单 P 沟道 MOSFET

ELM595301SA-S

■概要

ELM595301SA-S 是 P 沟道低输入电容，低工作电压，低导通电阻的大电流 MOSFET。

■特点

- Vds=-60V
- Id=-35A
- Rds(on) = 26mΩ (Vgs=-10V)
- Rds(on) = 36mΩ (Vgs=-4.5V)

■绝对最大额定值

如没有特别注明时, Ta=25℃

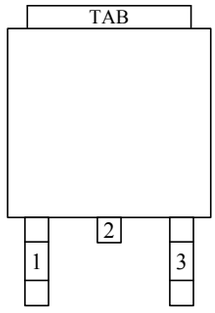
项目		记号	规格范围	单位
漏极 – 源极电压		Vds	-60	V
栅极 – 源极电压		Vgs	± 20	V
漏极电流（定常）Tj=150℃	Tc=25℃	Id	-35.0	A
	Tc=70℃		-20.0	
漏极电流（脉冲）		Idm	-25	A
容许功耗	Ta=25℃	Pd	40	W
	Ta=70℃		15	
动作结合部温度		Tj	150	℃
保存温度范围		Tstg	– 55 ~ 150	℃

■热特性

项目	记号	典型值	最大值	单位
最大结合部 – 环境热阻	Rθja		62.5	℃/W

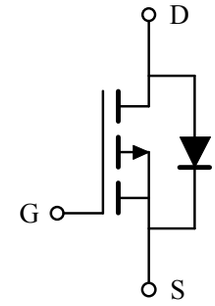
■引脚配置图

TO-252-3(俯视图)



引脚编号	引脚名称
1	GATE
2	DRAIN
3	SOURCE

■电路图

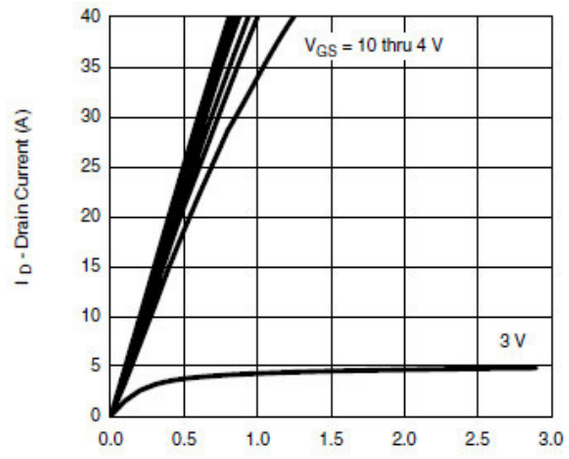


■电特性

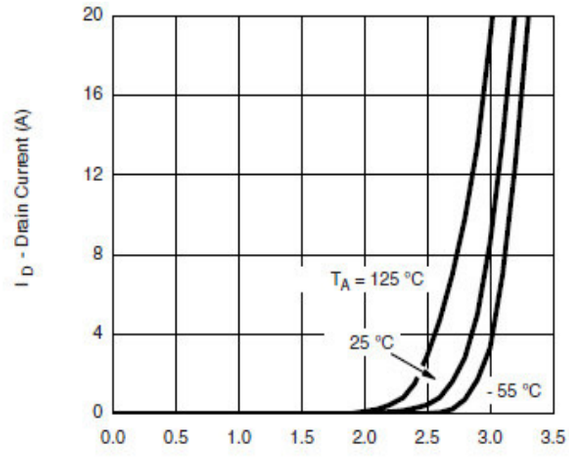
如没有特别注明时, Ta=25℃

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		–60			V
栅极接地时漏极电流	Idss	Vds=–48V Vgs=0V				–1	μA
			Ta=85℃			–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		–2.0	V
导通时漏极电流	Id(on)	Vgs=–10V, Vds≧–5V		–10			A
漏极 – 源极导通电阻	Rds(on)	Vgs=–10V, Id=–25A			20	26	mΩ
		Vgs=–4.5V, Id=–15A			28	36	
正向跨导	Gfs	Vds=–15V, Id=–15.0A			45		S
二极管正向压降	Vsd	Is=–3.0A, Vgs=0V			–0.8	–1.3	V
寄生二极管最大连续电流	Is					–6.0	A
动态特性							
输入电容	Ciss	Vgs=0V, Vds=–30V, f=1MHz			4200		pF
输出电容	Coss				300		pF
反馈电容	Crss				210		pF
开关特性							
总栅极电荷	Qg	Vgs=–4.5V, Vds=–30V Id≡–15.0A			50	95	nC
栅极 – 源极电荷	Qgs				15		nC
栅极 – 漏极电荷	Qgd				25		nC
导通延迟时间	td(on)	Vgs=–10V, Vds=–30V RL=3.8Ω, Id≡–15.0A Rgen=1.0Ω			45	80	ns
导通上升时间	tr				220	380	ns
关闭延迟时间	td(off)				95	185	ns
关闭下降时间	tf				110	200	ns

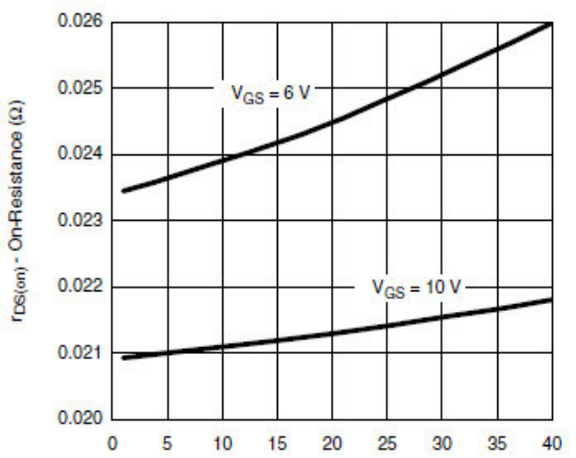
■标准特性和热特性曲线



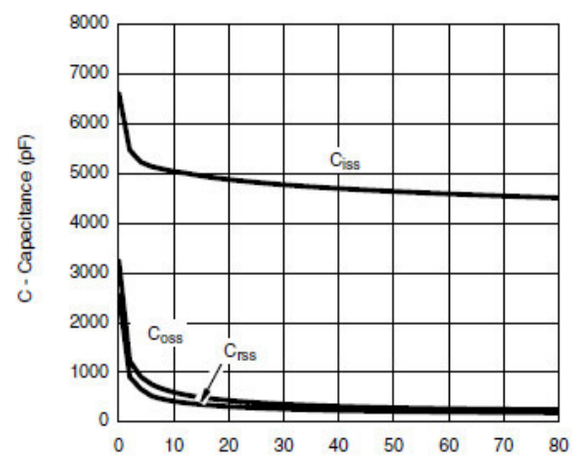
Output Characteristics



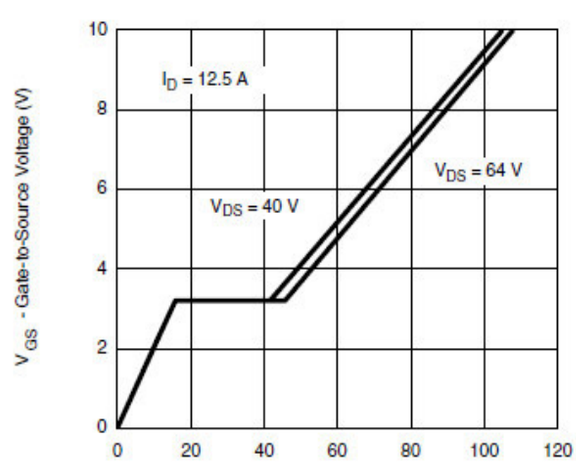
Transfer Characteristics



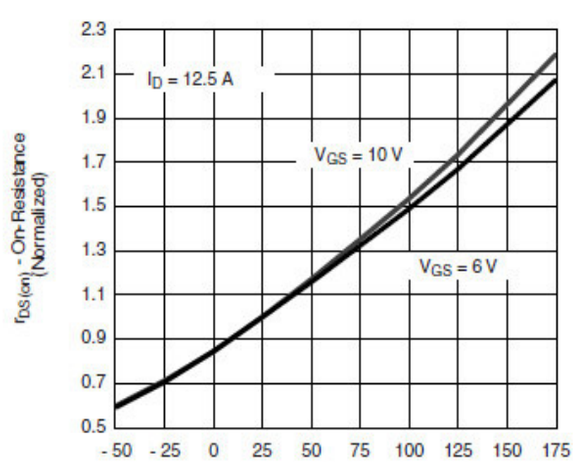
On-Resistance vs. Drain Current and Gate Voltage



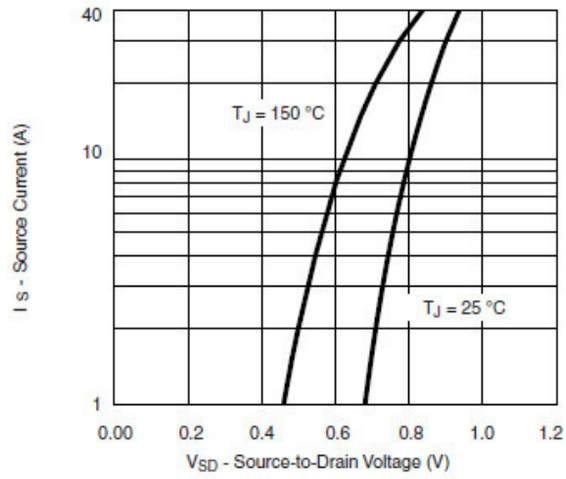
Capacitance



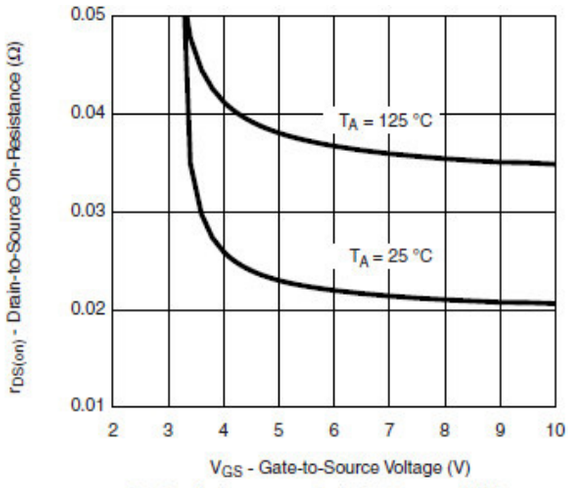
Gate Charge



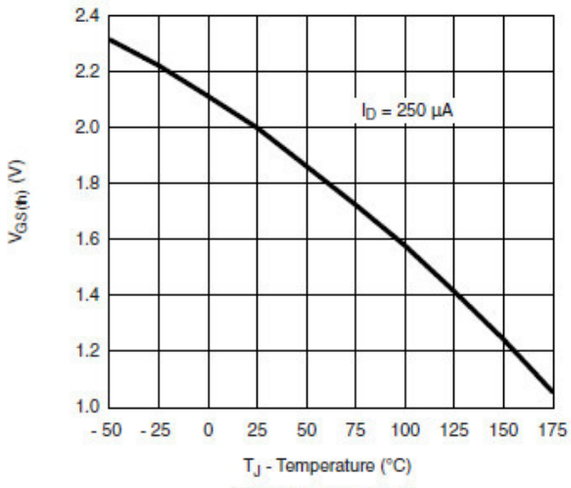
On-Resistance vs. Junction Temperature



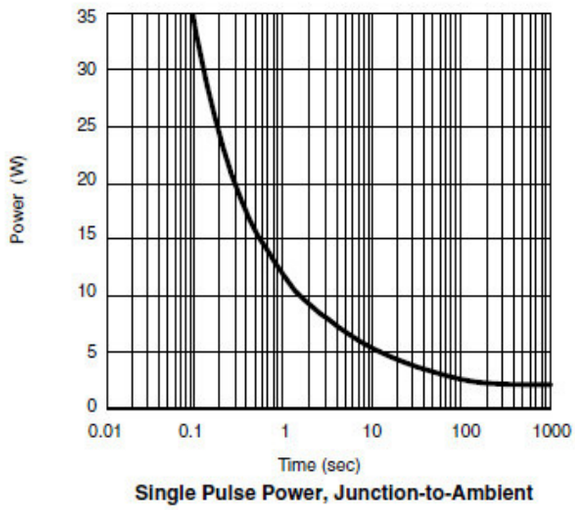
Source-Drain Diode Forward Voltage



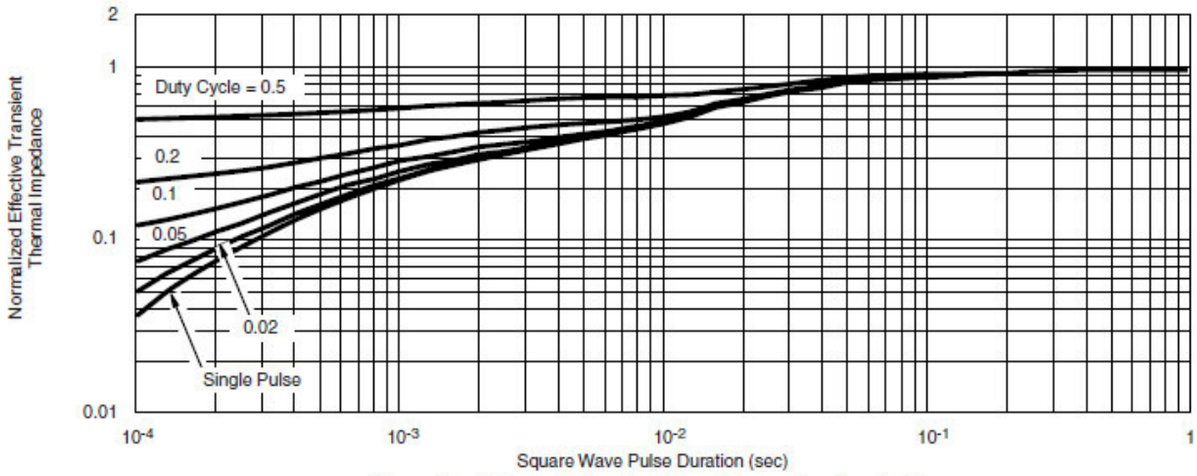
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



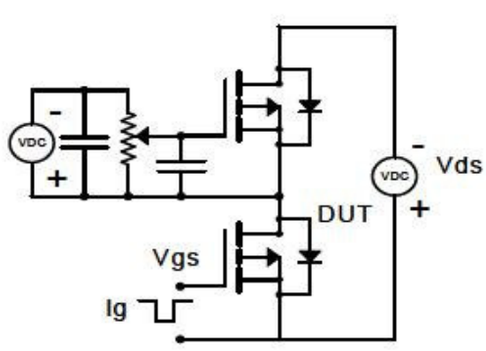
Single Pulse Power, Junction-to-Ambient

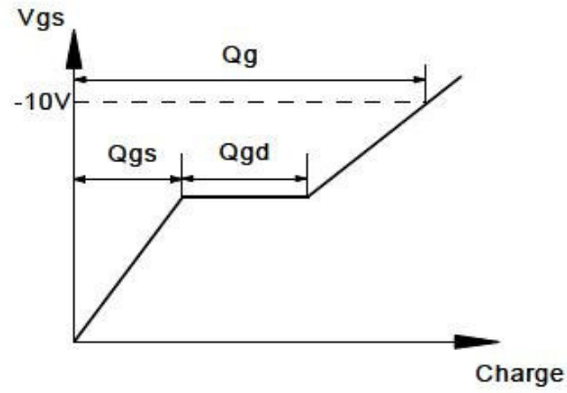


Normalized Thermal Transient Impedance, Junction-to-Case

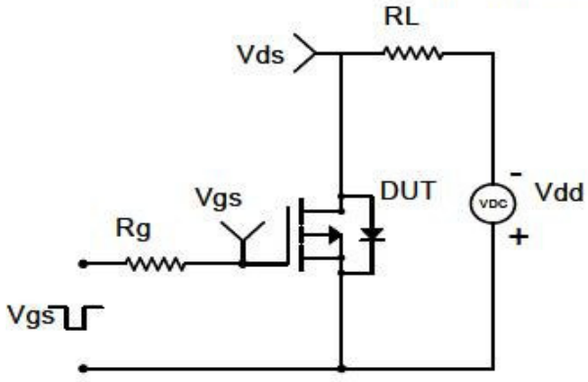
■测试电路和波形

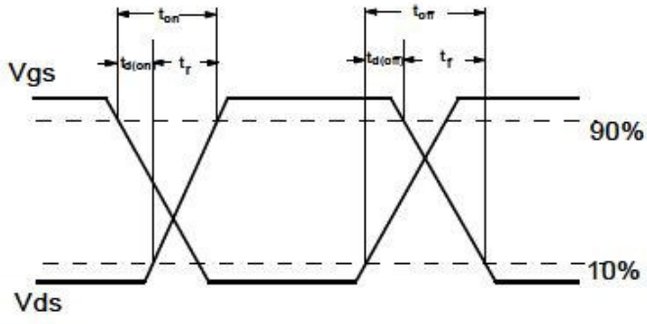
Gate Charge Test Circuit & Waveform





Resistive Switching Test Circuit & Waveforms





Diode Recovery Test Circuit & Waveforms