

# 双 N 沟道 MOSFET

ELM57002LDSA-S

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

## ■概要

ELM57002LDSA-S 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。另外，此芯片还内藏 ESD 保护电路。

## ■特点

- $V_{ds}=60V$
- $I_d=0.64A$
- $R_{ds(on)} = 2.4\Omega$  ( $V_{gs}=10V$ )
- $R_{ds(on)} = 3.0\Omega$  ( $V_{gs}=4.5V$ )
- $R_{ds(on)} = 6.5\Omega$  ( $V_{gs}=2.5V$ )
- $R_{ds(on)} = 9.0\Omega$  ( $V_{gs}=1.8V$ )
- ESD 保护

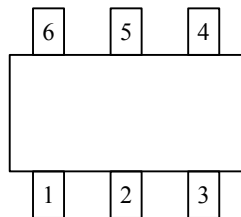
## ■绝对最大额定值

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 ( $T_j=150^\circ C$ ) | $I_d$     | 0.64           | A          |
|                            |           | 0.35           |            |
| 漏极电流 (脉冲)                  | $I_{dm}$  | 0.8            | A          |
| 容许功耗                       | $P_d$     | 0.3            | W          |
|                            |           | 0.2            |            |
| 动作结合部温度                    | $T_j$     | $-55 \sim 150$ | $^\circ C$ |
| 保存温度范围                     | $T_{stg}$ | $-55 \sim 150$ | $^\circ C$ |

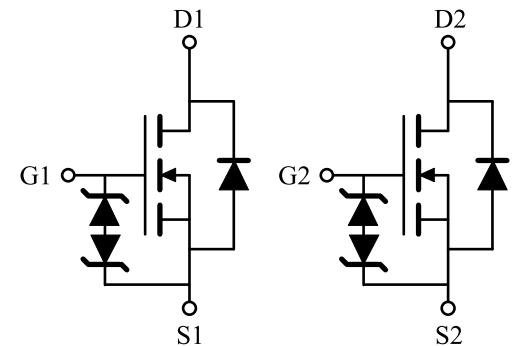
## ■引脚配置图

SC-70-6(俯视图)



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

## ■电路图



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## ■电特性

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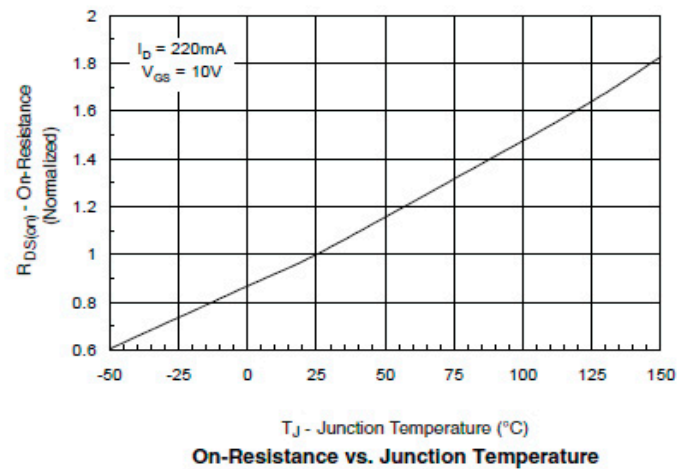
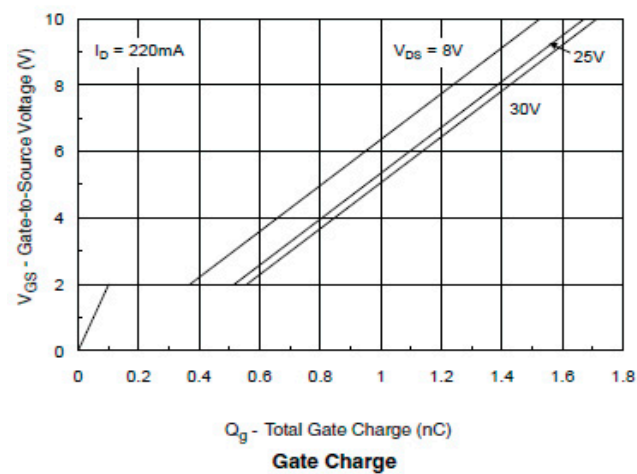
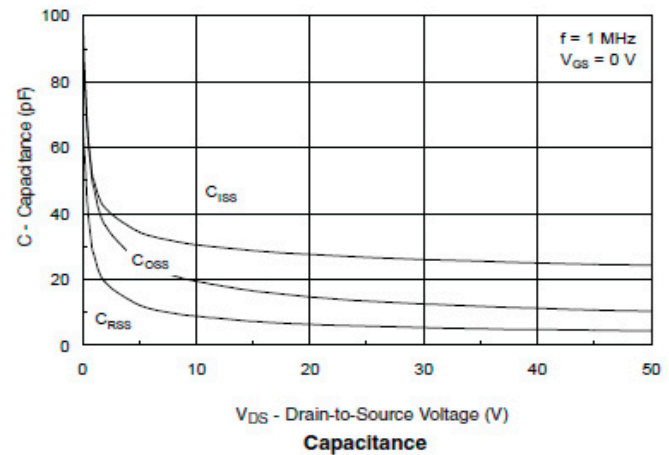
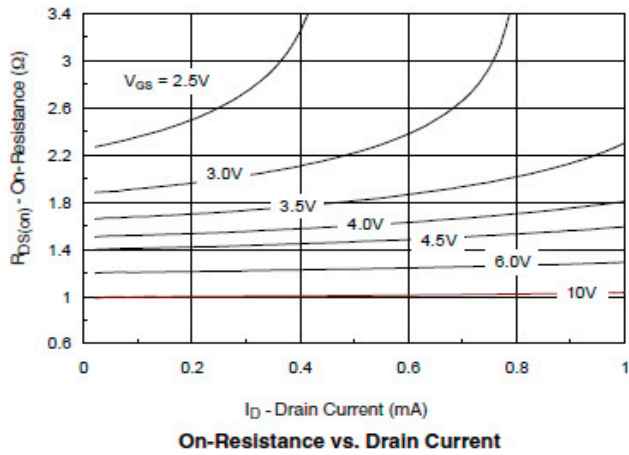
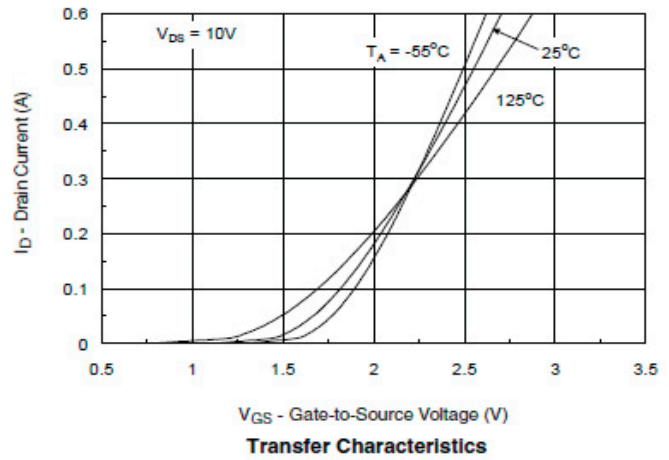
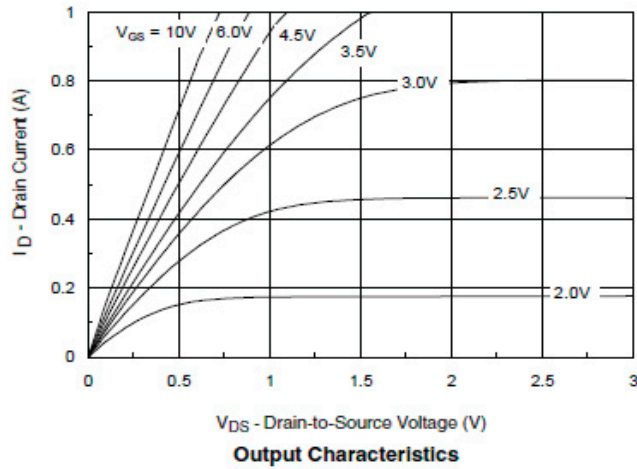
| 项目          | 记号                | 条件                                      | 最小值    | 典型值 | 最大值  | 单位   |    |
|-------------|-------------------|-----------------------------------------|--------|-----|------|------|----|
| 静态特性        |                   |                                         |        |     |      |      |    |
| 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=48V, Vgs=0V                         |        |     | 1    | μA   |    |
|             |                   |                                         | Ta=85℃ |     | 10   |      |    |
| 栅极漏电流       | Igss              | Vds=0V, Vgs= ± 20V                      |        |     | 5    | μA   |    |
| 栅极阈值电压      | Vgs(th)           | Vds=Vgs, Id=250 μA                      |        | 0.7 | 1.1  | 1.5  | V  |
| 漏极 – 源极导通电阻 | Rds(on)           | Vgs=10V, Id=0.5A                        |        |     | 1.05 | 2.40 | Ω  |
|             |                   | Vgs=4.5V, Id=0.4A                       |        |     | 1.35 | 3.00 |    |
|             |                   | Vgs=2.5V, Id=0.3A                       |        |     | 3.52 | 6.50 |    |
|             |                   | Vgs=1.8V, Id=0.2A                       |        |     | 7.56 | 9.00 |    |
| 正向跨导        | Gfs               | Vds=10V, Id=0.2A                        |        |     | 0.2  |      | S  |
| 二极管正向压降     | Vsd               | Is=0.2A, Vgs=0V                         |        |     | 0.75 | 1.40 | V  |
| 寄生二极管最大连续电流 | Is                |                                         |        |     |      | 0.8  | A  |
| 动态特性        |                   |                                         |        |     |      |      |    |
| 输入电容        | Ciss              | Vgs=0V, Vds=25V, f=1MHz                 |        |     | 28   |      | pF |
| 输出电容        | Coss              |                                         |        |     | 10   |      | pF |
| 反馈电容        | Crss              |                                         |        |     | 5    |      | pF |
| 开关特性        |                   |                                         |        |     |      |      |    |
| 总栅极电荷       | Qg                | Vgs=10V, Vds=30V, Id≡0.25A              |        |     | 1.5  | 2.5  | pC |
| 栅极 – 源极电荷   | Qgs               |                                         |        |     | 0.2  |      | pC |
| 栅极 – 漏极电荷   | Qgd               |                                         |        |     | 0.5  |      | pC |
| 导通延迟时间      | td(on)            | Vgs=10V, Vds=30V<br>Id≡0.25A, Rgen=6.0Ω |        |     | 3    | 7    | ns |
| 导通上升时间      | tr                |                                         |        |     | 12   | 30   | ns |
| 关闭延迟时间      | td(off)           |                                         |        |     | 18   | 40   | ns |
| 关闭下降时间      | tf                |                                         |        |     | 8    | 15   | ns |

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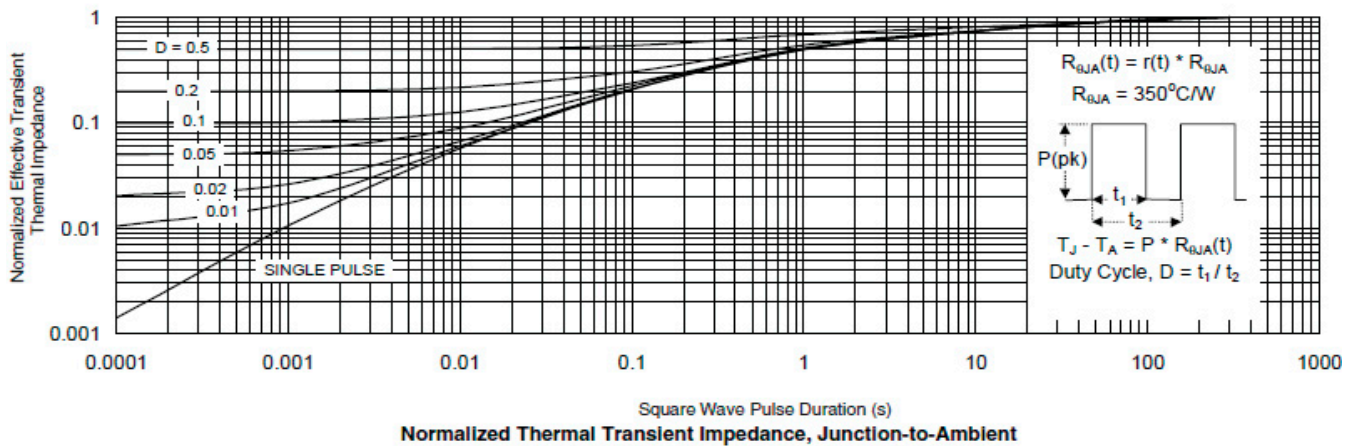
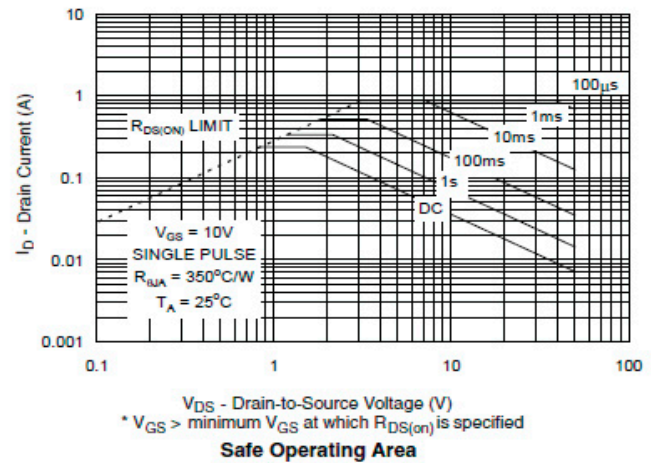
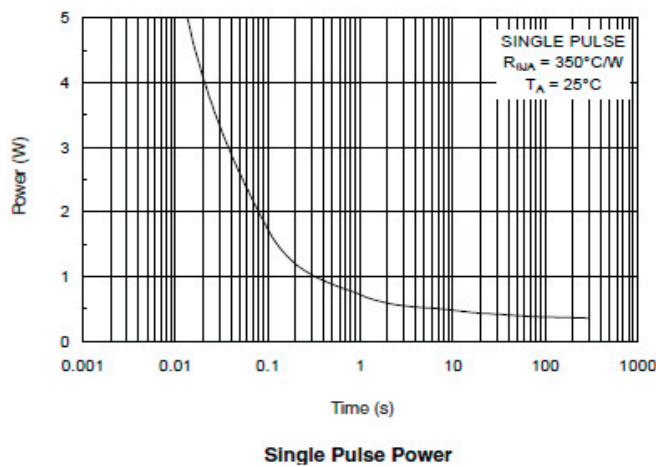
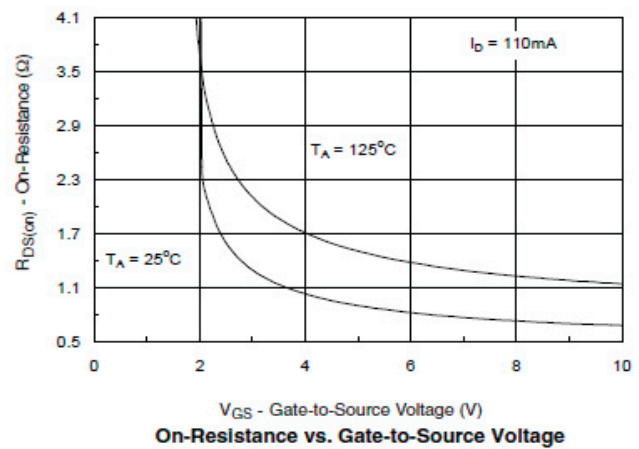
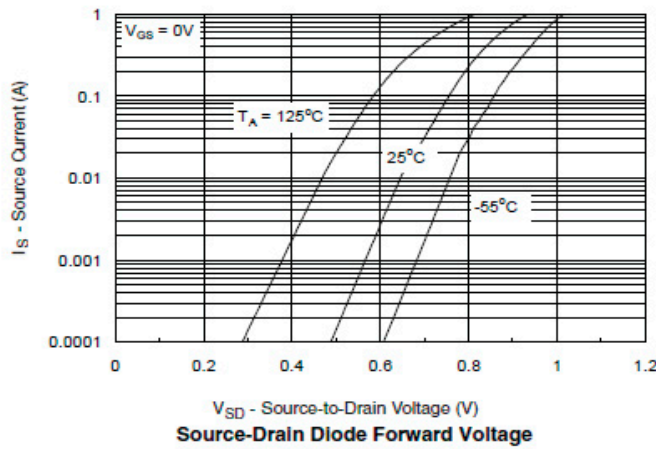
## ■ 标准特性和热特性曲线



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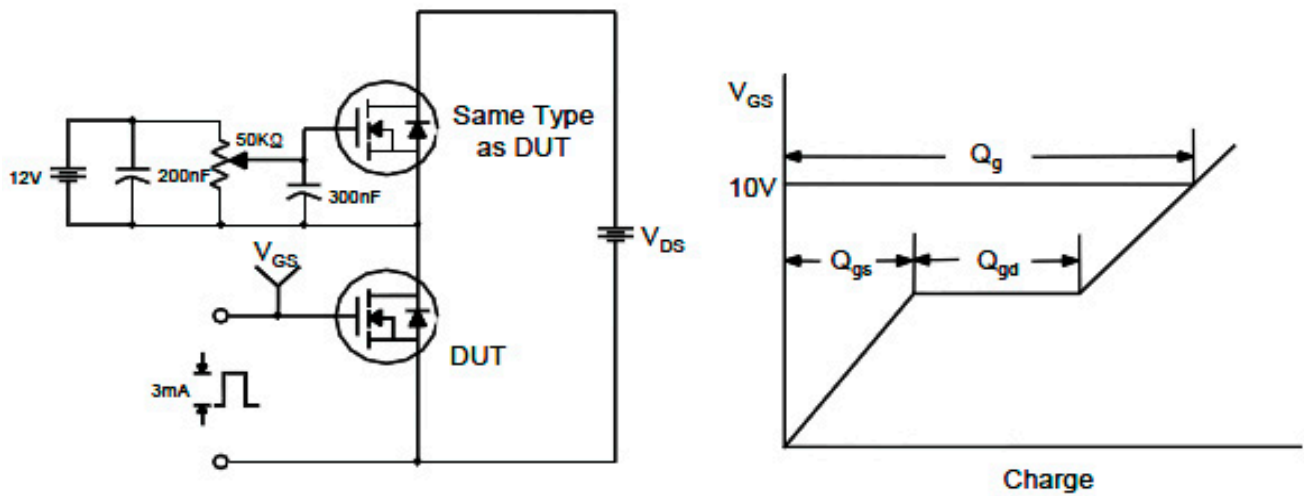
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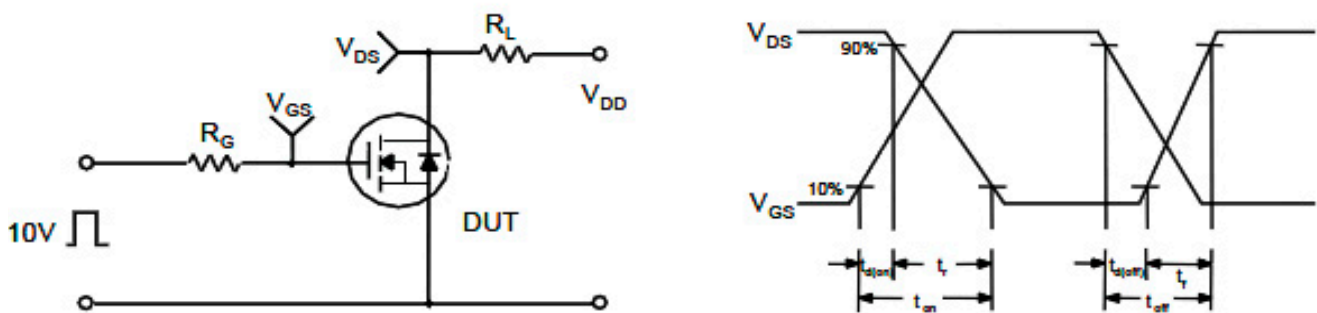
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