单 N 沟道 MOSFET

ELM54116WSA-N

■概要

ELM54116WSA-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

- Vds=20V
- Id=15A
- Rds(on) = 8.5mΩ (Vgs=4.5V)
- Rds(on) = 11.0mΩ (Vgs=2.5V)

■绝对最大额定值

如没有特别注明时, Ta=25℃

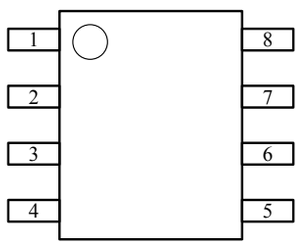
项目		记号	规格范围	单位
漏极 – 源极电压		Vds	20	V
栅极 – 源极电压		Vgs	± 12	V
漏极电流（Tj=150℃）	Ta=25℃	Id	15	A
	Ta=70℃		12	
漏极电流（脉冲）		Idm	50	A
容许功耗	Tc=25℃	Pd	5.0	W
	Tc=70℃		3.2	
动作结合部温度		Tj	150	℃
保存温度范围		Tstg	– 55 ~ 150	℃

■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		120	℃/W

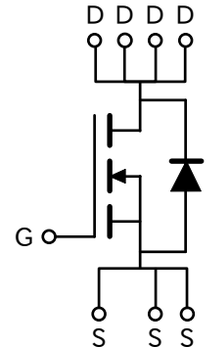
■引脚配置图

SOP-8(俯视图)



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

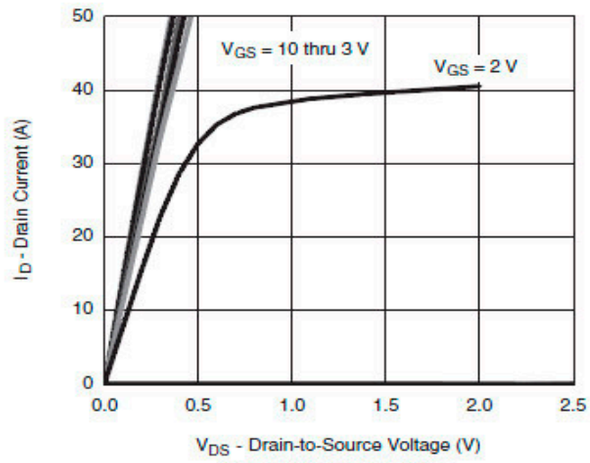


■电特性

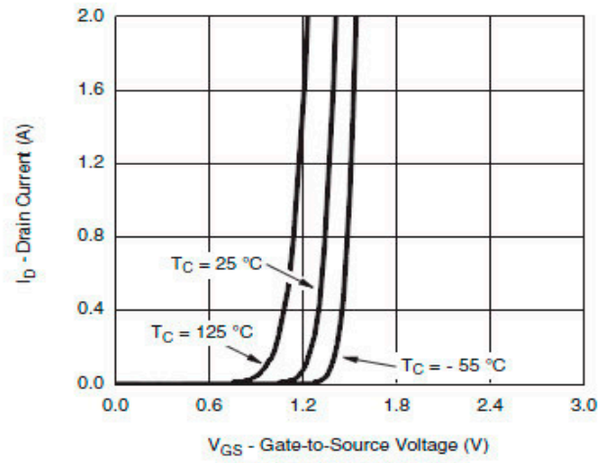
如没有特别注明时, Ta=25℃

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	20			V
栅极接地时漏极电流	Idss	Vds=16V,Vgs=0V			1	μA
		Vds=16V,Vgs=0V, Ta=85℃			10	
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	0.5		1.0	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=4.5V, Id=15A		7.2	8.5	mΩ
		Vgs=2.5V, Id=12A		8.5	11.0	
正向跨导	Gfs	Vds=15V, Id=10A		68		S
二极管正向压降	Vsd	Is=3.2A, Vgs=0V		0.7	1.3	V
寄生二极管最大连续电流	Is				4.5	A
动态特性						
输入电容	Ciss	Vgs=0V, Vds=15V, f=1MHz		1900		pF
输出电容	Coss			325		pF
反馈电容	Crss			145		pF
开关特性						
总栅极电荷	Qg	Vgs=4.5V, Vds=15V, Id≡10A		18.0	30.0	nC
栅极 – 源极电荷	Qgs			3.8		nC
栅极 – 漏极电荷	Qgd			3.5		nC
导通延迟时间	td(on)	Vgs=10V, Vds=15V RL=1.5Ω , Id≡10A Rgen=1.0Ω		8	16	ns
导通上升时间	tr			10	20	ns
关闭延迟时间	td(off)			30	60	ns
关闭下降时间	tf			9	18	ns

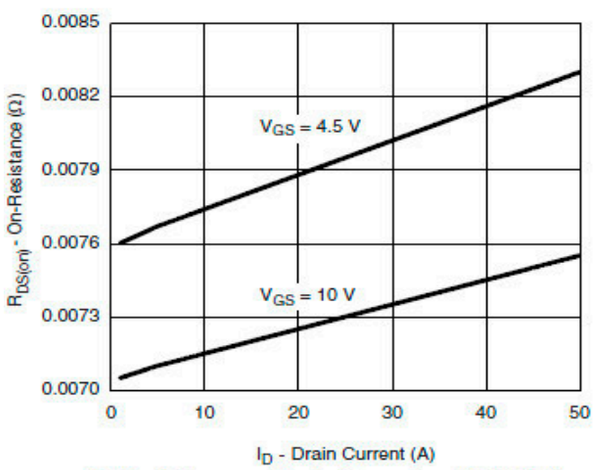
■标准特性和热特性曲线



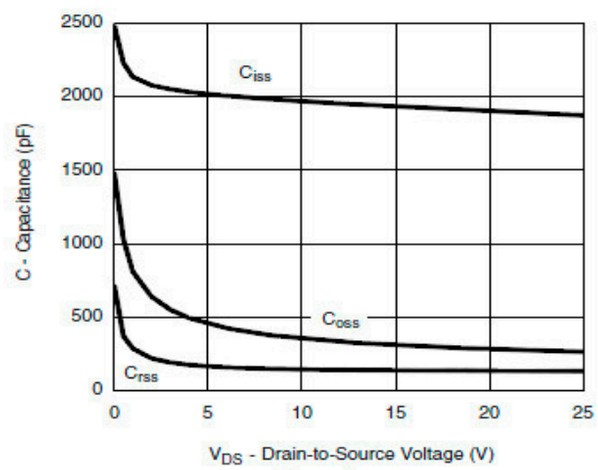
Output Characteristics



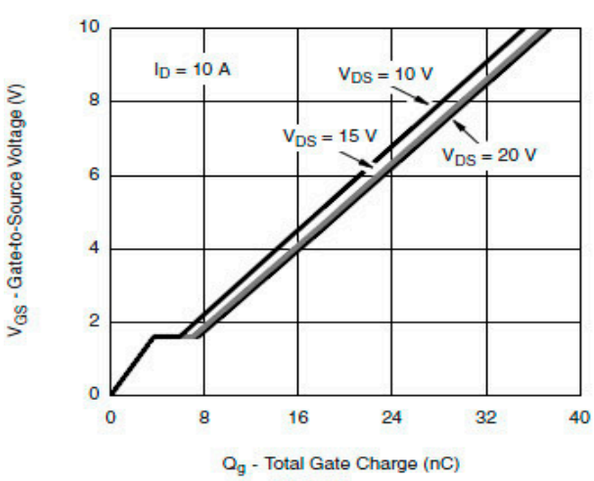
Transfer Characteristics



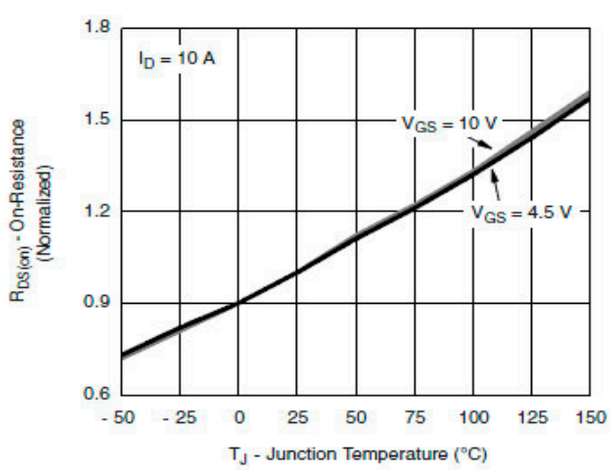
On-Resistance vs. Drain Current and Gate Voltage



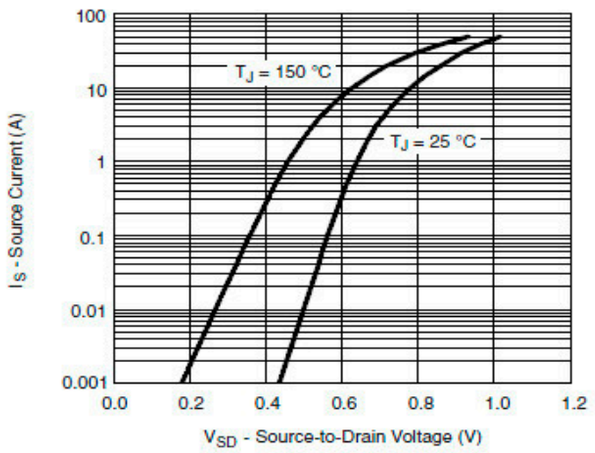
Capacitance



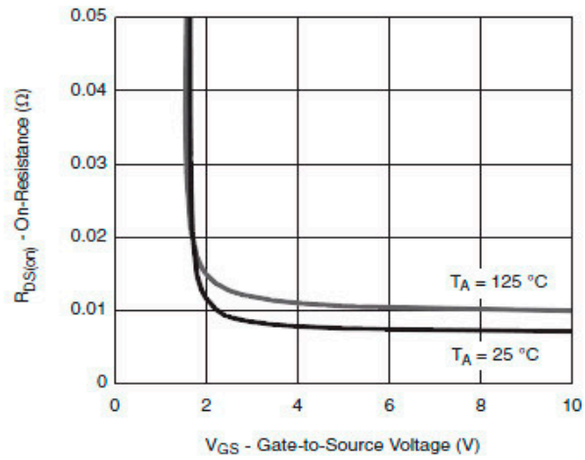
Gate Charge



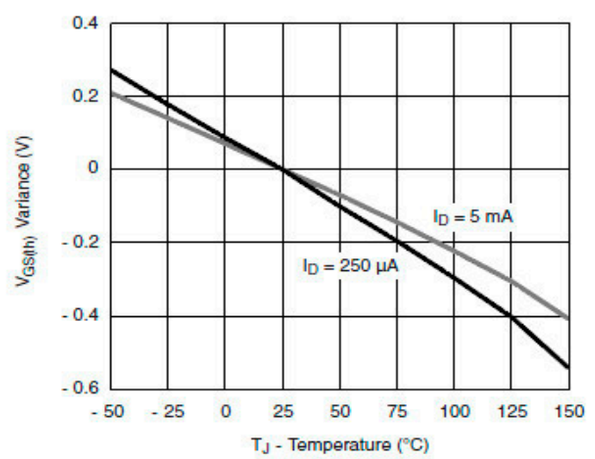
On-Resistance vs. Junction Temperature



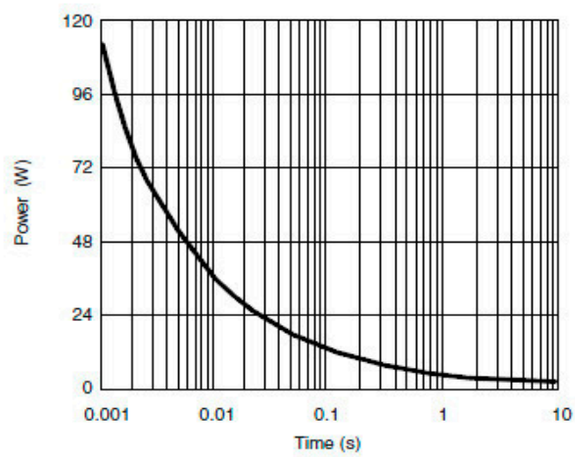
Source-Drain Diode Forward Voltage



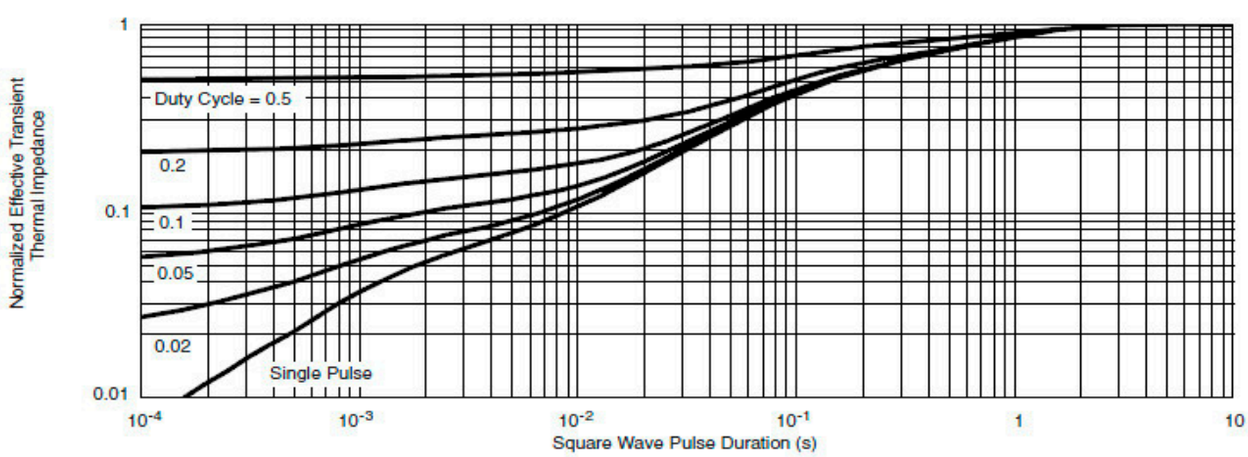
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



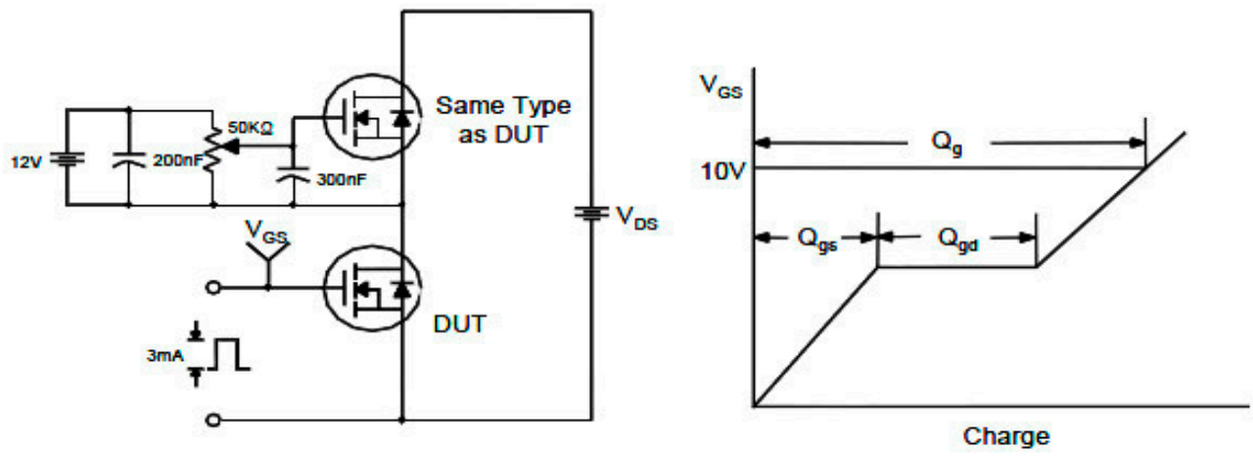
Single Pulse Power, Junction-to-Ambient



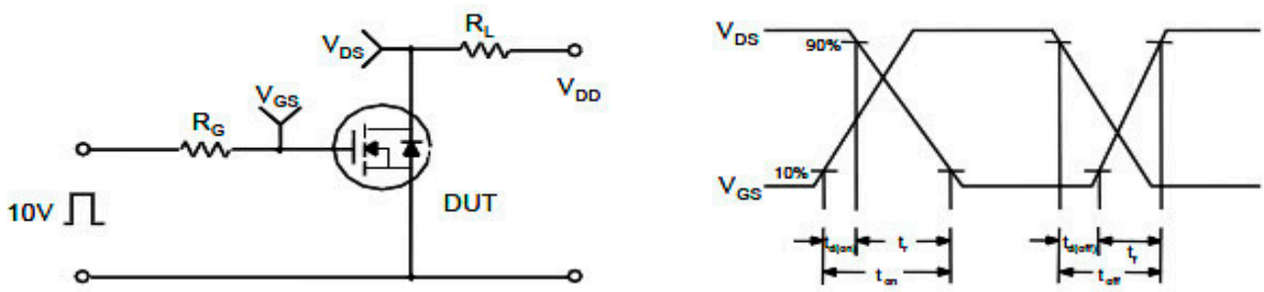
Normalized Thermal Transient Impedance, Junction-to-Foot

■测试电路和波形

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms