

# 单 N 沟道 MOSFET

ELM54190SA-N

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

## ■概要

ELM54190SA-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。

## ■特点

- $V_{ds}=100V$
- $I_d=18A$
- $R_{ds(on)} = 9.2m\Omega$  ( $V_{gs}=10V$ )
- $R_{ds(on)} = 13.0m\Omega$  ( $V_{gs}=4.5V$ )

## ■绝对最大额定值

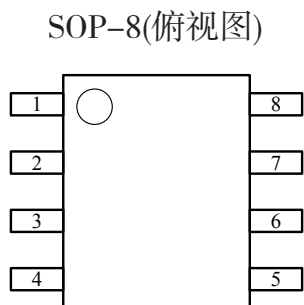
如没有特别注明时,  $T_a=25^\circ C$

项目	记号	规格范围	单位	
漏极 - 源极电压	$V_{ds}$	100	V	
栅极 - 源极电压	$V_{gs}$	$\pm 20$	V	
漏极电流 ( $T_j=150^\circ C$ )	Id	$T_a=25^\circ C$	18	A
		$T_a=70^\circ C$	14	
漏极电流 (脉冲)	$I_{dm}$	70	A	
容许功耗	Pd	$T_c=25^\circ C$	6.0	W
		$T_c=70^\circ C$	3.8	
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

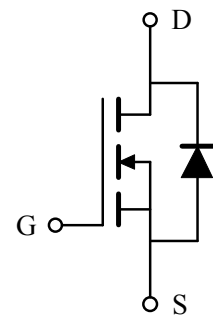
项目	记号	典型值	最大值	单位
最大结合部 - 环境热阻	$R_{\theta ja}$		62.5	$^\circ C/W$

## ■引脚配置图



引脚编号	引脚名称
1	SOURCE
2	SOURCE
3	SOURCE
4	GATE
5	DRAIN
6	DRAIN
7	DRAIN
8	DRAIN

## ■电路图



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## ■电特性

如没有特别注明时, Ta=25℃

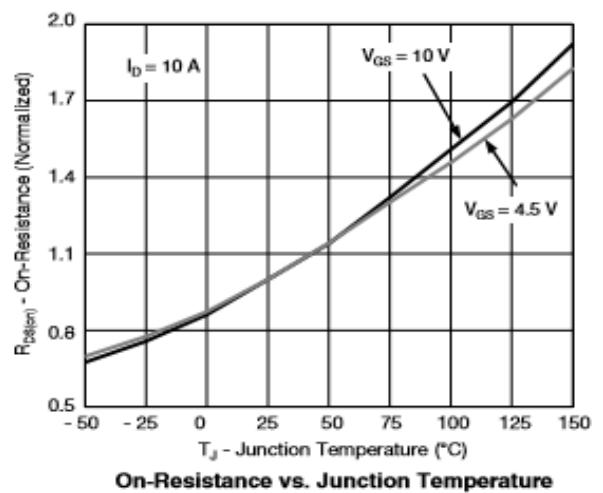
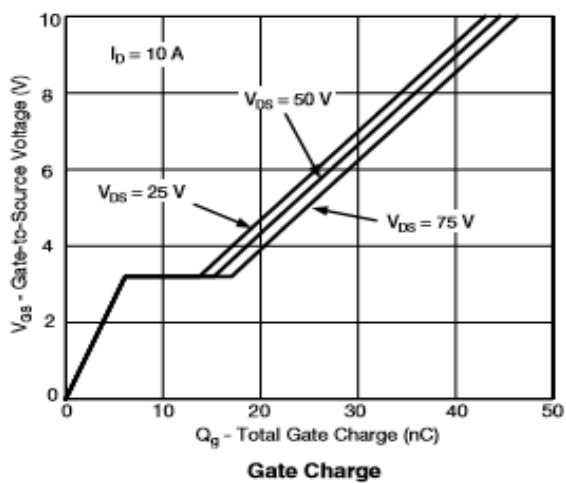
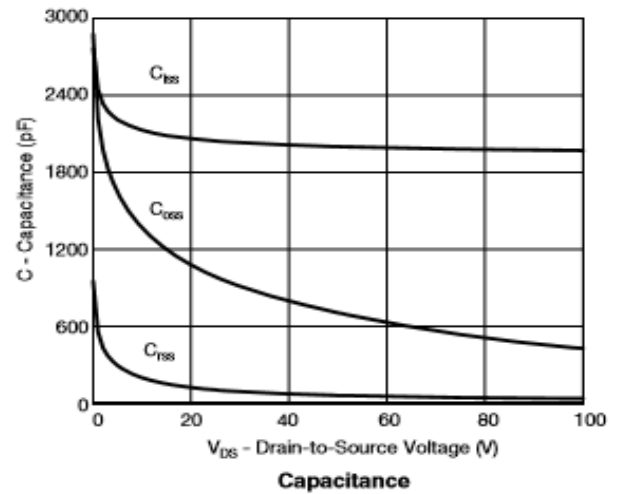
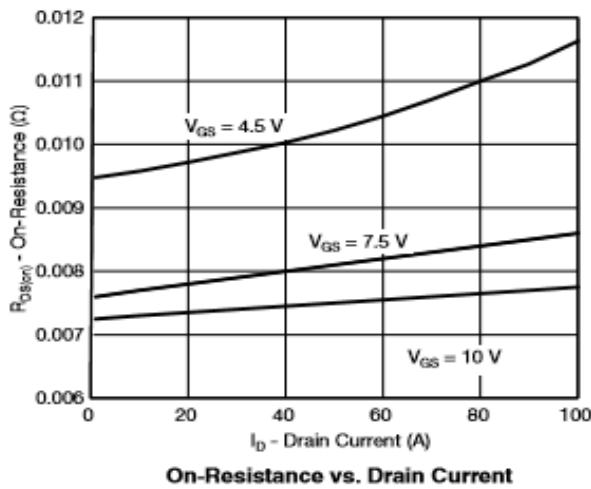
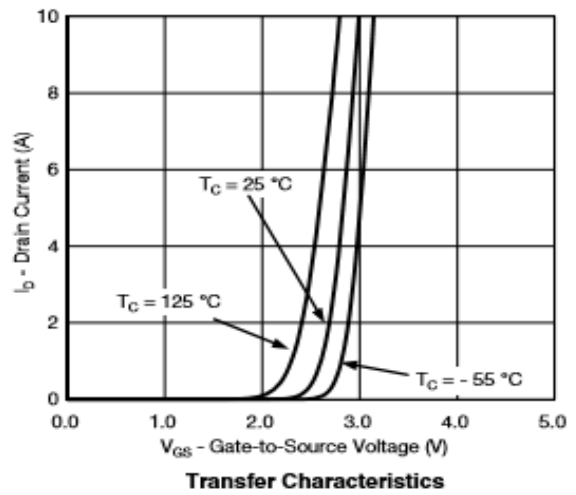
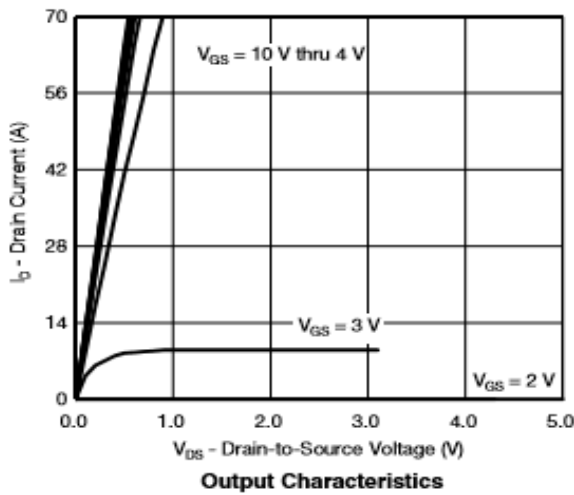
项目	记号	条件	最小值	典型值	最大值	单位
静态特性						
漏极 - 源极击穿电压	BVdss	Id=250μA, Vgs=0V	100			V
栅极接地时漏极电流	Idss	Vds=80V, Vgs=0V			1	μA
		Vds=80V, Vgs=0V, Ta=85℃			10	
栅极漏电流	Igss	Vds=0V, Vgs=±20V			±100	nA
栅极阈值电压	Vgs(th)	Vds=Vgs, Id=250μA	1.2		2.5	V
导通时漏极电流	Id(on)	Vgs=10V, Vds≥5V	30			A
漏极 - 源极导通电阻	Rds(on)	Vgs=10V, Id=15A		7.6	9.2	mΩ
		Vgs=4.5V, Id=10A		11.0	13.0	
正向跨导	Gfs	Vds=15V, Id=15A		54		S
二极管正向压降	Vsd	Is=5A, Vgs=0V		0.8	1.3	V
寄生二极管最大连续电流	Is				5.4	A
动态特性						
输入电容	Ciss	Vgs=0V, Vds=50V, f=1MHz		1950		pF
输出电容	Coss			700		pF
反馈电容	Crss			65		pF
开关特性						
总栅极电荷	Qg	Vgs=4.5V, Vds=50V, Id=10A		20	40	nC
栅极 - 源极电荷	Qgs			6		nC
栅极 - 漏极电荷	Qgd			9		nC
导通延迟时间	td(on)	Vgs=10V, Vds=50V RL=5Ω, Id=10A Rgen=1Ω		12	25	ns
导通上升时间	tr			10	20	ns
关闭延迟时间	td(off)			35	70	ns
关闭下降时间	tf			10	20	ns

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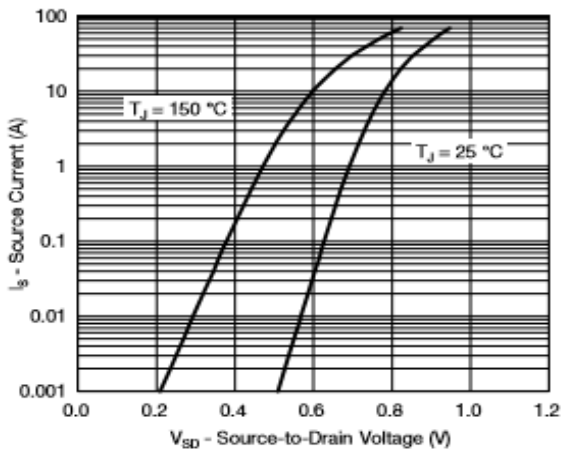
## 标准特性和热特性曲线



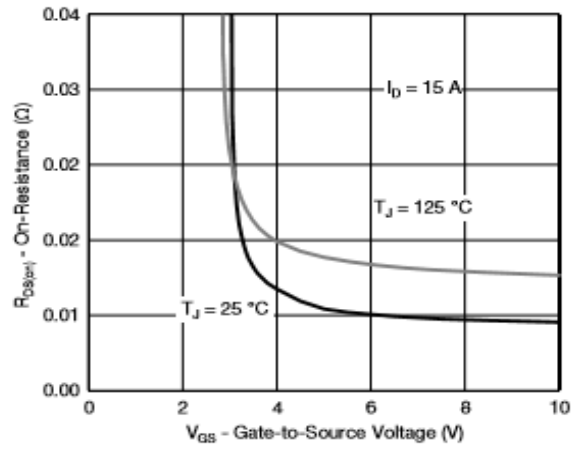
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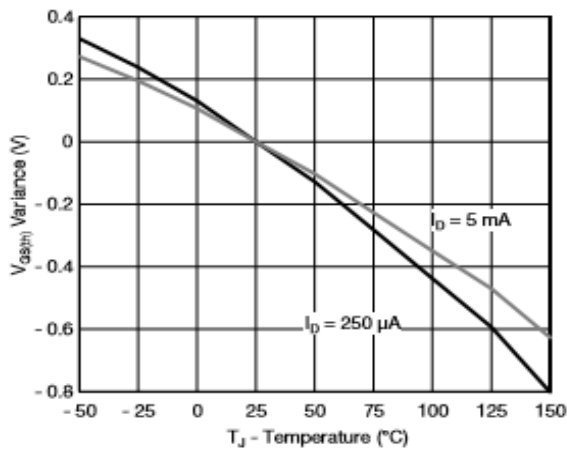
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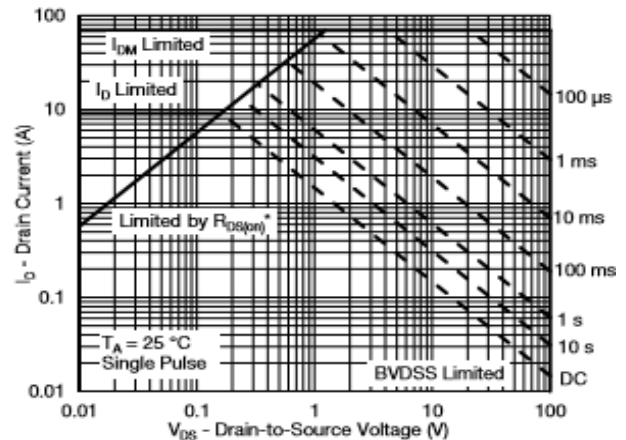
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage

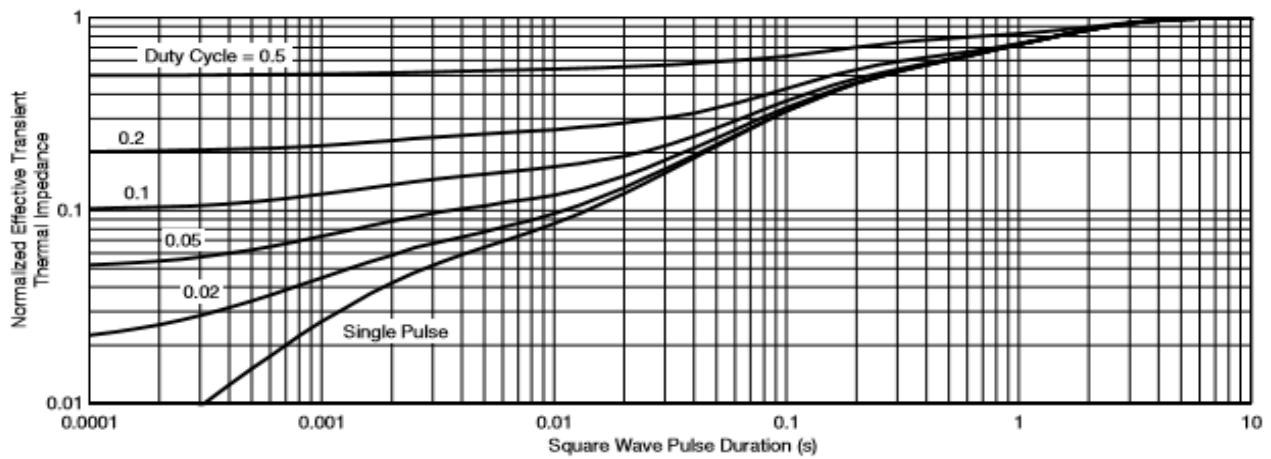


Threshold Voltage



\*  $V_{GS} >$  minimum  $V_{GS}$  at which  $R_{DS(on)}$  is specified

Safe Operating Area, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

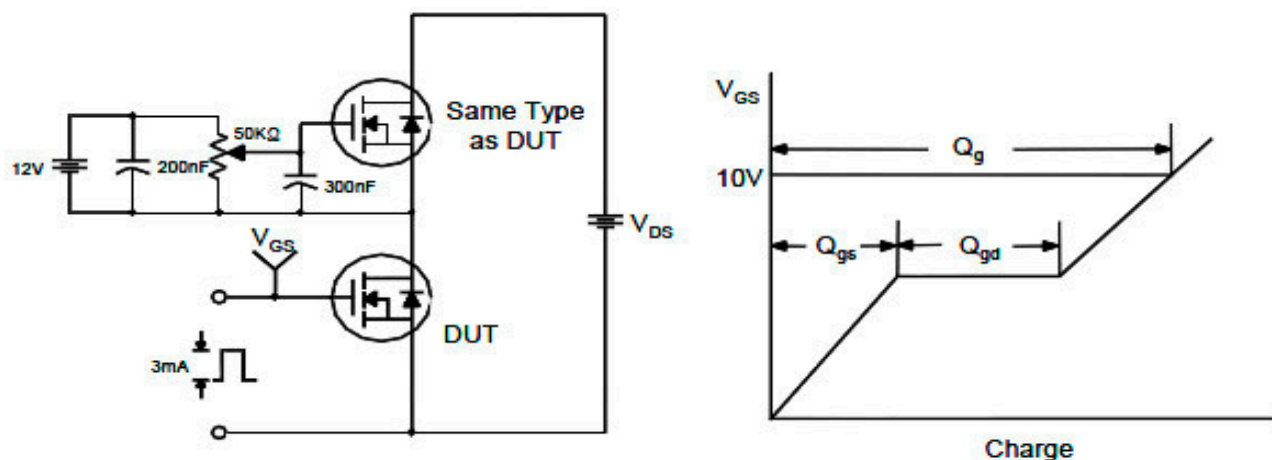
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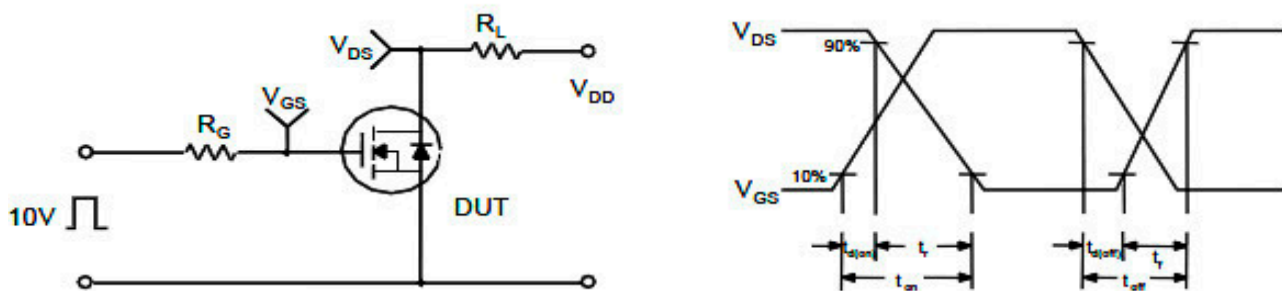
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## 测试电路和波形

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms

