

单 N 沟道 MOSFET

ELM599710A-S

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

■概要

ELM599710A-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。

■特点

- $V_{ds}=60V$
- $I_d=25A$
- $R_{ds(on)} = 42m\Omega$ ($V_{gs}=10V$)
- $R_{ds(on)} = 50m\Omega$ ($V_{gs}=4.5V$)

■绝对最大额定值

如没有特别注明时, $T_a=25^\circ C$

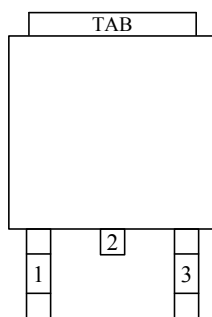
项目		记号	规格范围	单位
漏极 - 源极电压		V_{ds}	60	V
栅极 - 源极电压		V_{gs}	± 20	V
漏极电流 ($T_j=150^\circ C$)	$T_a=25^\circ C$	I_d	25	A
	$T_a=70^\circ C$		16	
漏极电流 (脉冲)		I_{dm}	60	A
单脉冲崩溃电流		I_{as}	15	A
容许功耗	$T_c=25^\circ C$	P_d	40	W
	$T_c=70^\circ C$		15	
动作结合部温度		T_j	150	$^\circ C$
保存温度范围		T_{stg}	$-55 \sim 150$	$^\circ C$

■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	$^\circ C/W$

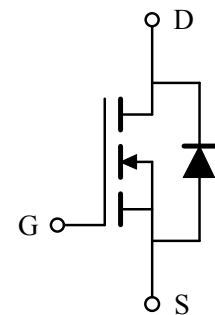
■引脚配置图

TO-252-3(俯视图)



引脚编号	引脚名称
1	GATE
2	DRAIN
3	SOURCE

■电路图



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■电特性

如没有特别注明时, Ta=25℃

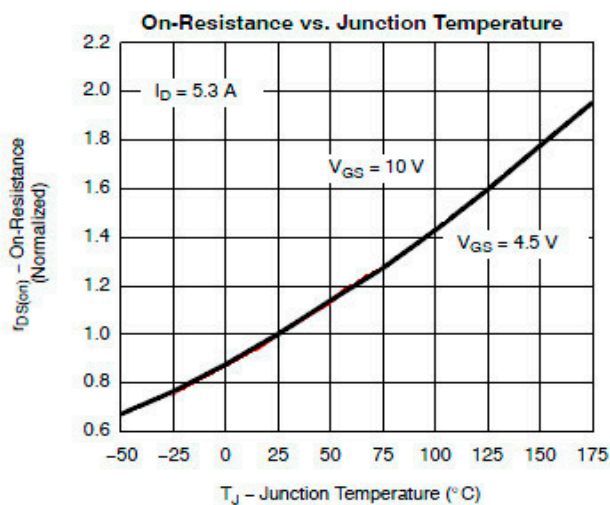
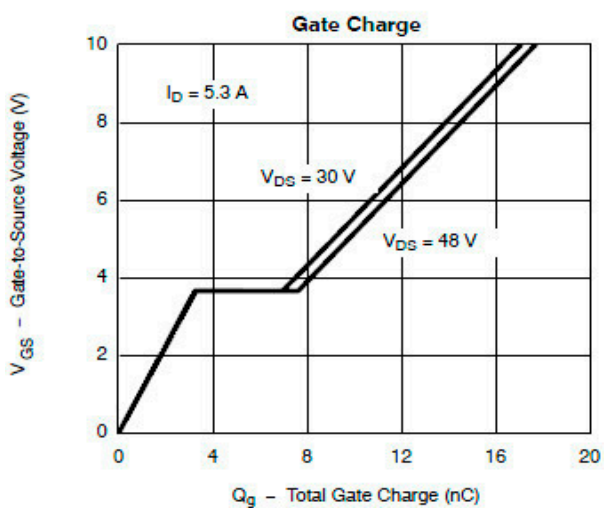
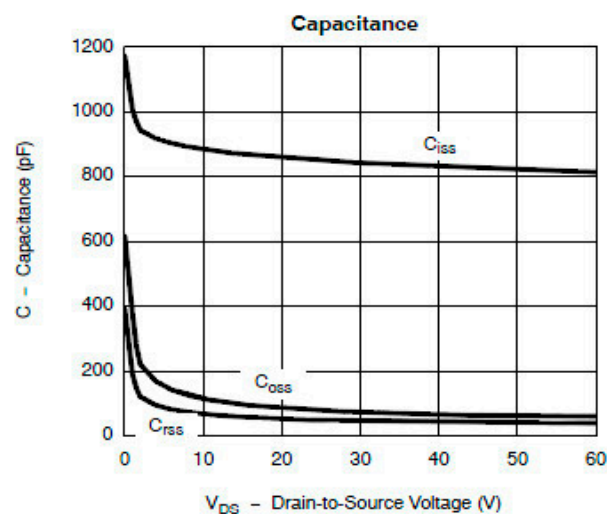
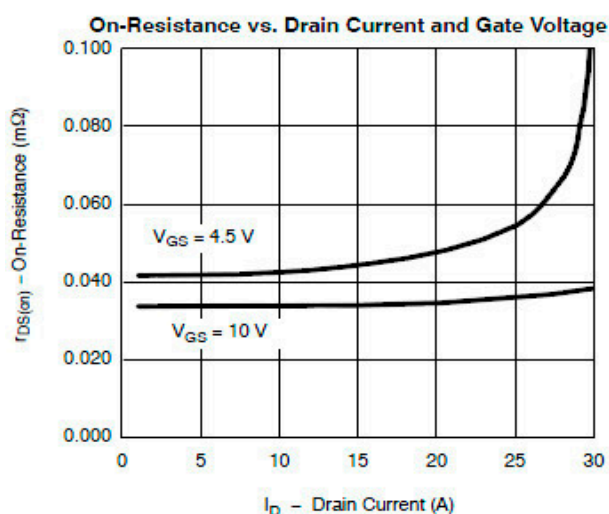
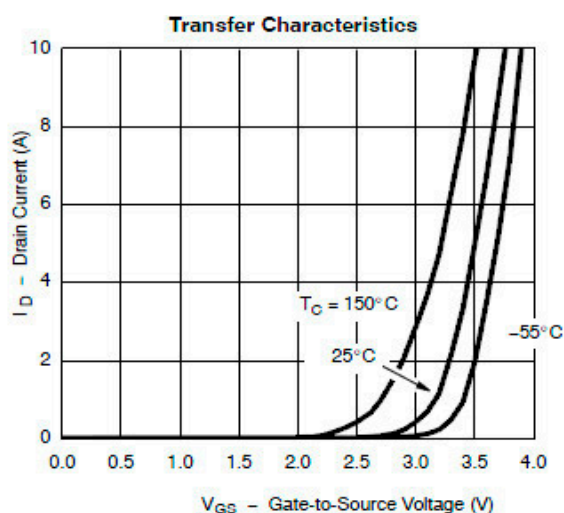
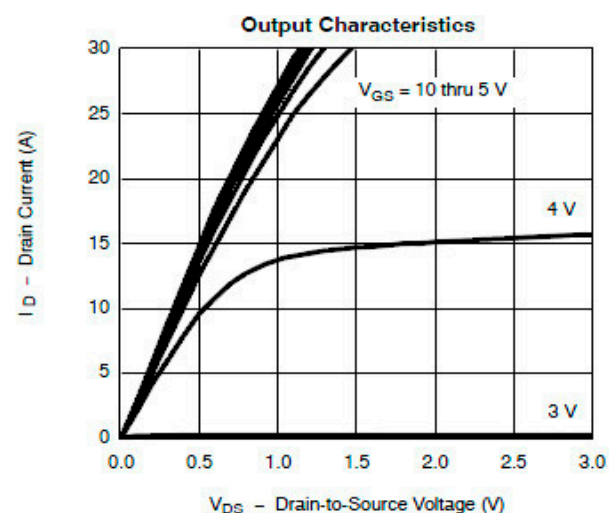
项目	记号	条件	最小值	典型值	最大值	单位
静态特性						
漏极 – 源极击穿电压	BV _{dss}	I _d =250μA, V _{gs} =0V	60			V
栅极接地时漏极电流	I _{dss}	V _{ds} =60V, V _{gs} =0V			1	μA
		V _{ds} =60V, V _{gs} =0V, Ta=85℃			5	
栅极漏电流	I _{gss}	V _{ds} =0V, V _{gs} = ± 20V			± 100	nA
栅极阈值电压	V _{gs} (th)	V _{ds} =V _{gs} , I _d =250μA	1.0		2.5	V
导通时漏极电流	I _d (on)	V _{gs} =4.5V, V _{ds} ≥5V	30			A
漏极 – 源极导通电阻	R _{ds} (on)	V _{gs} =10V, I _d =6.8A		38	42	mΩ
		V _{gs} =4.5V, I _d =5.6A		42	50	
正向跨导	G _{fs}	V _{ds} =15V, I _d =5.3A		24		S
二极管正向压降	V _{sd}	I _s =2.0A, V _{gs} =0V		0.8	1.2	V
寄生二极管最大连续电流	I _s				12	A
动态特性						
输入电容	C _{iss}	V _{gs} =0V, V _{ds} =30V, f=1MHz		890		pF
输出电容	C _{oss}			85		pF
反馈电容	C _{rss}			48		pF
开关特性						
总栅极电荷	Q _g	V _{gs} =5V, V _{ds} =30V I _d ≡5.6A		10.0	15.0	nC
栅极 – 源极电荷	Q _{gs}			3.5		nC
栅极 – 漏极电荷	Q _{gd}			3.6		nC
导通延迟时间	t _d (on)	V _{gs} =4.5V, V _{ds} =30V RL=6.8Ω, I _d ≡5.0A R _{gen} =6.0Ω		10	15	ns
导通上升时间	t _r			12	20	ns
关闭延迟时间	t _d (off)			25	35	ns
关闭下降时间	t _f			10	15	ns

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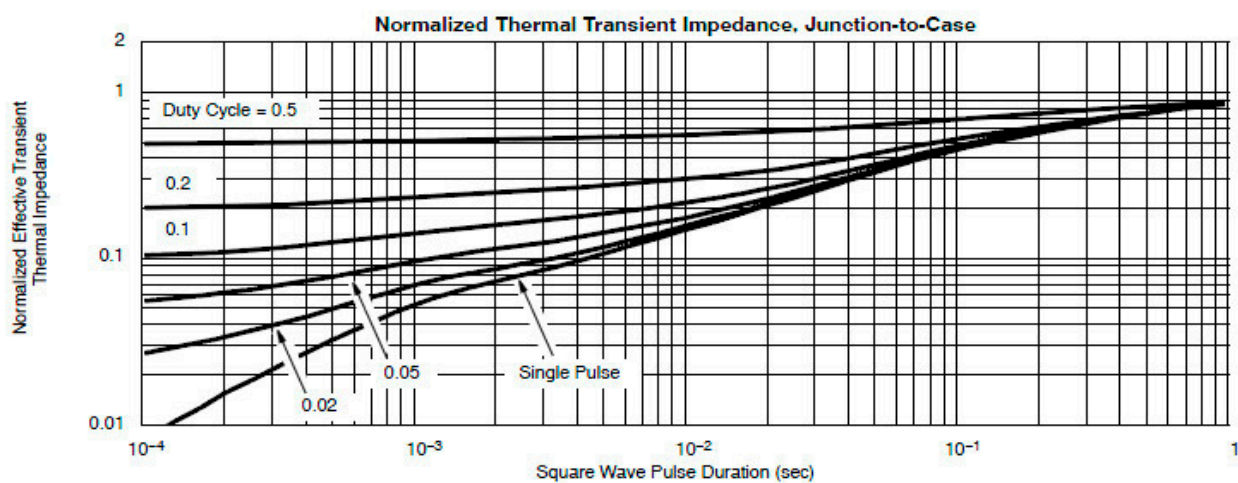
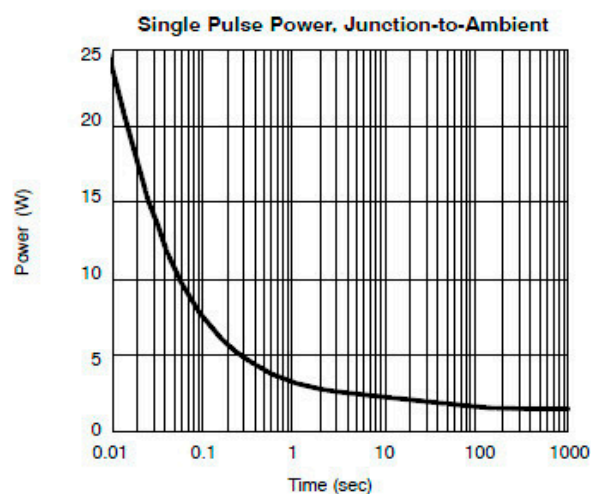
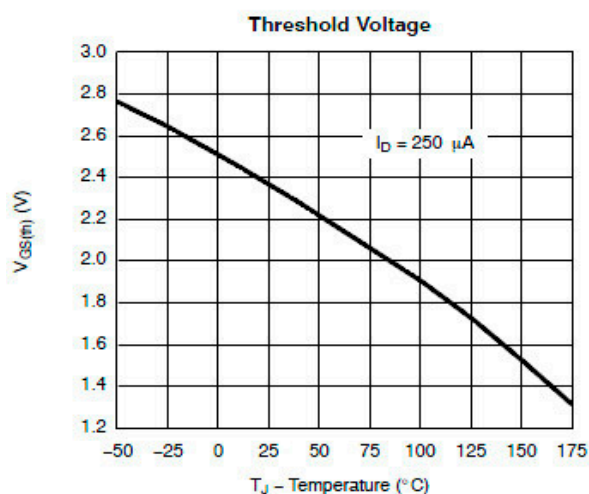
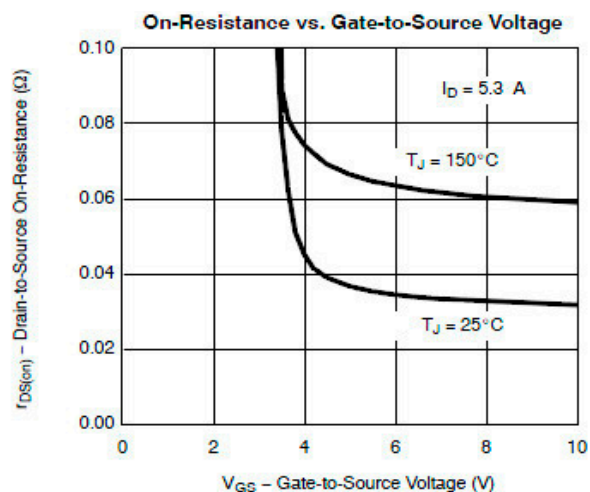
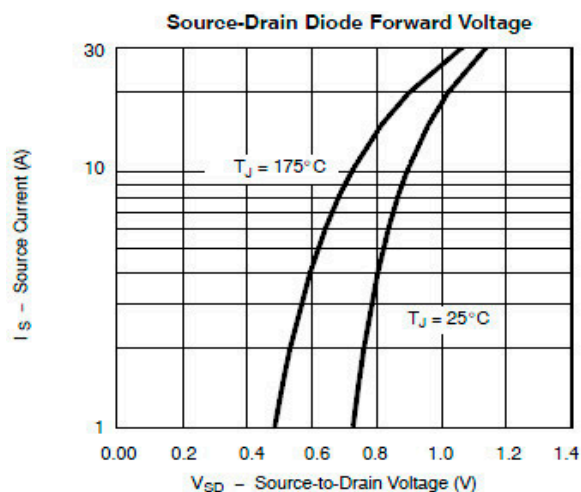
■ 标准特性和热特性曲线



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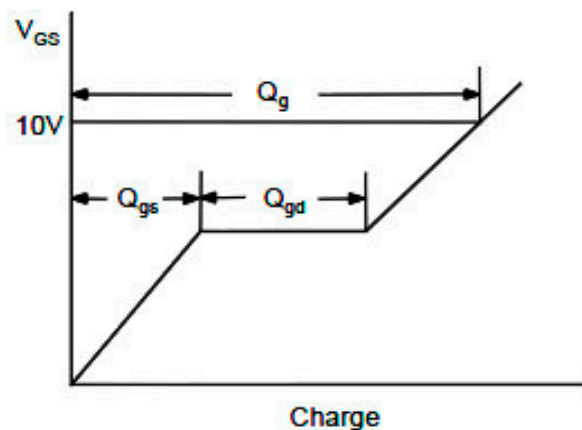
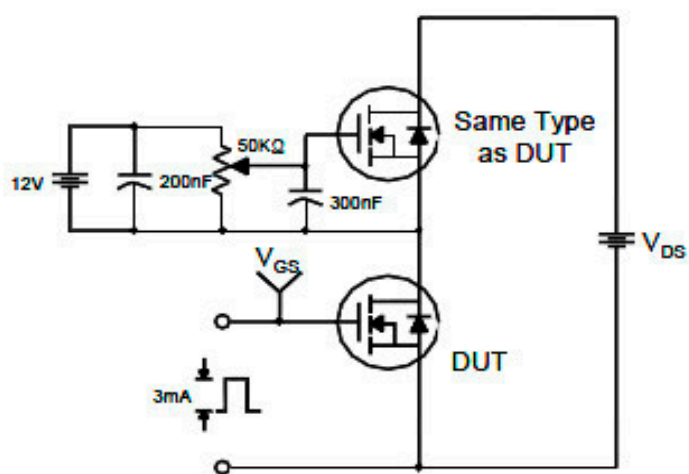
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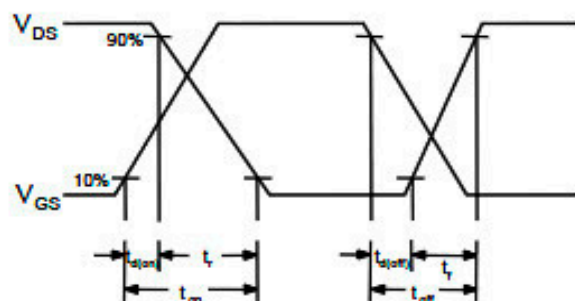
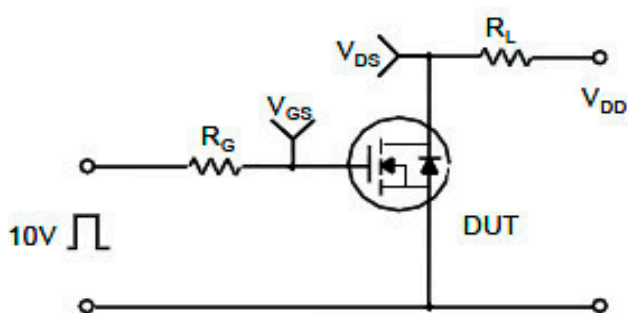
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■测试电路和波形

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