

双 N 沟道 MOSFET

ELM54904WSA-N

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

■概要

ELM54904WSA-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，内藏有两个 MOSFET。

■特点

- $V_{ds}=40V$
- $I_d=8.0A$
- $R_{ds(on)} = 11m\Omega$ ($V_{gs}=10V$)
- $R_{ds(on)} = 13m\Omega$ ($V_{gs}=4.5V$)

■绝对最大额定值

如没有特别注明时, $T_a=25^\circ C$

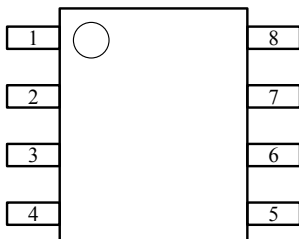
项目	记号	规格范围	单位
漏极 - 源极电压	V_{ds}	40	V
栅极 - 源极电压	V_{gs}	± 20	V
漏极电流 (定常) $T_j=150^\circ C$	Id	$T_a=25^\circ C$ 8.0	A
		$T_a=70^\circ C$ 6.5	
漏极电流 (脉冲)	I_{dm}	30	A
崩溃电流	I_{as}	20	A
持续崩溃能量	E_{as}	20	mJ
容许功耗	Pd	$T_c=25^\circ C$ 2.8	W
		$T_c=70^\circ C$ 1.8	
动作结合部温度	T_j	150	$^\circ C$
保存温度范围	T_{stg}	-55 ~ 150	$^\circ C$

■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	$^\circ C/W$

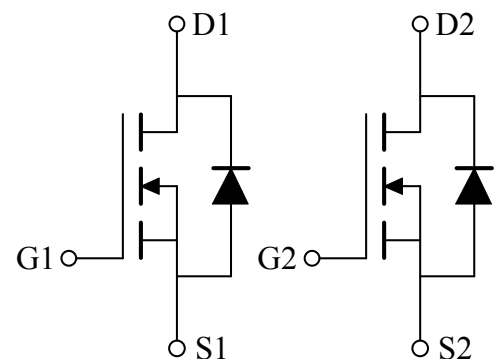
■引脚配置图

SOP-8(俯视图)



引脚编号	引脚名称
1	SOURCE1
2	GATE1
3	SOURCE2
4	GATE2
5	DRAIN2
6	DRAIN2
7	DRAIN1
8	DRAIN1

■电路图



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■电特性

如没有特别注明时, Ta=25℃

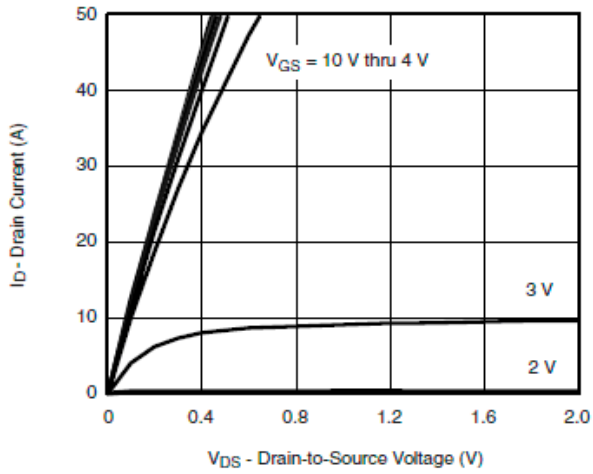
项目	记号	条件	最小值	典型值	最大值	单位
静态特性						
漏极 - 源极击穿电压	BVdss	Id=250μA, Vgs=0V	40			V
栅极接地时漏极电流	Idss	Vds=32V, Vgs=0V Ta=85℃			1	μA
					10	
栅极漏电电流	Igss	Vds=0V, Vgs=±20V			±100	nA
栅极阈值电压	Vgs(th)	Vds=Vgs, Id=250μA	1.0		2.5	V
导通时漏极电流	Id(on)	Vgs=10V, Vds≥5V	30			A
漏极 - 源极导通电阻	Rds(on)	Vgs=10V, Id=8A		8.7	11.0	mΩ
		Vgs=4.5V, Id=6A		10.3	13.0	
正向跨导	Gfs	Vds=15V, Id=12.4A		56		S
二极管正向压降	Vsd	Is=1.5A, Vgs=0V		0.85	1.20	V
寄生二极管最大连续电流	Is				1.8	A
动态特性						
输入电容	Ciss	Vgs=0V, Vds=20V, f=1MHz		2000		pF
输出电容	Coss			260		pF
反馈电容	Crss			150		pF
开关特性						
总栅极电荷	Qg	Vgs=4.5V, Vds=10V, Id=8.0A		15.0	30.0	nC
栅极 - 源极电荷	Qgs			6.8		nC
栅极 - 漏极电荷	Qgd			5.2		nC
导通延迟时间	td(on)	Vgs=10V, Vds=20V, Id=8.0A		10	20	ns
导通上升时间	tr			15	30	ns
关闭延迟时间	td(off)	RL=2.0Ω, Rgen=1.0Ω		30	60	ns
关闭下降时间	tf			10	20	ns

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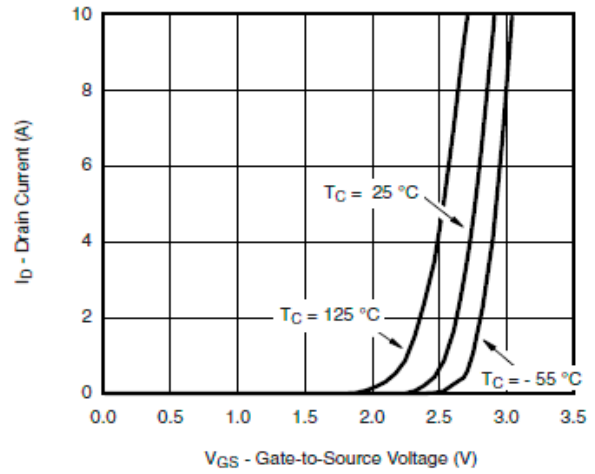
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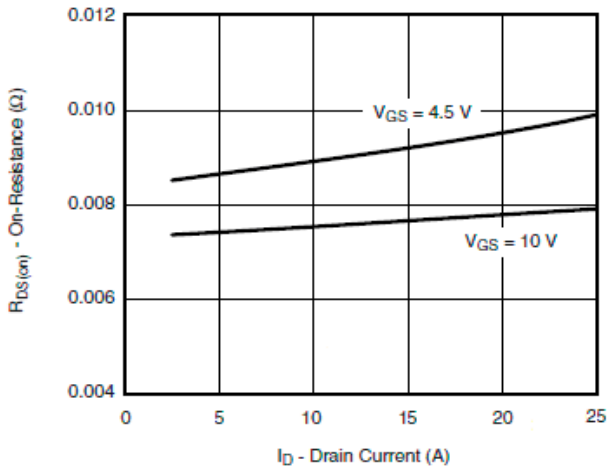
■ 标准特性和热特性曲线



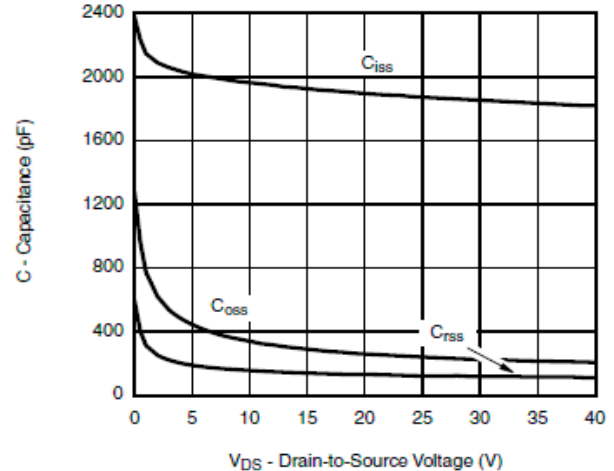
Output Characteristics



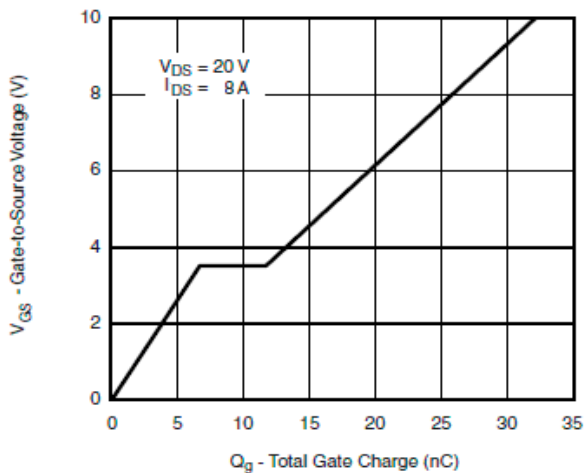
Transfer Characteristics



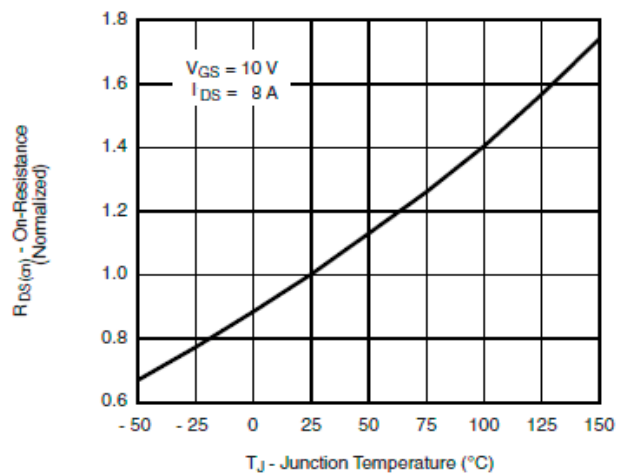
On-Resistance vs. Drain Current and Gate Voltage



Capacitance



Gate Charge

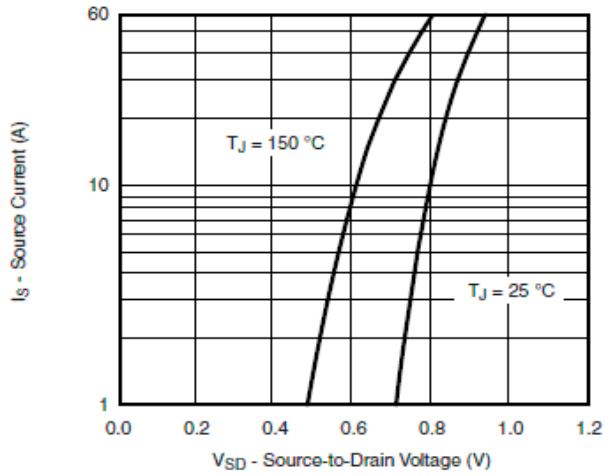


On-Resistance vs. Junction Temperature

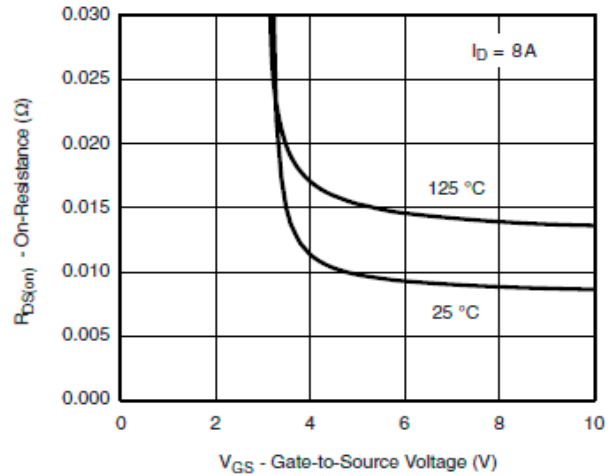
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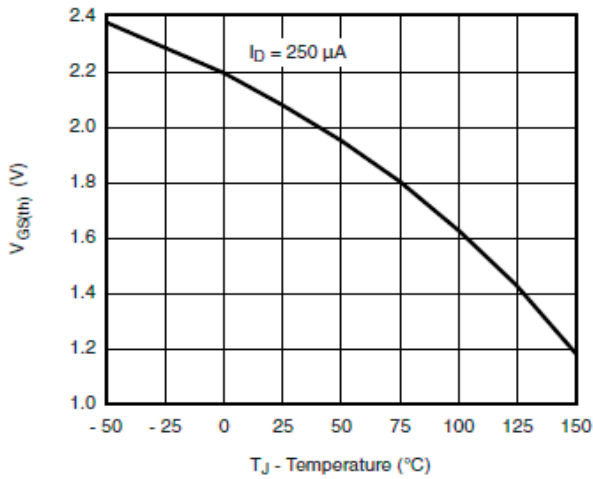
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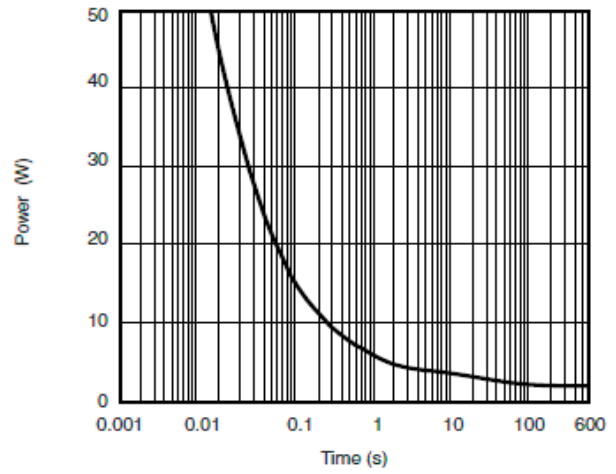
Source-Drain Diode Forward Voltage



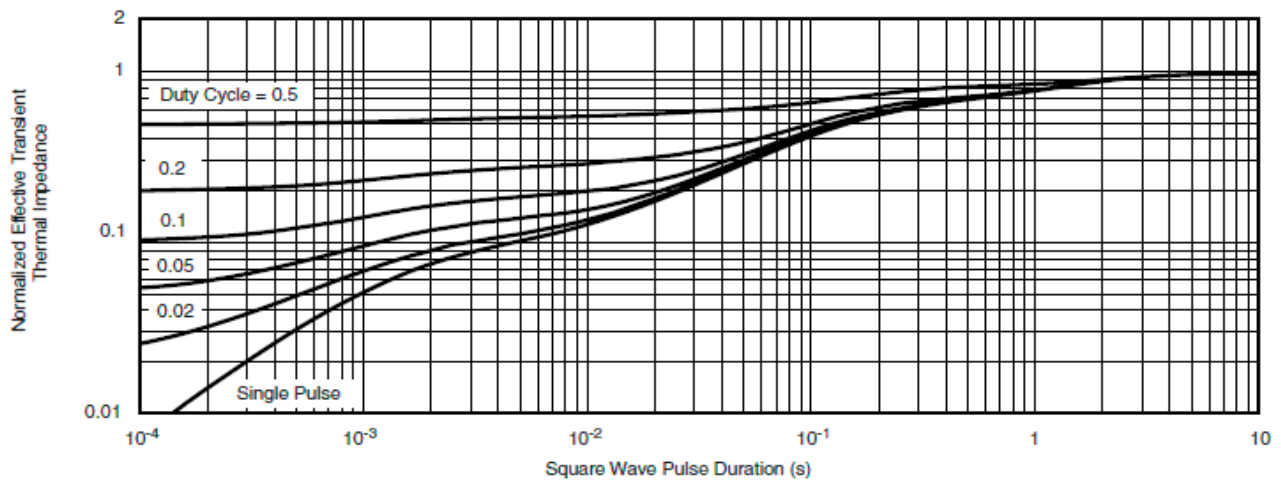
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power (Junction-to-Ambient)



Normalized Thermal Transient Impedance, Junction-to-Foot

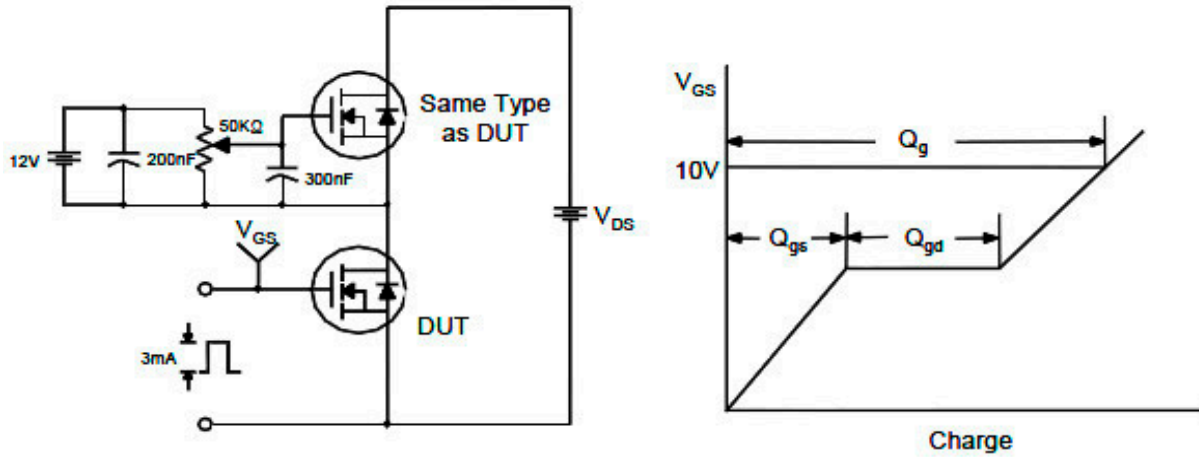
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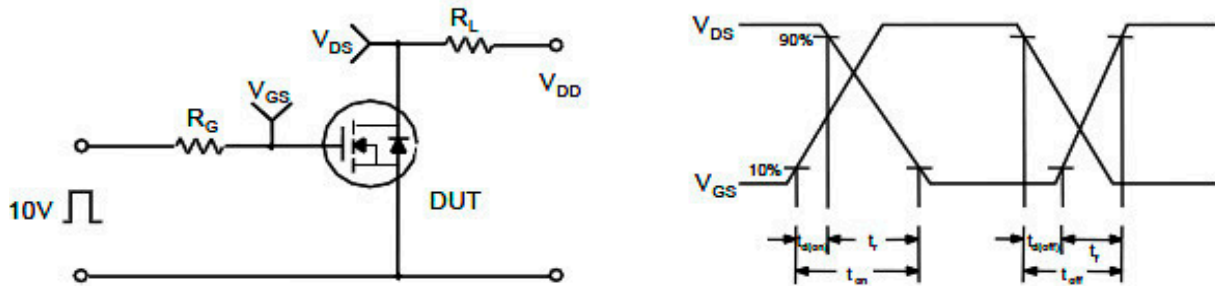
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测试电路和波形

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



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