单 P 沟道 MOSFET

ELM55039SA–S

■概要

ELM55039SA–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=–100V
- Id=–25A
- Rds(on) = 90mΩ (Vgs=–10V)
- Rds(on) = 100mΩ (Vgs=–4.5V)

■绝对最大额定值

如没有特别注明时, Ta=25℃

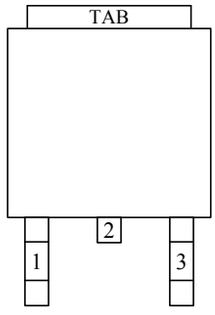
项目		记号	规格范围	单位
漏极 – 源极电压		Vds	–100	V
栅极 – 源极电压		Vgs	± 20	V
漏极电流（定常）Tj=150℃	Ta=25℃	Id	–25.0	A
	Ta=70℃		–15.0	
漏极电流（脉冲）		Idm	–50	A
容许功耗	Tc=25℃	Pd	40	W
	Tc=70℃		15	
动作结合部温度		Tj	150	℃
保存温度范围		Tstg	– 55 ~ 150	℃

■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

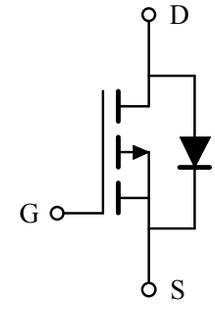
■引脚配置图

TO–252–3(俯视图)



引脚编号	引脚名称
1	GATE
2	DRAIN
3	SOURCE

■电路图

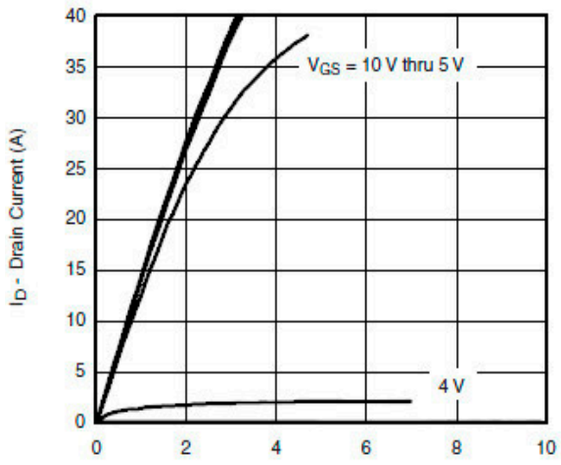


■电特性

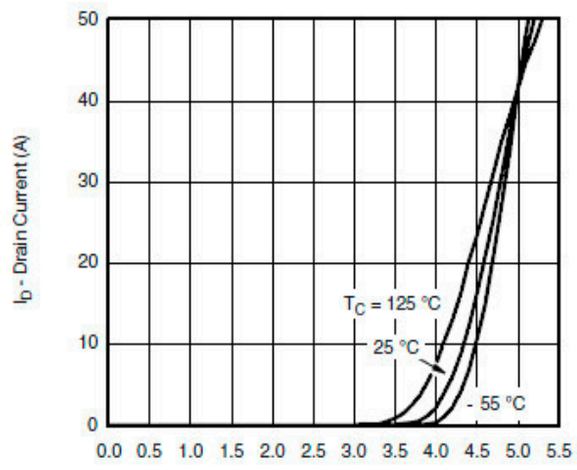
如没有特别注明时, Ta=25℃

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		–100			V
栅极接地时漏极电流	Idss	Vds=–80V Vgs=0V				–1	μA
			Ta=85℃			–30	
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		–2.5	V
导通时漏极电流	Id(on)	Vgs=–10V, Vds≧–10V		–25			A
漏极 – 源极导通电阻	Rds(on)	Vgs=–10V, Id=–12A			80	90	mΩ
		Vgs=–4.5V, Id=–8A			88	100	
正向跨导	Gfs	Vds=–15V, Id=–5.2A			19		S
二极管正向压降	Vsd	Is=–2.0A, Vgs=0V			–0.8	–1.3	V
寄生二极管最大连续电流	Is					–8.0	A
动态特性							
输入电容	Ciss	Vgs=0V, Vds=–60V, f=1MHz			4300		pF
输出电容	Coss				280		pF
反馈电容	Crss				220		pF
开关特性							
总栅极电荷	Qg	Vgs=–10V, Vds=–75V Id≡–5.2A			85	150	nC
栅极 – 源极电荷	Qgs				18		nC
栅极 – 漏极电荷	Qgd				28		nC
导通延迟时间	td(on)	Vgs=–10V, Vds=–75V RL=16Ω, Id≡–4.8A Rgen=6.0Ω			25	50	ns
导通上升时间	tr				45	85	ns
关闭延迟时间	td(off)				115	200	ns
关闭下降时间	tf				65	130	ns

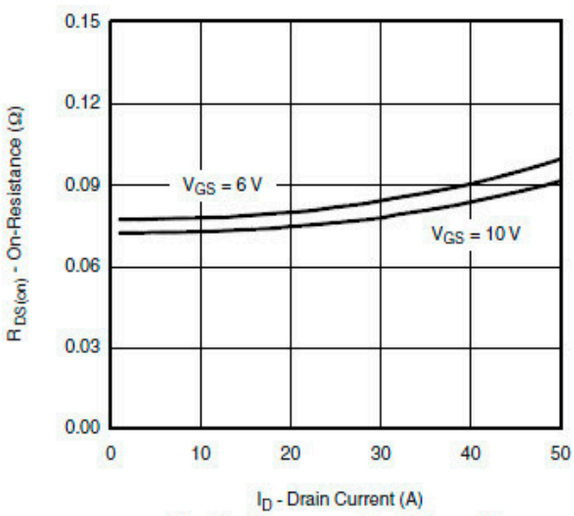
■标准特性和热特性曲线



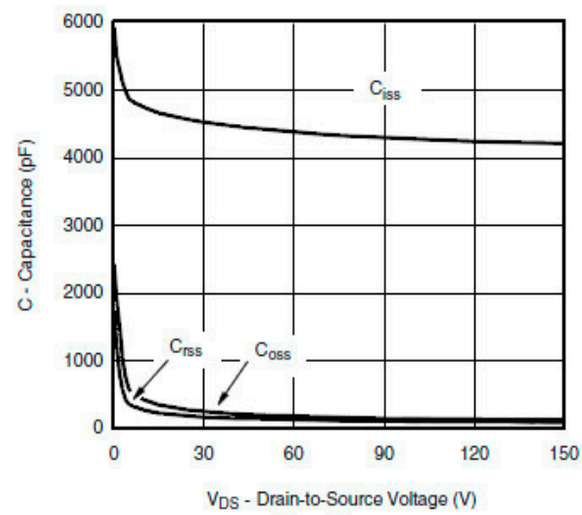
Output Characteristics



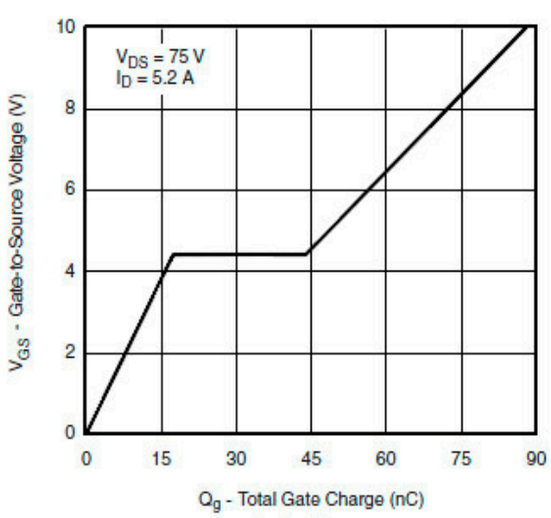
Transfer Characteristics



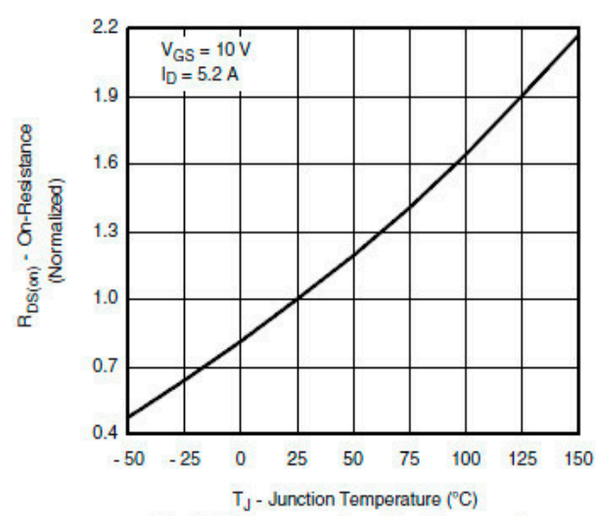
On-Resistance vs. Drain Current



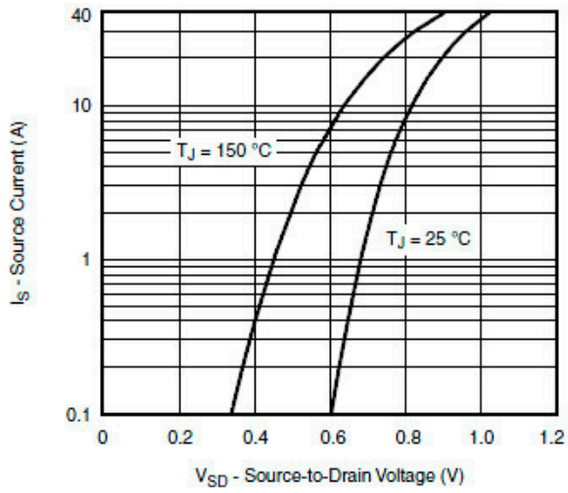
Capacitance



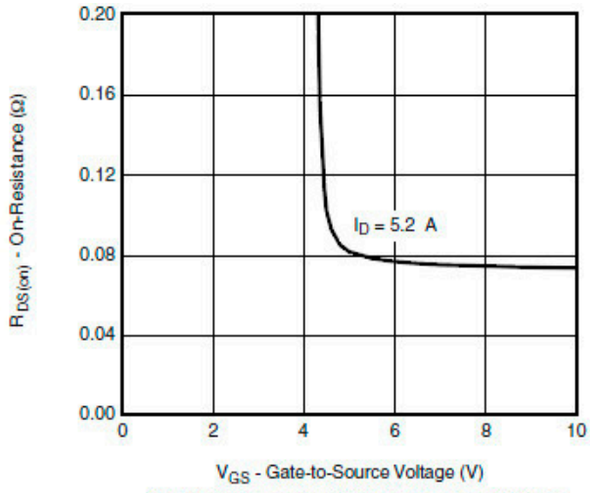
Gate Charge



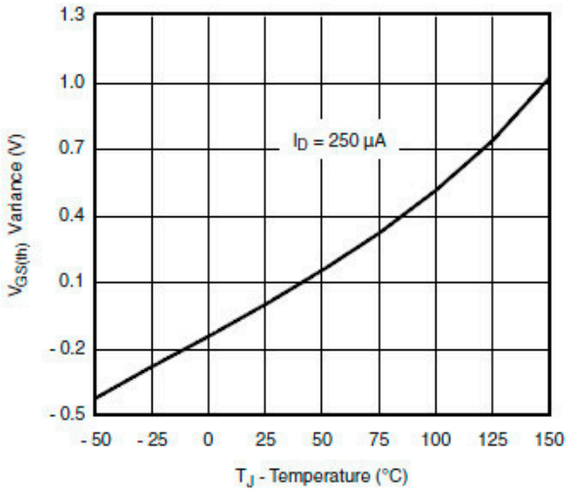
On-Resistance vs. Junction Temperature



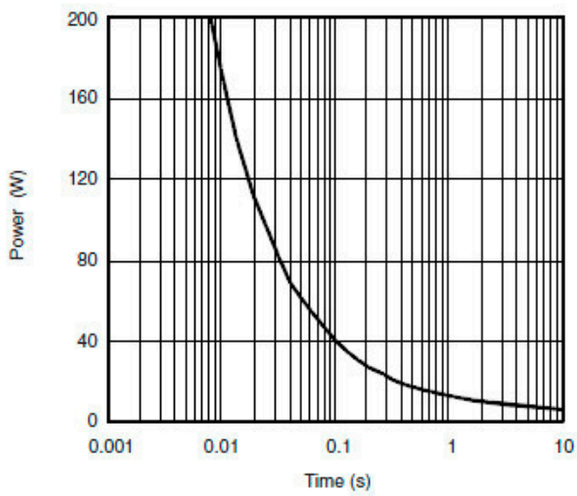
Source-Drain Diode Forward Voltage



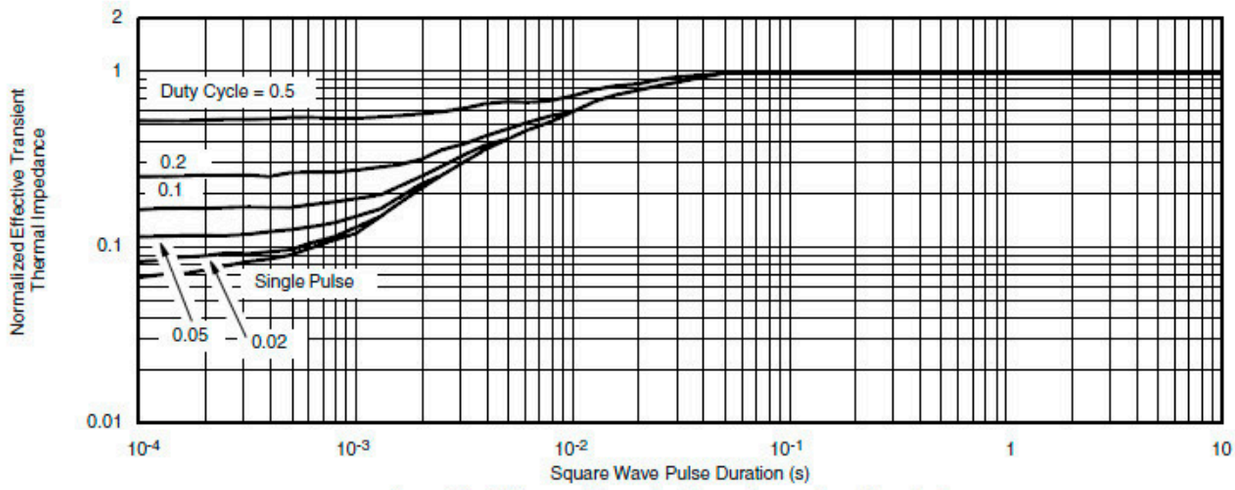
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



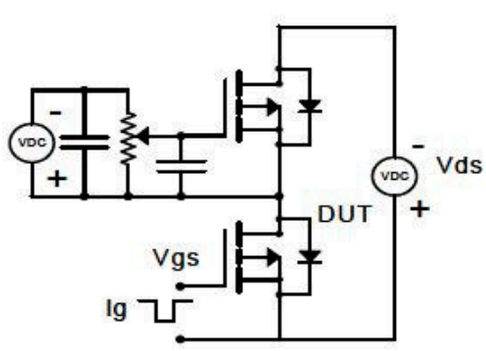
Single Pulse Power

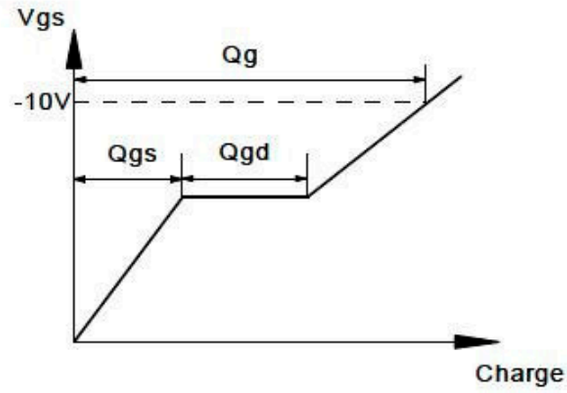


Normalized Thermal Transient Impedance, Junction-to-Case

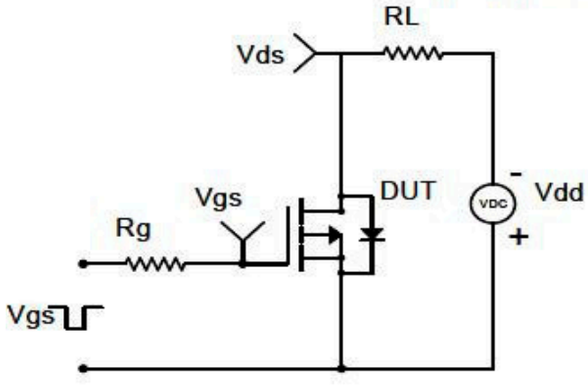
■测试电路和波形

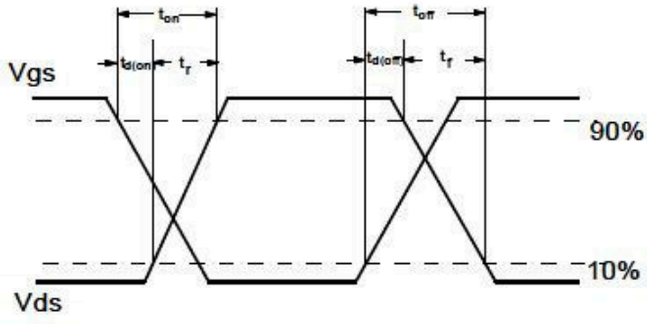
Gate Charge Test Circuit & Waveform





Resistive Switching Test Circuit & Waveforms





Diode Recovery Test Circuit & Waveforms