

双 P 沟道 MOSFET

ELM54535WA-N

<http://www.elm-tech.com>

■概要

ELM54535WA-N 是 P 沟道低输入电容、低工作电压、低导通电阻的大电流 MOSFET，内藏有两个 MOSFET。

■特点

- $V_{ds} = -40V$
- $I_d = -6.2A$
- $R_{ds(on)} = 35m\Omega$ ($V_{gs} = -10V$)
- $R_{ds(on)} = 50m\Omega$ ($V_{gs} = -4.5V$)

■绝对最大额定值

如没有特别注明时, $T_a = 25^\circ C$

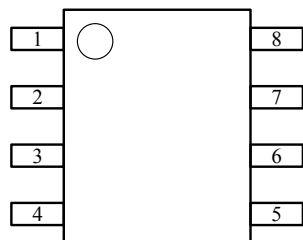
| 项目 | 记号 | 规格范围 | 单位 |
|-----------------------------------|-----------|--------------------|------------|
| 漏极 - 源极电压 | V_{ds} | -40 | V |
| 栅极 - 源极电压 | V_{gs} | ± 20 | V |
| 漏极电流 (定常) ($T_j = 150^\circ C$) | Id | $T_a = 25^\circ C$ | A |
| | | $T_a = 70^\circ C$ | |
| 漏极电流 (脉冲) | I_{dm} | -20 | A |
| 容许功耗 | Pd | $T_c = 25^\circ C$ | W |
| | | $T_c = 70^\circ C$ | |
| 动作结合部温度 | T_j | 150 | $^\circ C$ |
| 保存温度范围 | T_{stg} | -55 ~ 150 | $^\circ C$ |

■热特性

| 项目 | 记号 | 典型值 | 最大值 | 单位 |
|--------------|-----------------|-----|------|--------------|
| 最大结合部 - 环境热阻 | $R_{\theta ja}$ | - | 62.5 | $^\circ C/W$ |

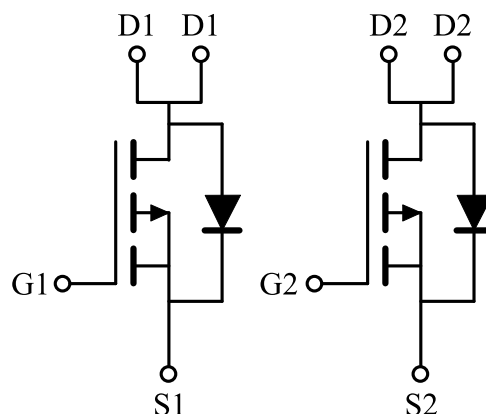
■引脚配置图

SOP-8(俯视图)



| 引脚编号 | 引脚名称 |
|------|---------|
| 1 | SOURCE1 |
| 2 | GATE1 |
| 3 | SOURCE2 |
| 4 | GATE2 |
| 5 | DRAIN2 |
| 6 | DRAIN2 |
| 7 | DRAIN1 |
| 8 | DRAIN1 |

■电路图



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■电特性

如没有特别注明时, Ta=25℃

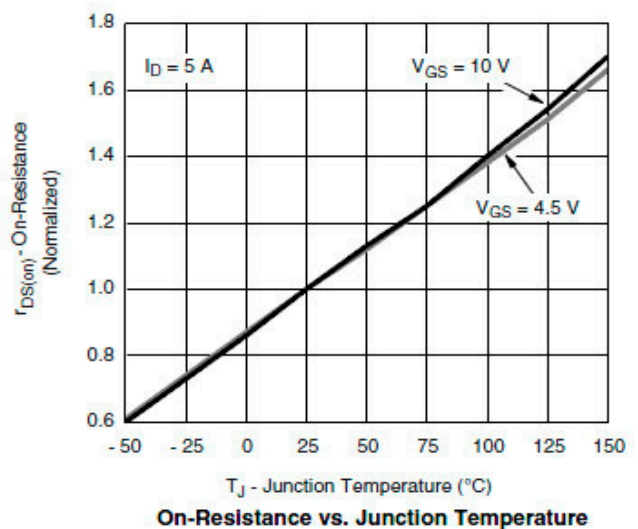
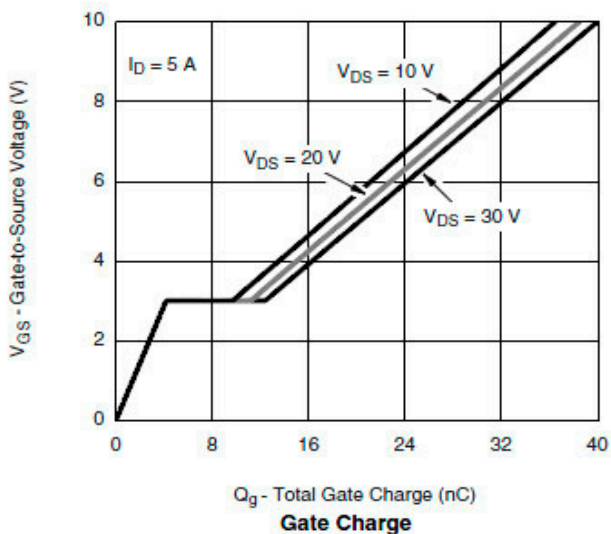
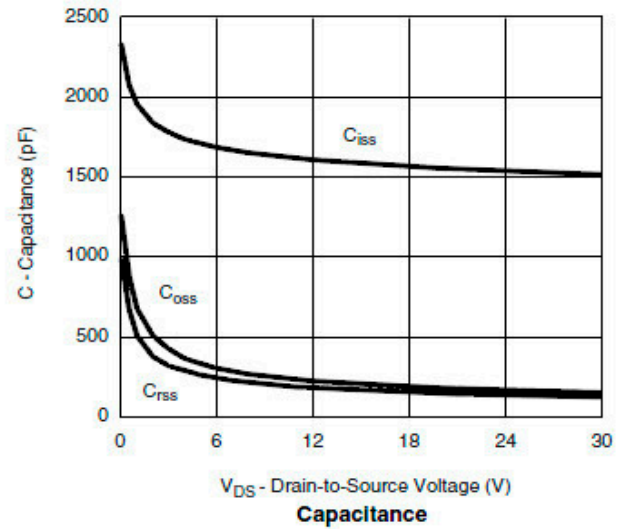
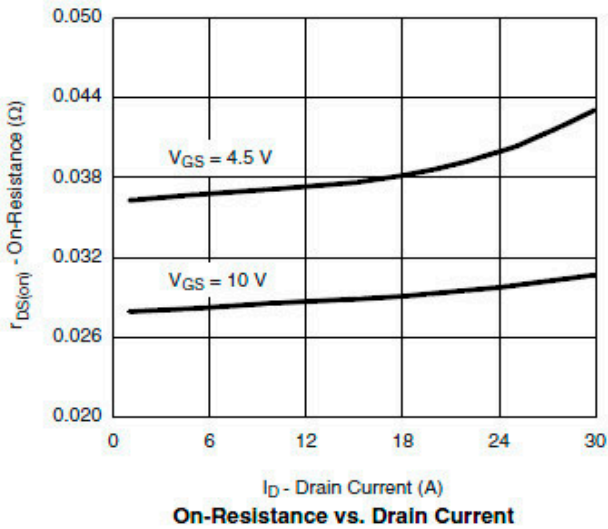
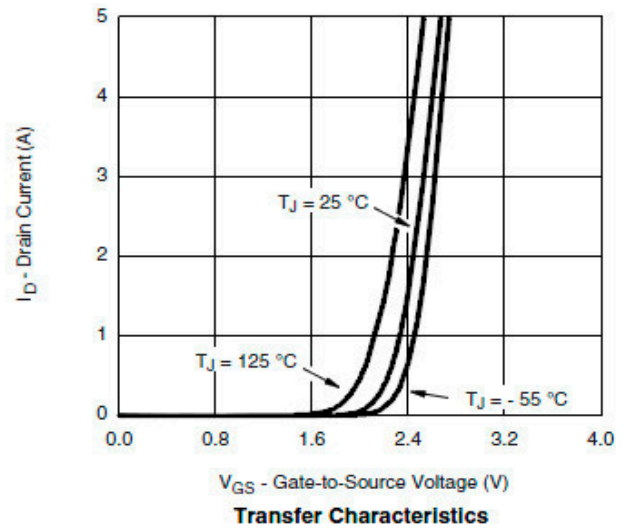
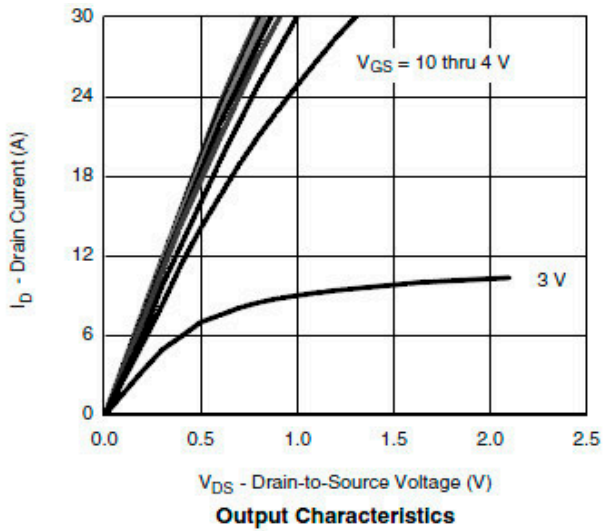
| 项目 | 记号 | 条件 | 最小值 | 典型值 | 最大值 | 单位 |
|-------------|---------|---------------------------------------------------|------|------|------|----|
| 静态特性 | | | | | | |
| 漏极 - 源极击穿电压 | BVdss | Id=-250μA, Vgs=0V | -40 | | | V |
| 栅极接地时漏极电流 | Idss | Vds=-40V, Vgs=0V Ta=85℃ | | | -1 | μA |
| | | | | | -20 | |
| 栅极漏电电流 | Igss | Vds=0V, Vgs=±20V | | | ±100 | nA |
| 栅极阈值电压 | Vgs(th) | Vds=Vgs, Id=-250μA | -1.0 | | -3.0 | V |
| 导通时漏极电流 | Id(on) | Vgs=-10V, Vds≥-5V | -20 | | | A |
| 漏极 - 源极导通电阻 | Rds(on) | Vgs=-10V, Id=-6.2A | | 30 | 35 | mΩ |
| | | Vgs=-4.5V, Id=-5.2A | | 40 | 50 | |
| 正向跨导 | Gfs | Vds=-15V, Id=-5.0A | | 20 | | S |
| 二极管正向压降 | Vsd | Is=-2.0A, Vgs=0V | | -0.8 | -1.2 | V |
| 寄生二极管最大连续电流 | Is | | | | -1.7 | A |
| 动态特性 | | | | | | |
| 输入电容 | Ciss | Vgs=0V, Vds=-20V, f=1MHz | | 1100 | | pF |
| 输出电容 | Coss | | | 145 | | pF |
| 反馈电容 | Crss | | | 115 | | pF |
| 开关特性 | | | | | | |
| 总栅极电荷 | Qg | Vgs=-4.5V, Vds=-20V Id≐-5.0A | | 13.0 | 20.0 | nC |
| 栅极 - 源极电荷 | Qgs | | | 4.5 | | nC |
| 栅极 - 漏极电荷 | Qgd | | | 6.5 | | nC |
| 导通延迟时间 | td(on) | Vgs=-4.5V, Vds=-20V Id≐-5.0A, RL=4Ω Rgen=1Ω | | 40 | 80 | ns |
| 导通上升时间 | tr | | | 55 | 100 | ns |
| 关闭延迟时间 | td(off) | | | 30 | 60 | ns |
| 关闭下降时间 | tf | | | 12 | 20 | ns |

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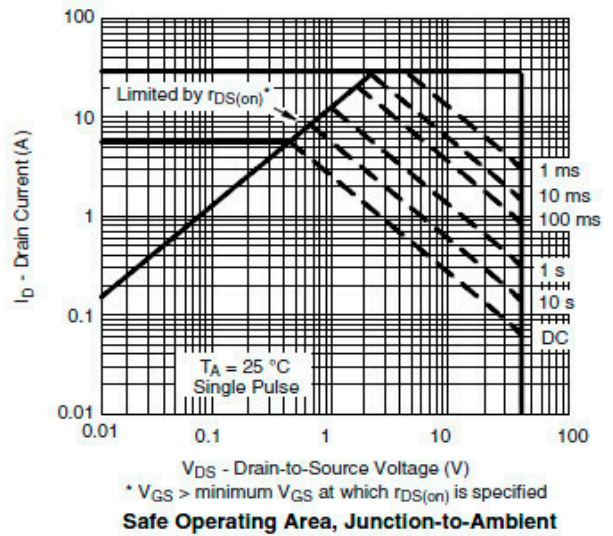
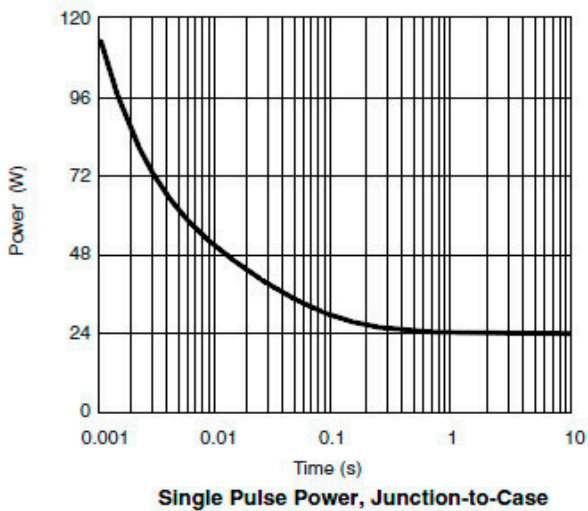
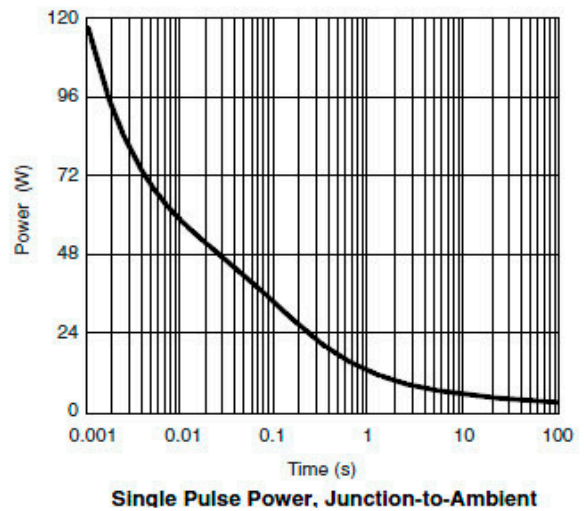
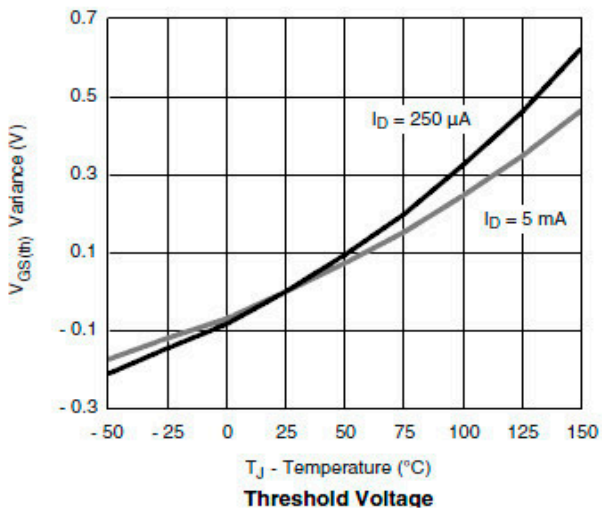
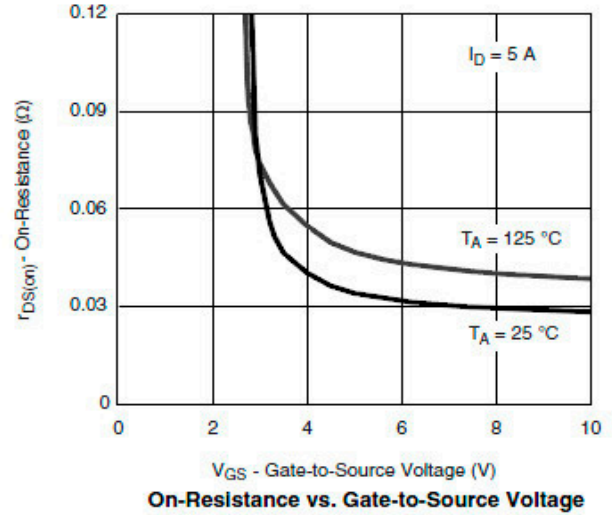
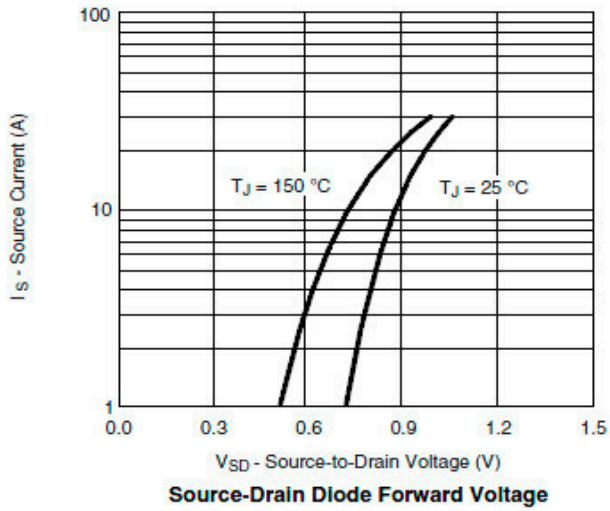
■ 标准特性和热特性曲线



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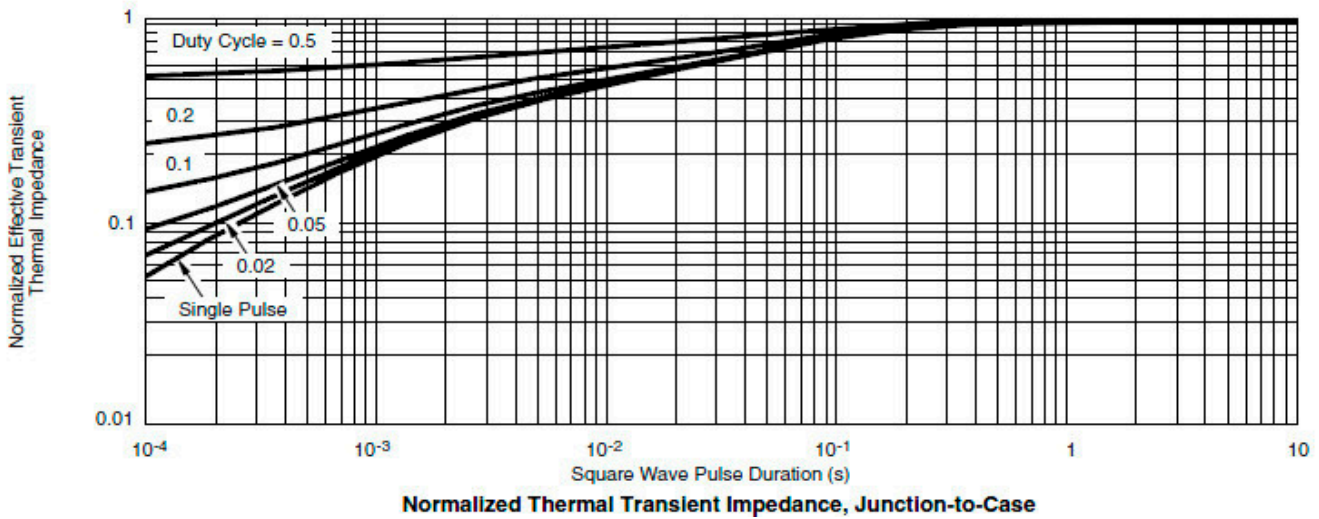
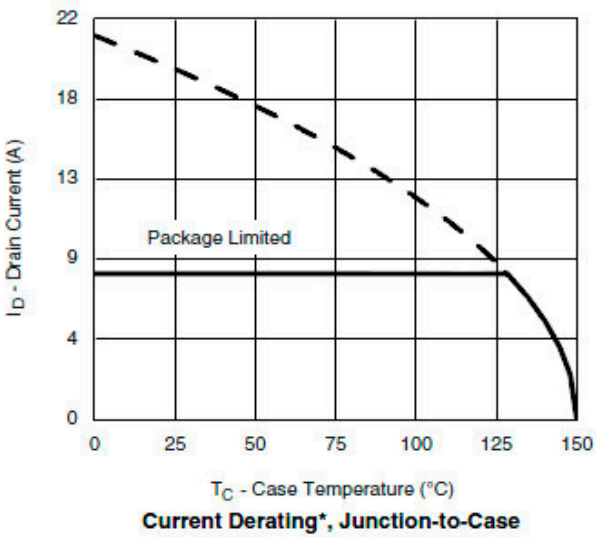
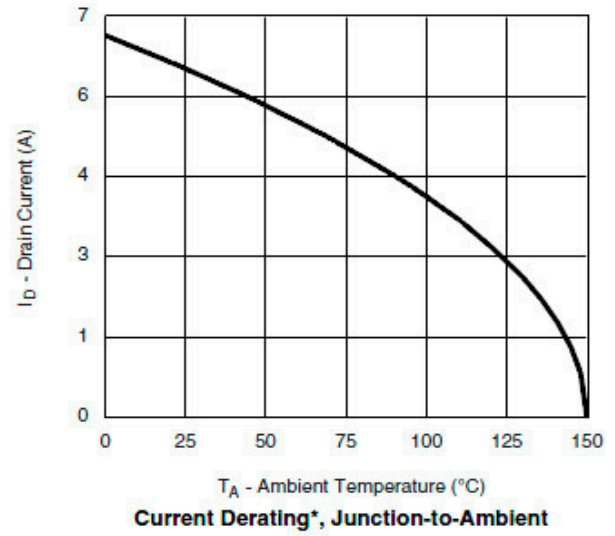
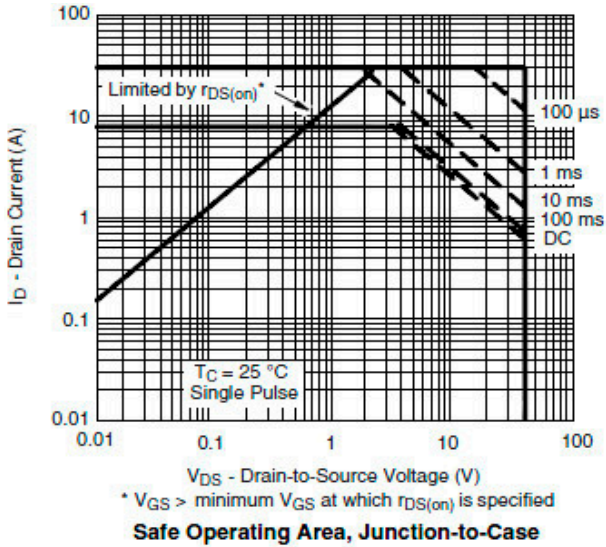
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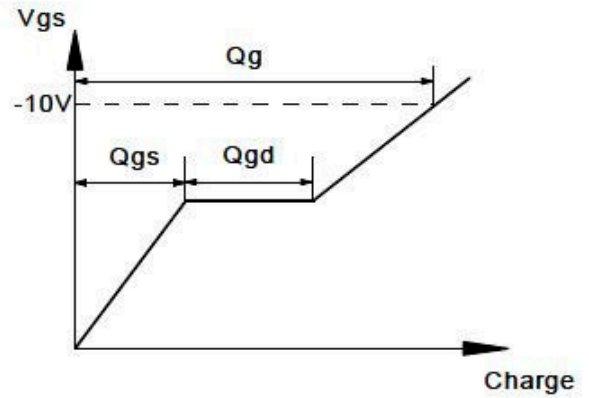
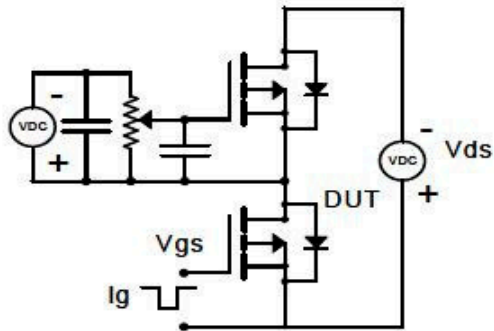
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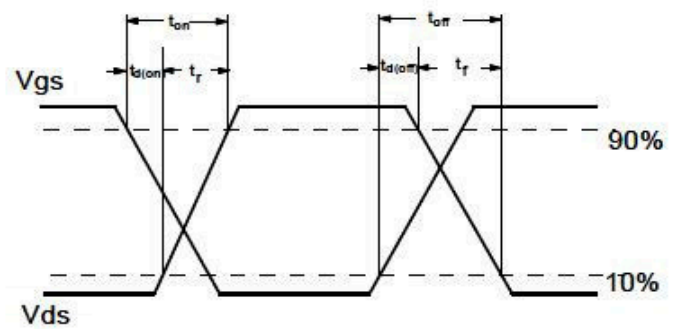
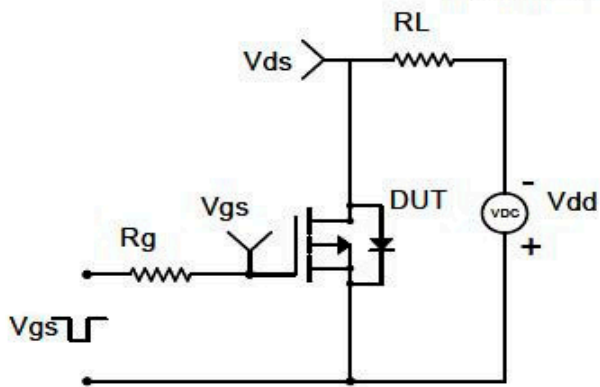
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■ 试验电路图和测试波形图

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

