

双 P 沟道 MOSFET

ELM54943WSA-N

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

■概要

ELM54943WSA-N 是 P 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

- $V_{ds} = -20V$
- $I_d = -9.0A$
- $R_{ds(on)} = 23m\Omega$ ($V_{gs} = -4.5V$)
- $R_{ds(on)} = 28m\Omega$ ($V_{gs} = -2.5V$)
- $R_{ds(on)} = 35m\Omega$ ($V_{gs} = -1.8V$)

■绝对最大额定值

如没有特别注明时, $T_a = 25^\circ C$

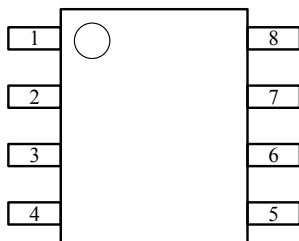
项目	记号	规格范围	单位
漏极 - 源极电压	V_{ds}	-20	V
栅极 - 源极电压	V_{gs}	± 12	V
漏极电流 (定常) ($T_j = 150^\circ C$)	Id	$T_a = 25^\circ C$	-9.0
		$T_a = 70^\circ C$	-7.0
漏极电流 (脉冲)	I_{dm}	-30	A
容许功耗	Pd	$T_c = 25^\circ C$	2.8
		$T_c = 70^\circ C$	1.8
动作结合部温度	T_j	150	$^\circ C$
保存温度范围	T_{stg}	-55 ~ 150	$^\circ C$

■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	$^\circ C/W$

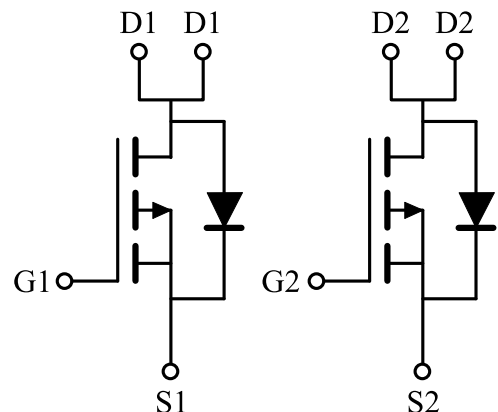
■引脚配置图

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



双 P 沟道 MOSFET

ELM54943WSA-N

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

■电特性

如没有特别注明时, $T_a=25^\circ\text{C}$

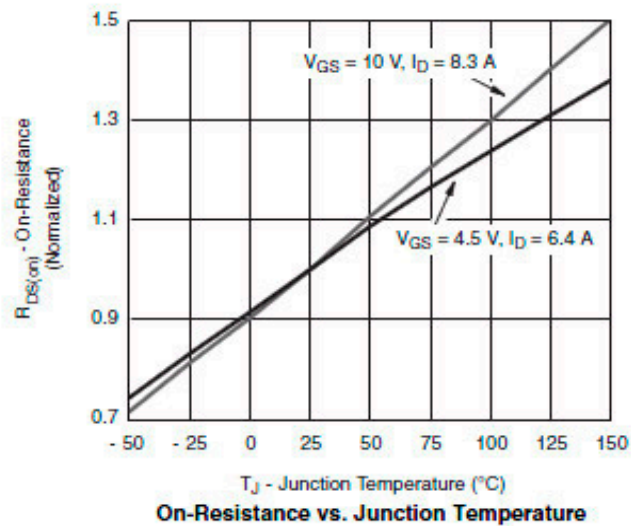
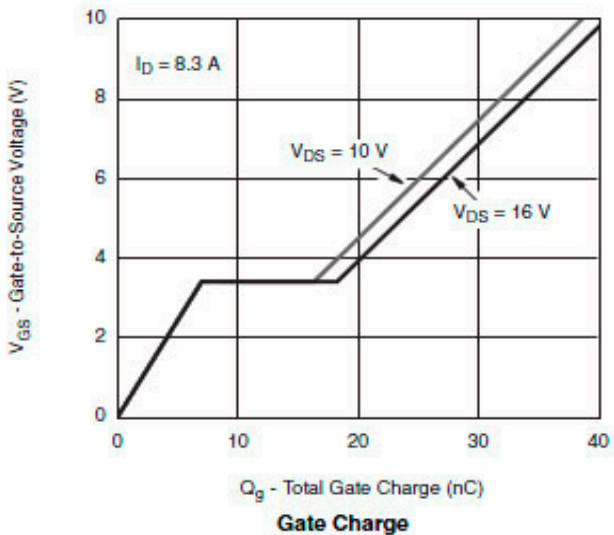
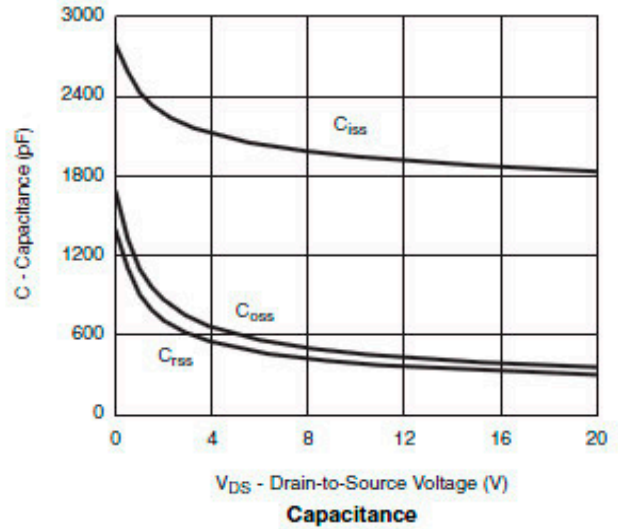
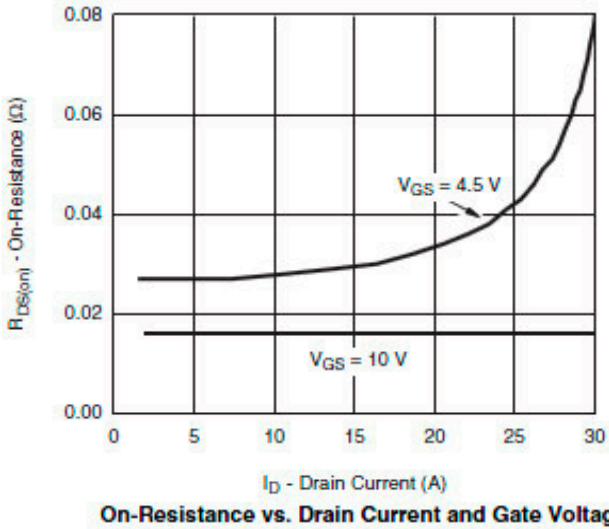
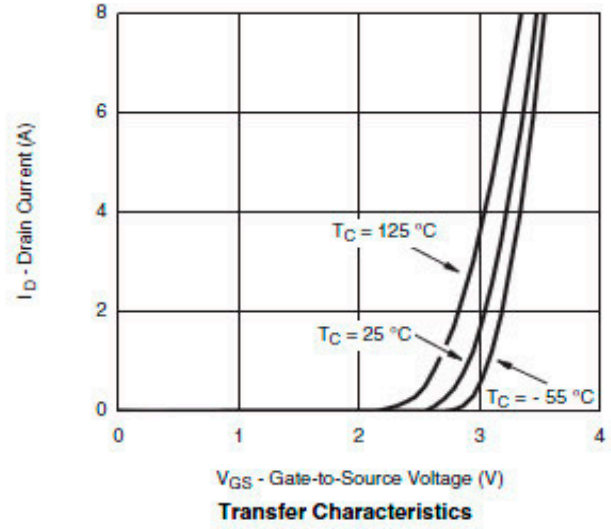
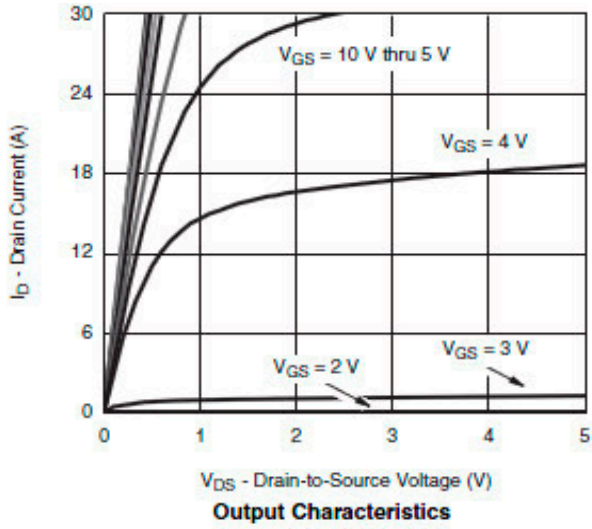
项目	记号	条件	最小值	典型值	最大值	单位
静态特性						
漏极 - 源极击穿电压	BV _{dss}	$I_d=-250\mu\text{A}, V_{gs}=0\text{V}$	-20			V
栅极接地时漏极电流	I _{dss}	$V_{ds}=-16\text{V}, V_{gs}=0\text{V}$ $T_a=85^\circ\text{C}$			-1	μA
					-30	
栅极漏电流	I _{gss}	$V_{ds}=0\text{V}, V_{gs}=\pm 12\text{V}$			± 100	nA
栅极阈值电压	V _{gs(th)}	$V_{ds}=V_{gs}, I_d=-250\mu\text{A}$	-0.4		-1.0	V
导通时漏极电流	I _{d(on)}	$V_{gs}=-10\text{V}, V_{ds}\geq -5\text{V}$	-30			A
漏极 - 源极导通电阻	R _{ds(on)}	$V_{gs}=-4.5\text{V}, I_d=-9.0\text{A}$		18	23	m Ω
		$V_{gs}=-2.5\text{V}, I_d=-7.0\text{A}$		23	28	
		$V_{gs}=-1.8\text{V}, I_d=-3.0\text{A}$		30	35	
正向跨导	G _{fs}	$V_{ds}=-10\text{V}, I_d=-9.0\text{A}$		22		S
二极管正向压降	V _{sd}	$I_s=-7.0\text{A}, V_{gs}=0\text{V}$		-0.7	-1.3	V
寄生二极管最大连续电流	I _s				-1.7	A
动态特性						
输入电容	C _{iss}	$V_{gs}=0\text{V}, V_{ds}=-10\text{V}, f=1\text{MHz}$		1850		pF
输出电容	C _{oss}			450		pF
反馈电容	C _{rss}			380		pF
开关特性						
总栅极电荷	Q _g	$V_{gs}=-4.5\text{V}, V_{ds}=-10\text{V}$ $I_d\equiv -7.0\text{A}$		20	30	nC
栅极 - 源极电荷	Q _{gs}			6		nC
栅极 - 漏极电荷	Q _{gd}			10		nC
导通延迟时间	t _{d(on)}	$V_{gs}=-10\text{V}, V_{ds}=-10\text{V}$ $I_d\equiv -7.0\text{A}, R_L=1.5\Omega$ $R_{gen}=1\Omega$		15	25	ns
导通上升时间	t _r			12	24	ns
关闭延迟时间	t _{d(off)}			35	55	ns
关闭下降时间	t _f			10	20	ns

双 P 沟道 MOSFET

ELM54943WSA-N

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

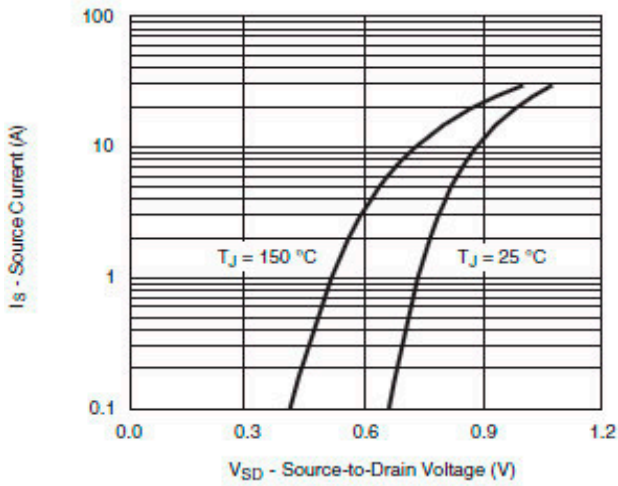
■ 标准特性和热特性曲线



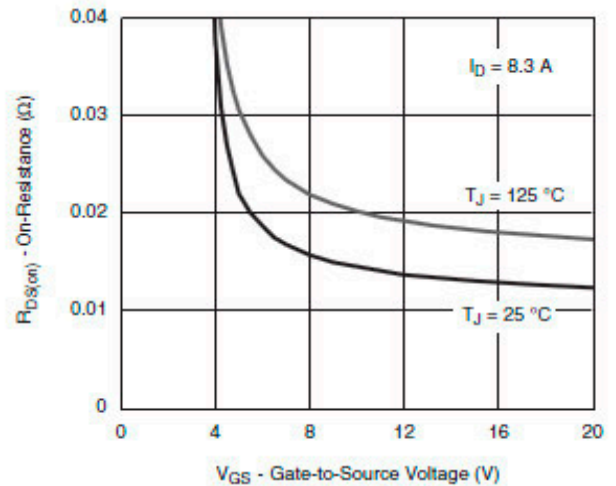
双 P 沟道 MOSFET

ELM54943WSA-N

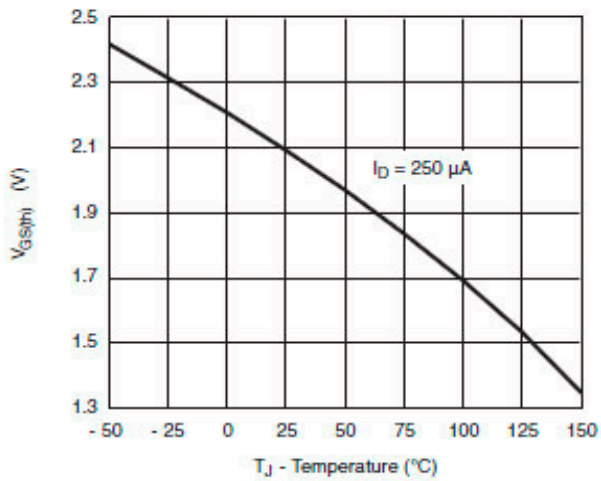
<http://www.elm-tech.com>



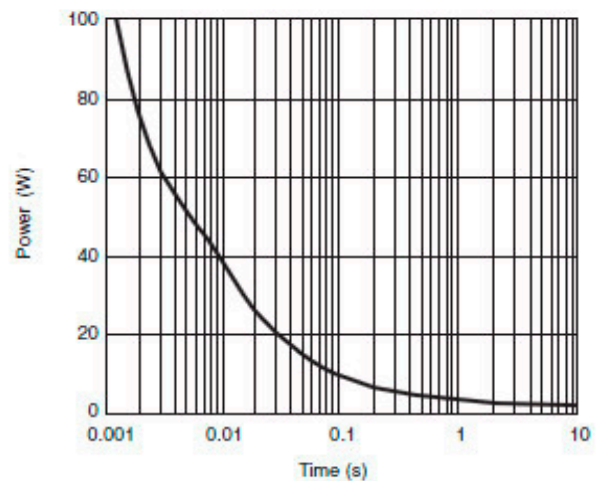
Source-Drain Diode Forward Voltage



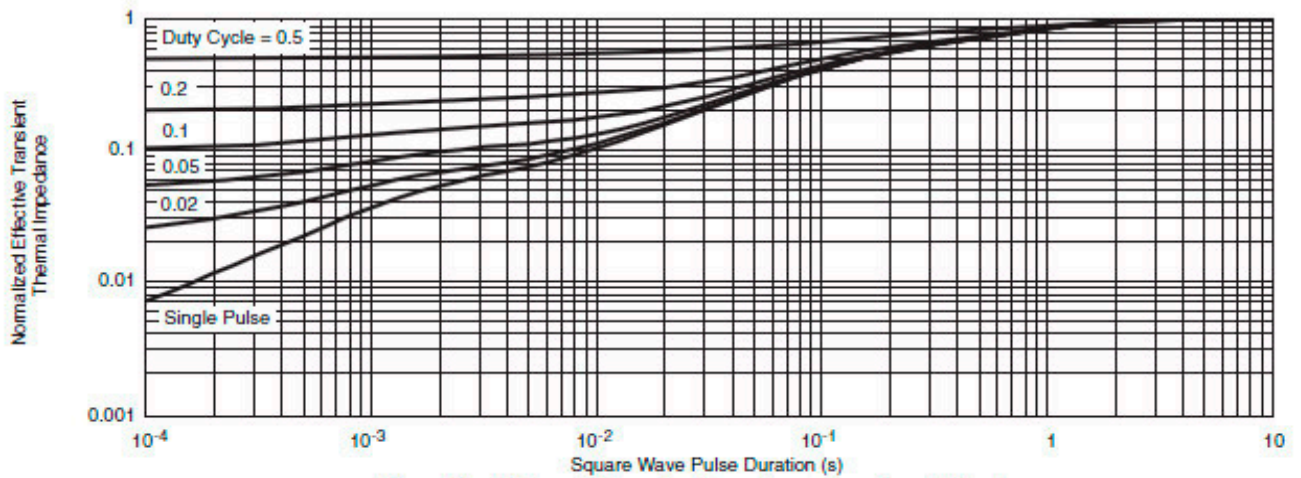
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

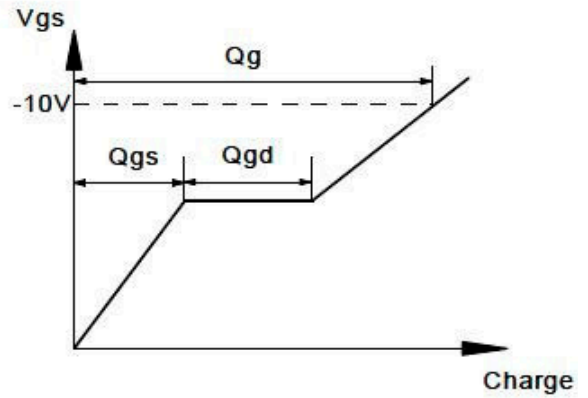
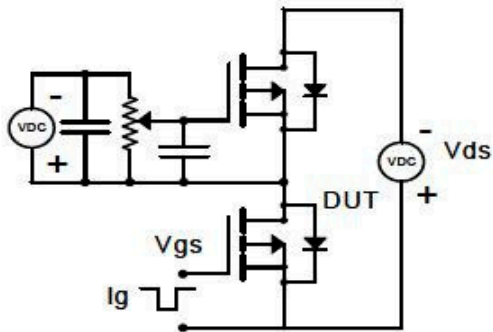
双 P 沟道 MOSFET

ELM54943WSA-N

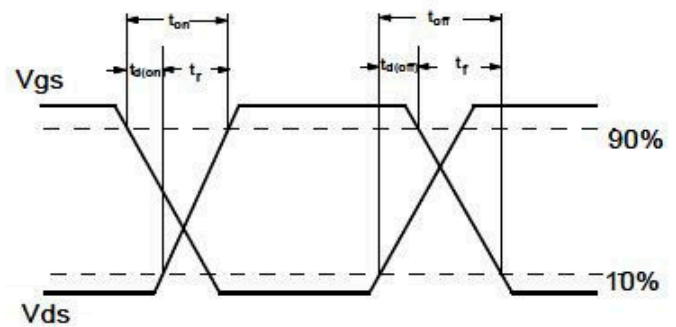
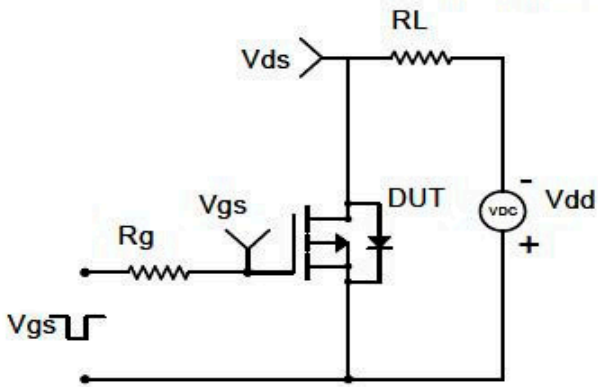
<http://www.elm-tech.com>

■ 试验电路图和测试波形图

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

