鼓包破裂。为了防止短路导致意外, 请务必在电源侧安装保护装置, 如保险丝和断路器。
6	确保MOSFET继电器的发热不会导致环境温度过度上升。如果MOSFET继电器安装在面板内, 应安装散热装置。
7	使储存位置保持正常温度、 湿度和气压。 温度和相对湿度的参考值分别为5~35℃和45~75%。
8	请储存在硫化氢等腐蚀性气体和含盐气流不会接触产品且无肉眼可见灰尘的地方。

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