单 N 沟道 MOSFET

ELM58904A–S

■概要

ELM58904A–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

- Vds=30V
- Id=5.6A
- Rds(on) = 72mΩ (Vgs=10V)
- Rds(on) = 95mΩ (Vgs=4.5V)

■绝对最大额定值

如没有特别注明时，Ta=25℃

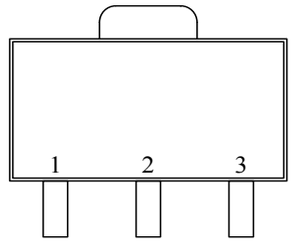
项目		记号	规格范围	单位
漏极 – 源极电压		Vds	30	V
栅极 – 源极电压		Vgs	± 20	V
漏极电流（定常）	Ta=25℃	Id	5.6	A
	Ta=70℃		3.6	
漏极电流（脉冲）		Idm	10	A
容许功耗	Tc=25℃	Pd	1.45	W
	Tc=70℃		0.60	
结合部温度及保存温度范围		Tj, Tstg	–55 ~ 150	℃

■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		120	℃ /W

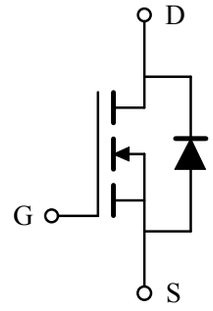
■引脚配置图

SOT–89(俯视图)



引脚编号	引脚名称
1	GATE
2	DRAIN
3	SOURCE

■电路图

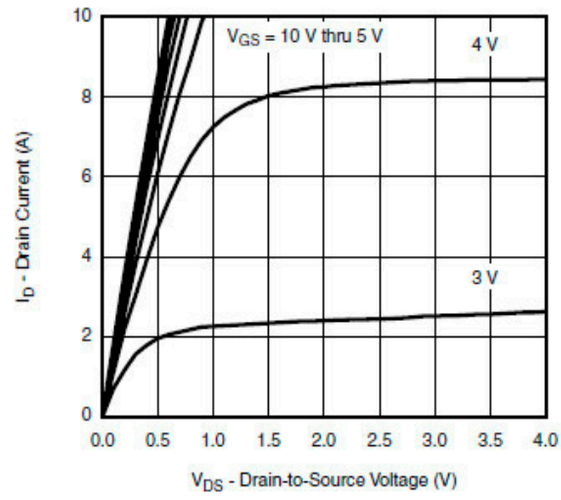


■电特性

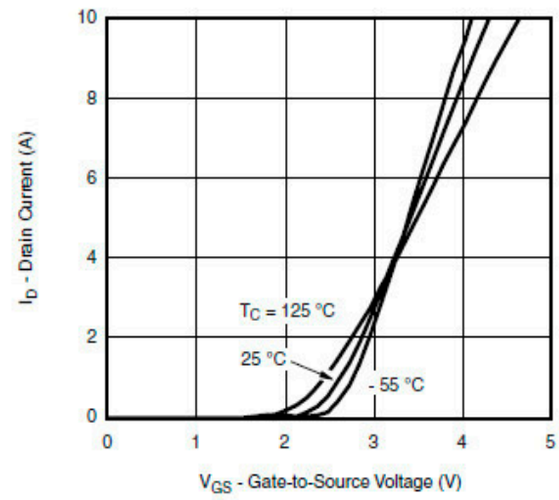
如没有特别注明时, Ta=25℃

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		30			V
栅极接地时漏极电流	Idss	Vds=30V, 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=4.5V		6			A
漏极 – 源极导通电阻	Rds(on)	Vgs=10V, Id=5.6A			62	72	mΩ
		Vgs=4.5V, Id=3.6A			85	95	
正向跨导	Gfs	Vds=15V, Id=4.8A			11		S
二极管正向压降	Vsd	Is=2.7A, Vgs=0V			0.8	1.2	V
寄生二极管最大连续电流	Is					1.6	A
动态特性							
输入电容	Ciss	Vgs=0V, Vds=15V, f=1MHz			230		pF
输出电容	Coss				50		pF
反馈电容	Crss				20		pF
开关特性							
总栅极电荷	Qg	Vgs=4.5V, Vds=15V, Id=3.2A			2.00	3.60	nC
栅极 – 源极电荷	Qgs				0.80		nC
栅极 – 漏极电荷	Qgd				0.65		nC
导通延迟时间	td(on)	Vgs=4.5V, Vds=15V RL=5.6Ω, Id=3.2A, Rgen=1Ω			10	12	ns
导通上升时间	tr				45	60	ns
关闭延迟时间	td(off)				12	18	ns
关闭下降时间	tf				20	30	ns

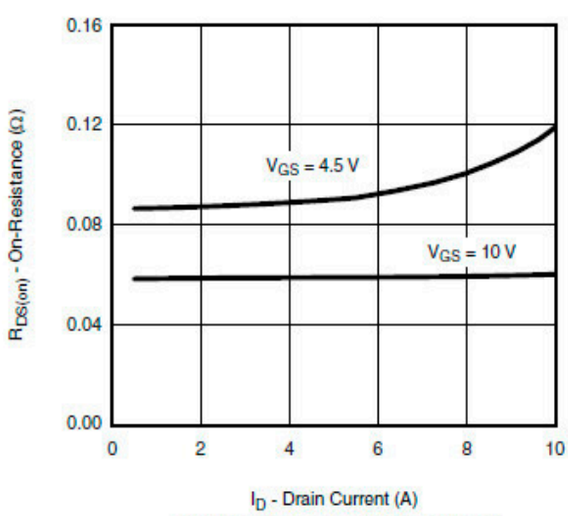
■标准特性和热特性曲线



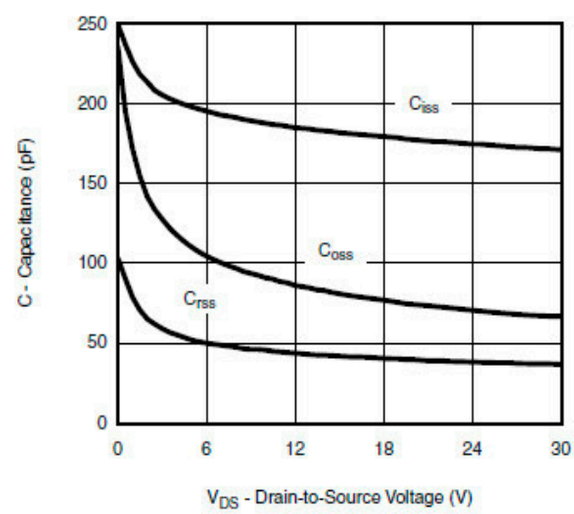
Output Characteristics



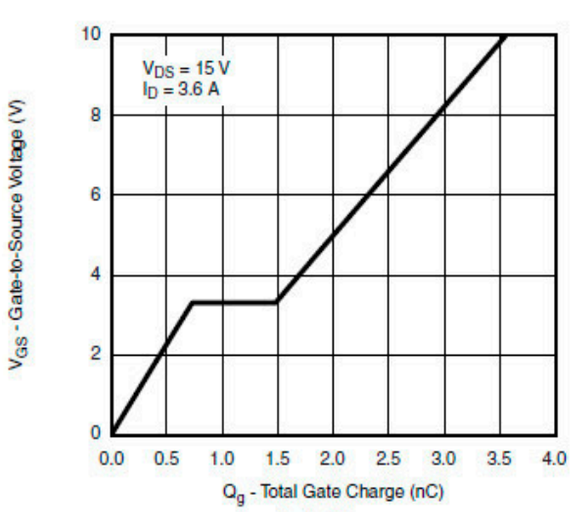
Transfer Characteristics



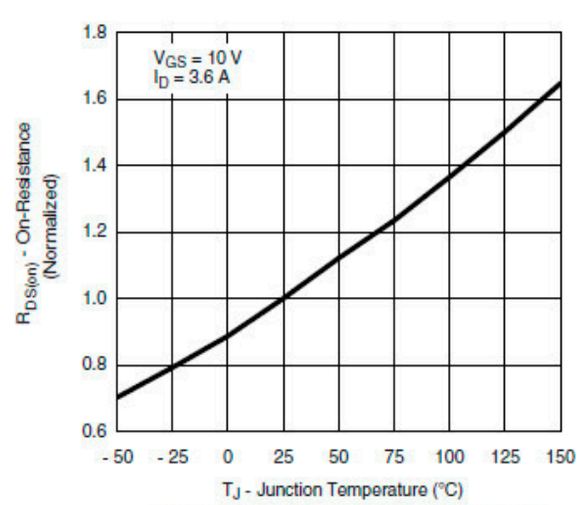
On-Resistance vs. Drain Current



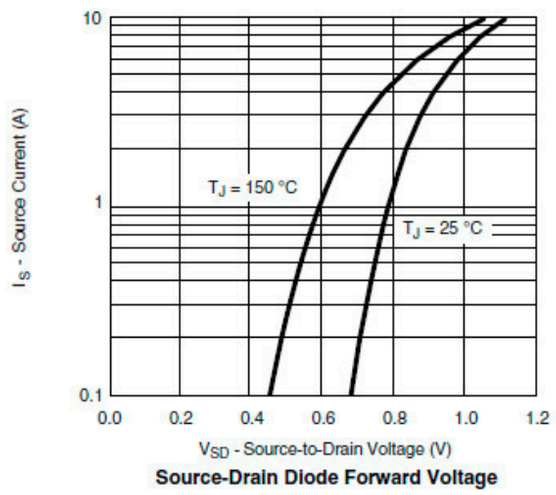
Capacitance



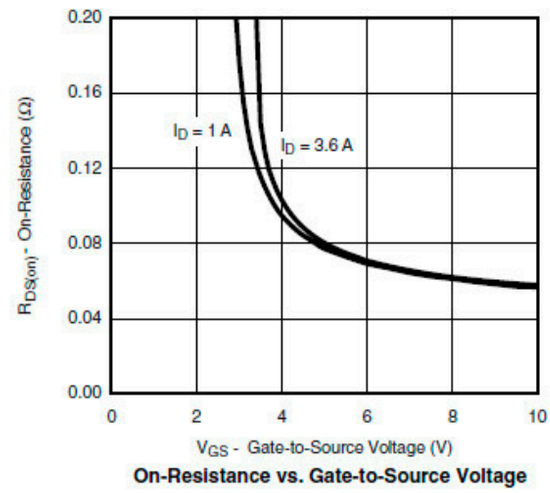
Gate Charge



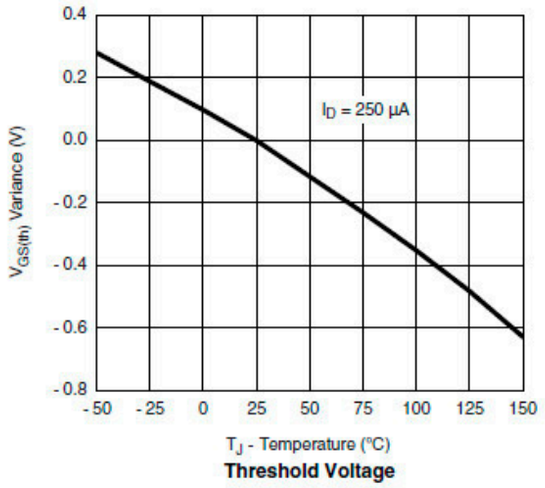
On-Resistance vs. Junction Temperature



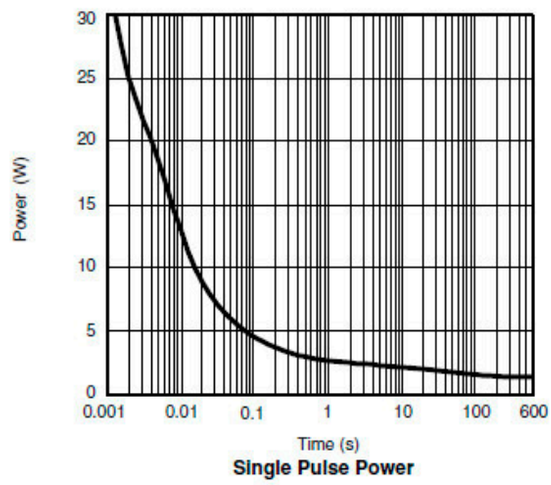
Source-Drain Diode Forward Voltage



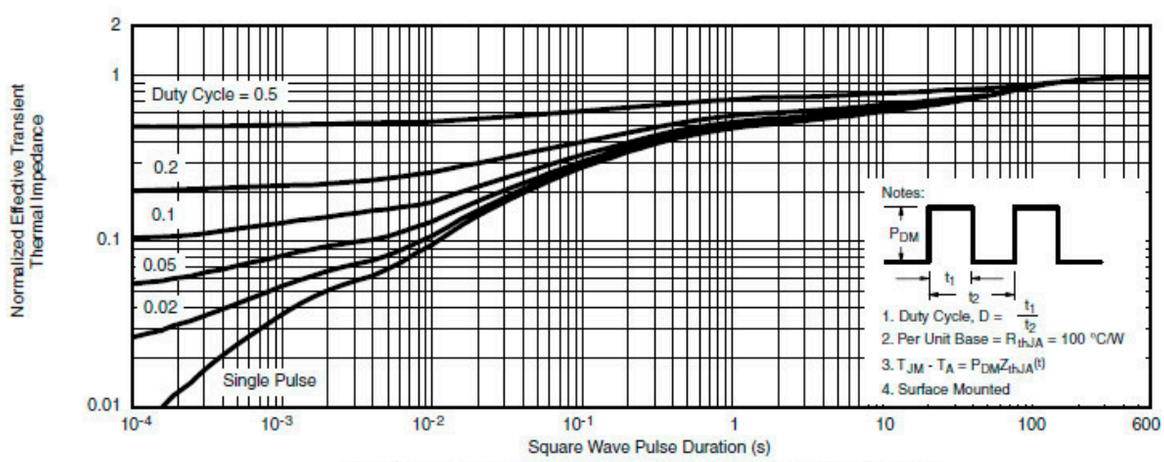
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



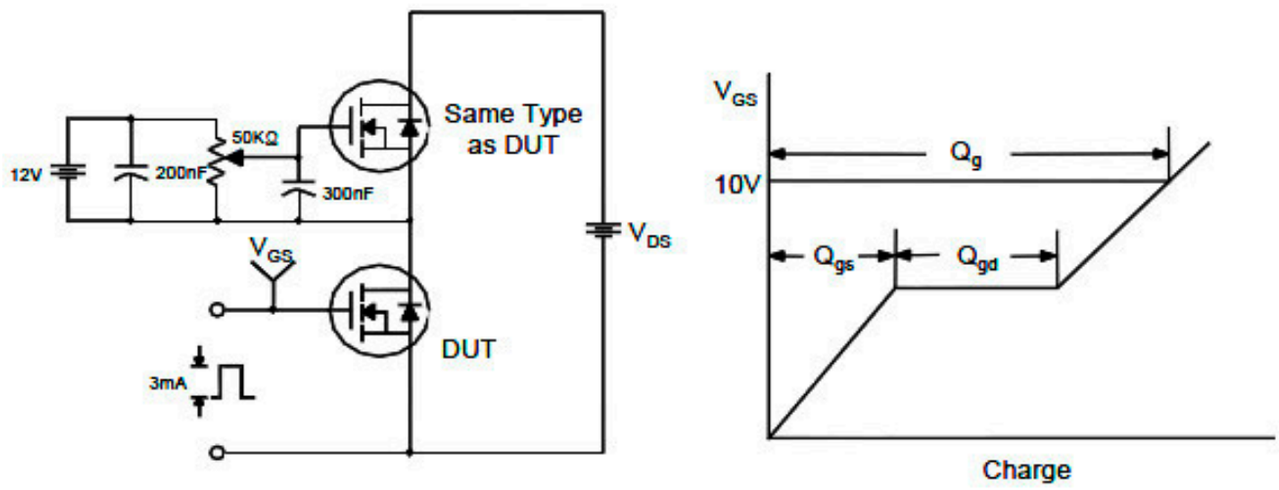
Single Pulse Power



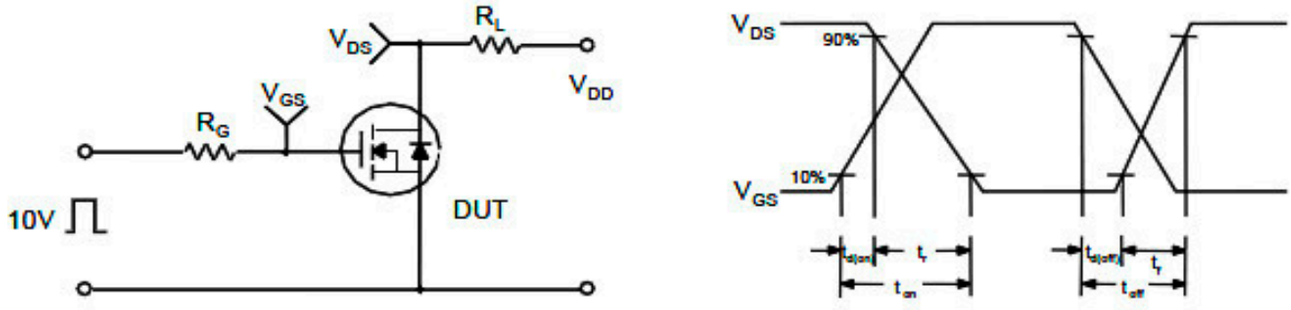
Normalized Thermal Transient Impedance, Junction-to-Ambient

■测试电路和波形

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms