

# 双 N 沟道 MOSFET

ELM54946WA-N

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## ■概要

ELM54946WA-N 是 N 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

- $V_{ds}=60V$
- $I_d=6.8A$
- $R_{ds(on)} = 42m\Omega$  ( $V_{gs}=10V$ )
- $R_{ds(on)} = 48m\Omega$  ( $V_{gs}=4.5V$ )

## ■绝对最大额定值

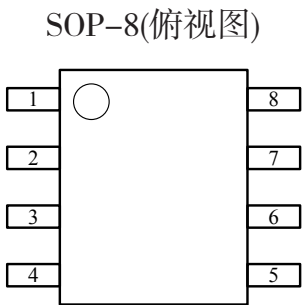
如没有特别注明时,  $T_a=25^{\circ}C$

| 项目                           | 记号        | 规格范围           | 单位          |
|------------------------------|-----------|----------------|-------------|
| 漏极 - 源极电压                    | $V_{ds}$  | 60             | V           |
| 栅极 - 源极电压                    | $V_{gs}$  | $\pm 20$       | V           |
| 漏极电流 (定常) $T_j=150^{\circ}C$ | $I_d$     | 6.8            | A           |
|                              |           | 5.6            |             |
| 漏极电流 (脉冲)                    | $I_{dm}$  | 30             | A           |
| 容许功耗                         | $P_d$     | 2.8            | W           |
|                              |           | 1.8            |             |
| 动作结合部温度                      | $T_j$     | 150            | $^{\circ}C$ |
| 保存温度范围                       | $T_{stg}$ | $-55 \sim 150$ | $^{\circ}C$ |

## ■热特性

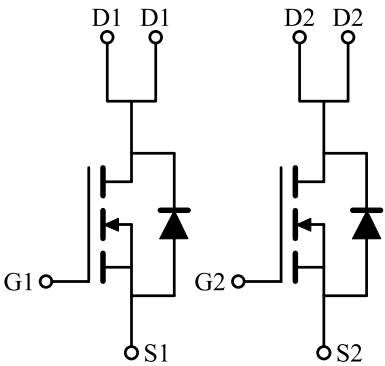
| 项目           | 记号              | 典型值 | 最大值  | 单位            |
|--------------|-----------------|-----|------|---------------|
| 最大结合部 - 环境热阻 | $R_{\theta ja}$ |     | 62.5 | $^{\circ}C/W$ |

## ■引脚配置图



| 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℃

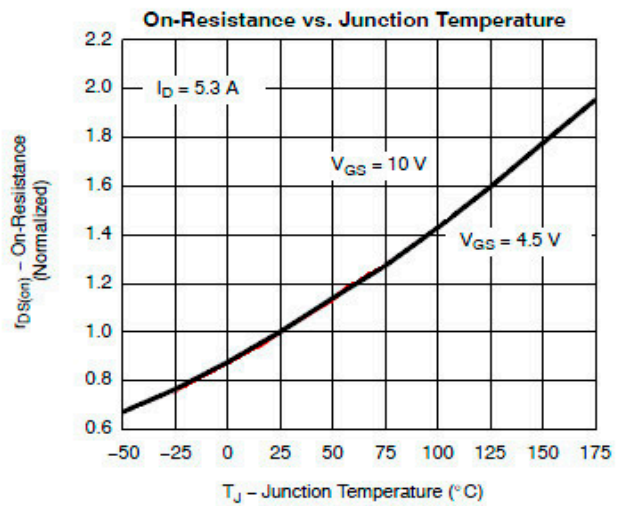
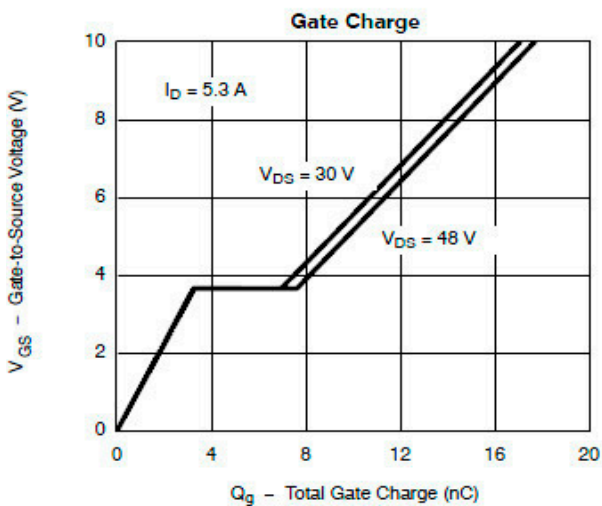
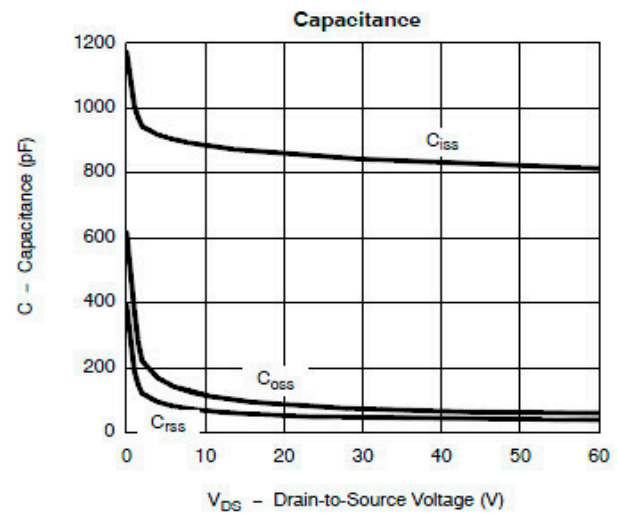
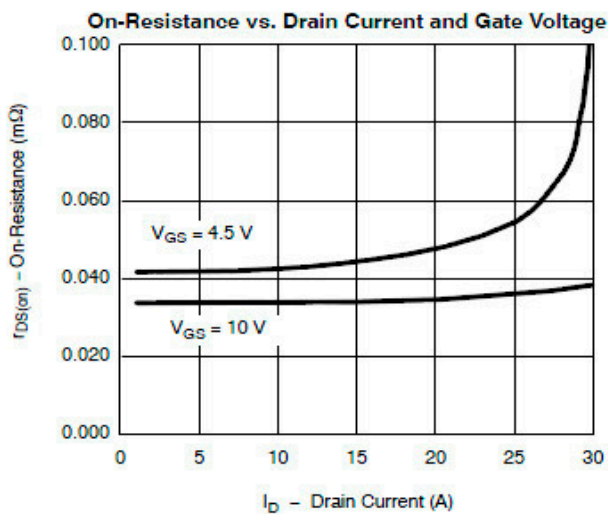
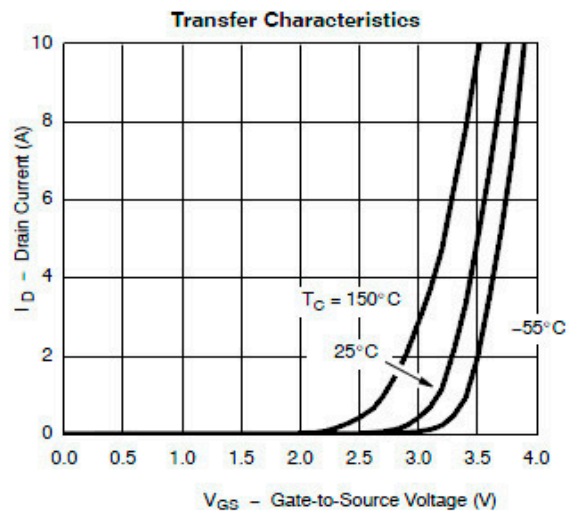
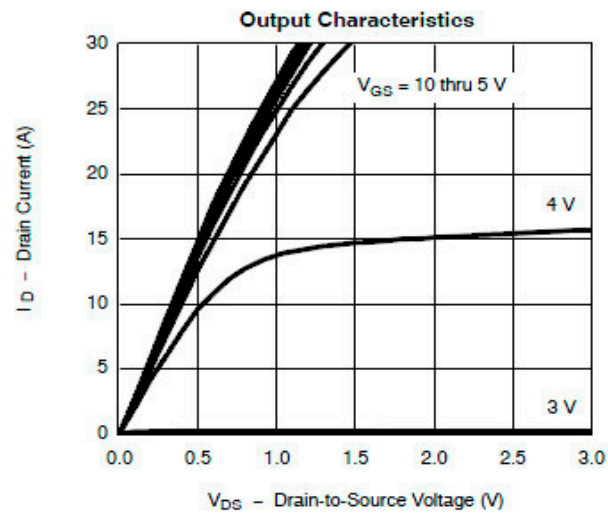
| 项目          | 记号                | 条件                         |        | 最小值 | 典型值  | 最大值   | 单位 |
|-------------|-------------------|----------------------------|--------|-----|------|-------|----|
| 静态特性        |                   |                            |        |     |      |       |    |
| 漏极 – 源极击穿电压 | BV <sub>dss</sub> | Id=250μA, Vgs=0V           |        | 60  |      |       | V  |
| 栅极接地时漏极电流   | Idss              | Vds=60V, Vgs=0V            |        |     |      | 1     | μA |
|             |                   |                            | Ta=85℃ |     |      | 5     |    |
| 栅极漏电流       | Igss              | Vds=0V, Vgs= ± 20V         |        |     |      | ± 100 | nA |
| 栅极阈值电压      | Vgs(th)           | Vds=Vgs, Id=250 μA         |        | 1.0 |      | 2.5   | V  |
| 导通时漏极电流     | Id(on)            | Vgs=4.5V, Vds≥5V           |        | 30  |      |       | A  |
| 漏极 – 源极导通电阻 | Rds(on)           | Vgs=10V, Id=6.8A           |        |     | 38   | 42    | mΩ |
|             |                   | Vgs=4.5V, Id=5.6A          |        |     | 42   | 48    |    |
| 正向跨导        | Gfs               | Vds=15V, Id=5.3A           |        |     | 24   |       | 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                |                            |        |     |      | 1.5   | A  |
| 动态特性        |                   |                            |        |     |      |       |    |
| 输入电容        | Ciss              | Vgs=0V, Vds=30V, f=1MHz    |        |     | 890  |       | pF |
| 输出电容        | Coss              |                            |        |     | 85   |       | pF |
| 反馈电容        | Crss              |                            |        |     | 48   |       | pF |
| 开关特性        |                   |                            |        |     |      |       |    |
| 总栅极电荷       | Qg                | Vgs=5V, Vds=30V, Id=5.6A   |        |     | 10.0 | 15.0  | nC |
| 栅极 – 源极电荷   | Qgs               |                            |        |     | 3.5  |       | nC |
| 栅极 – 漏极电荷   | Qgd               |                            |        |     | 3.6  |       | nC |
| 导通延迟时间      | td(on)            | Vgs=4.5V, Vds=30V, Id=5.0A |        |     | 10   | 15    | ns |
| 导通上升时间      | tr                |                            |        |     | 12   | 20    | ns |
| 关闭延迟时间      | td(off)           |                            |        |     | 25   | 35    | ns |
| 关闭下降时间      | tf                |                            |        |     | 10   | 15    | ns |

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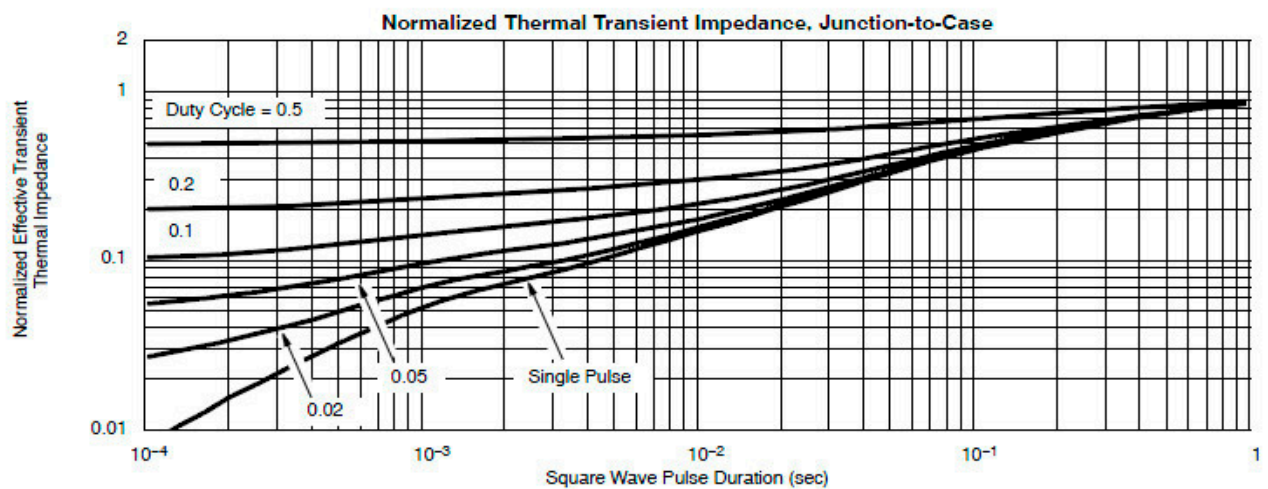
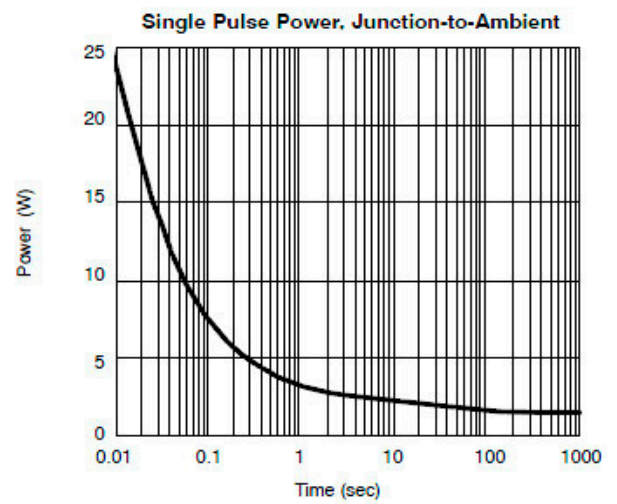
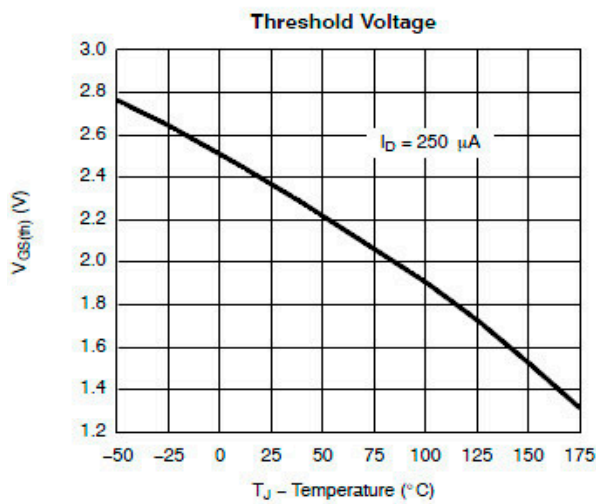
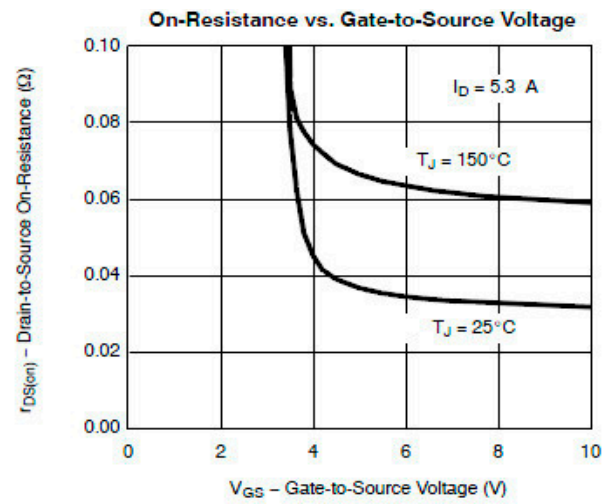
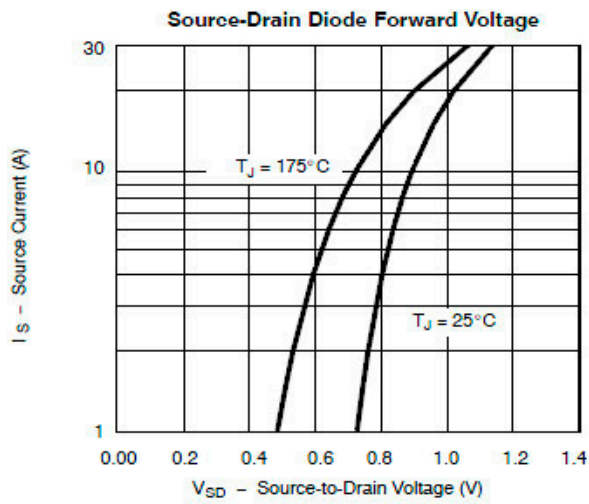
## ■ 标准特性和热特性曲线



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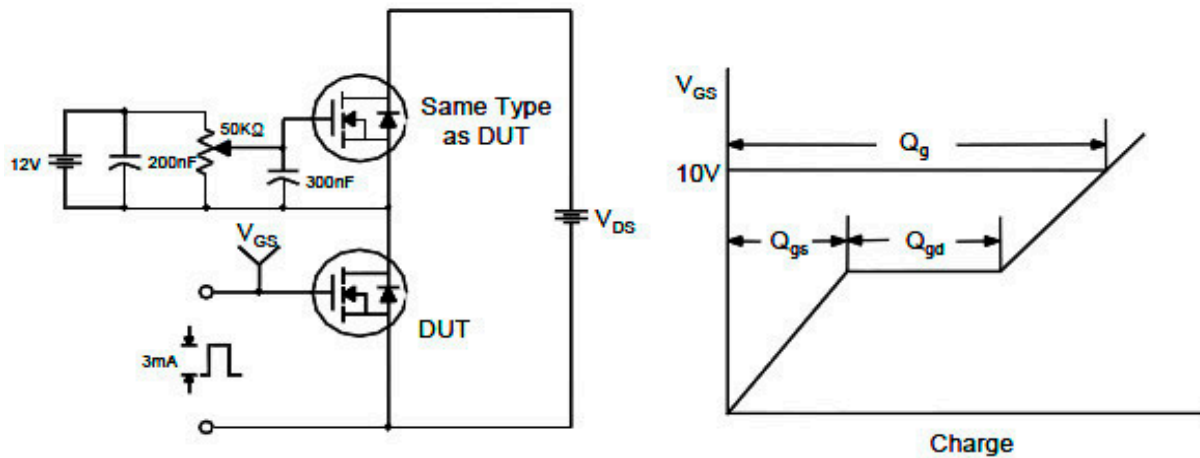
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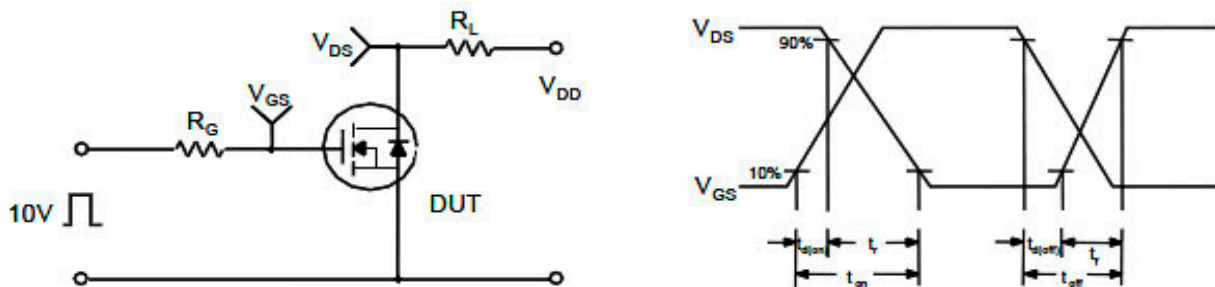
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