

# 双 P 沟道 MOSFET

ELM544933A-N

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

## ■概要

ELM544933A-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

- $V_{ds} = -20V$
- $I_d = -6.5A$
- $R_{ds(on)} = 40m\Omega$  ( $V_{gs} = -4.5V$ )
- $R_{ds(on)} = 54m\Omega$  ( $V_{gs} = -2.5V$ )
- $R_{ds(on)} = 75m\Omega$  ( $V_{gs} = -1.8V$ )

## ■绝对最大额定值

如没有特别注明时,  $T_a = 25^\circ C$

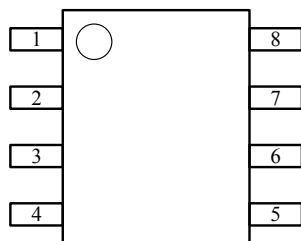
项目	记号	规格范围	单位
漏极 - 源极电压	$V_{ds}$	-20	V
栅极 - 源极电压	$V_{gs}$	$\pm 12$	V
漏极电流 (定常)	Id	$T_a = 25^\circ C$	-6.5
		$T_a = 70^\circ C$	-2.5
漏极电流 (脉冲)	$I_{dm}$	-18	A
容许功耗	Pd	$T_c = 25^\circ C$	2.8
		$T_c = 70^\circ C$	1.8
结合部温度及保存温度范围	$T_j, T_{stg}$	-55 ~ 150	$^\circ C$

## ■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	$^\circ C/W$

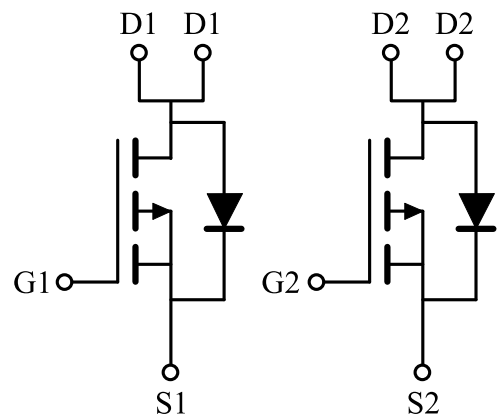
## ■引脚配置图

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℃

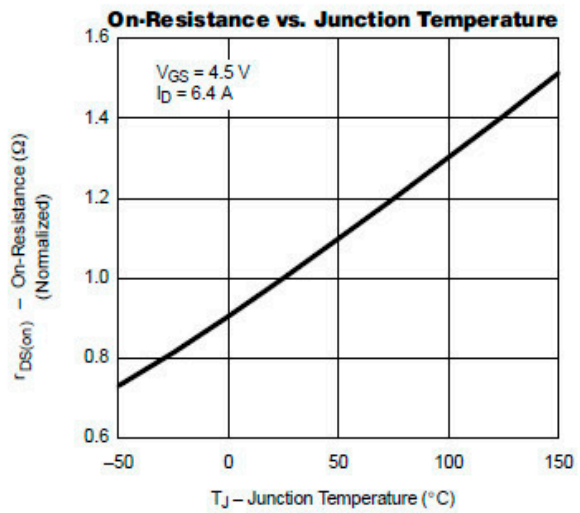
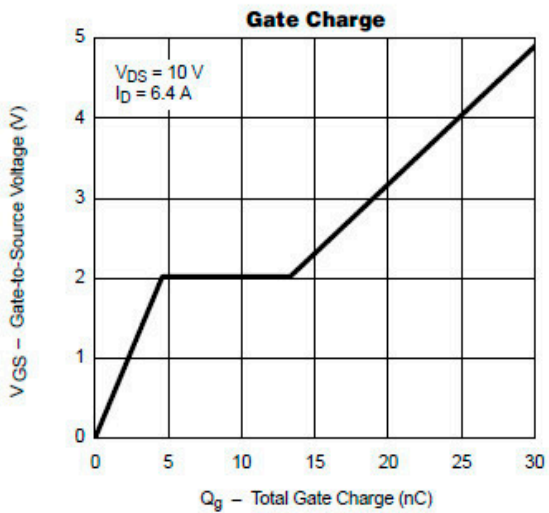
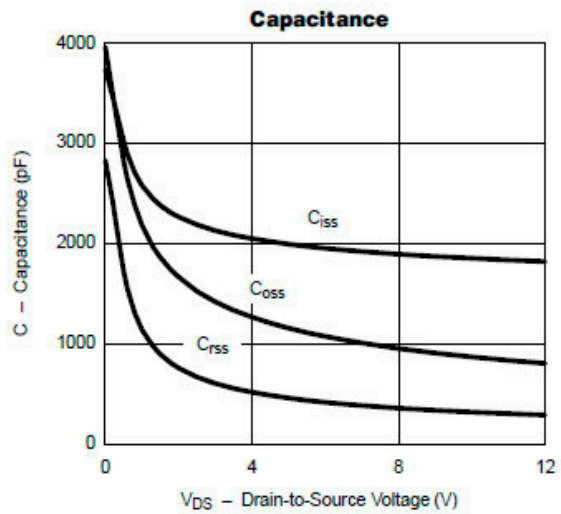
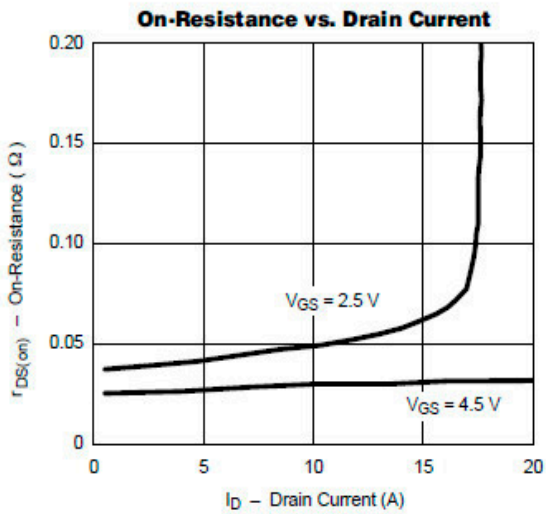
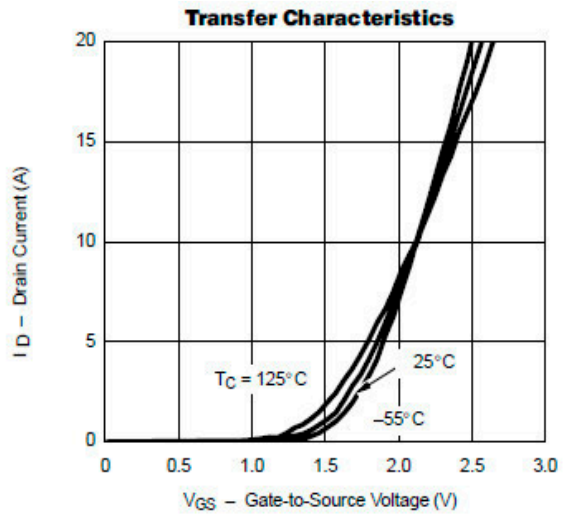
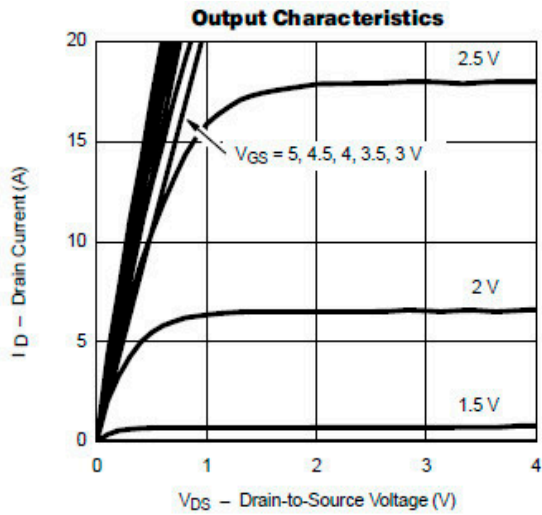
项目	记号	条件	最小值	典型值	最大值	单位
静态特性						
漏极 - 源极击穿电压	BV <sub>dss</sub>	I <sub>d</sub> =-250μA, V <sub>gs</sub> =0V	-20			V
栅极接地时漏极电流	I <sub>dss</sub>	V <sub>ds</sub> =-16V, V <sub>gs</sub> =0V			-1	μA
		V <sub>ds</sub> =-16V, V <sub>gs</sub> =0V, Ta=85℃			-10	
栅极漏电流	I <sub>gss</sub>	V <sub>ds</sub> =0V, V <sub>gs</sub> =±12V			±100	nA
栅极阈值电压	V <sub>gs(th)</sub>	V <sub>ds</sub> =V <sub>gs</sub> , I <sub>d</sub> =-250μA	-0.4		-0.8	V
导通时漏极电流	I <sub>d(on)</sub>	V <sub>gs</sub> =-4.5V, V <sub>ds</sub> ≤-5V	-10			A
		V <sub>gs</sub> =-2.5V, V <sub>ds</sub> ≤-5V	-5			
漏极 - 源极导通电阻	R <sub>ds(on)</sub>	V <sub>gs</sub> =-4.5V, I <sub>d</sub> =-6.5A		35	40	mΩ
		V <sub>gs</sub> =-2.5V, I <sub>d</sub> =-4.5A		48	54	
		V <sub>gs</sub> =-1.8V, I <sub>d</sub> =-2.5A		68	75	
正向跨导	G <sub>fs</sub>	V <sub>ds</sub> =-9V, I <sub>d</sub> =-6.5A		14		S
二极管正向压降	V <sub>sd</sub>	I <sub>s</sub> =-2.5A, V <sub>gs</sub> =0V		-0.85	-1.20	V
寄生二极管最大连续电流	I <sub>s</sub>				-1.7	A
动态特性						
输入电容	C <sub>iss</sub>	V <sub>gs</sub> =0V, V <sub>ds</sub> =-15V, f=1MHz		950		pF
输出电容	C <sub>oss</sub>			200		pF
反馈电容	C <sub>rss</sub>			175		pF
开关特性						
总栅极电荷	Q <sub>g</sub>	V <sub>gs</sub> =-4.5V, V <sub>ds</sub> =-15V I <sub>d</sub> =-6.0A		10.0	18.0	nC
栅极 - 源极电荷	Q <sub>gs</sub>			1.6		nC
栅极 - 漏极电荷	Q <sub>gd</sub>			3.0		nC
导通延迟时间	t <sub>d(on)</sub>	V <sub>gs</sub> =-10V, V <sub>ds</sub> =-15V I <sub>d</sub> =-5.0A, R <sub>L</sub> =15Ω R <sub>gen</sub> =6Ω		8	18	ns
导通上升时间	t <sub>r</sub>			8	18	ns
关闭延迟时间	t <sub>d(off)</sub>			25	50	ns
关闭下降时间	t <sub>f</sub>			25	35	ns

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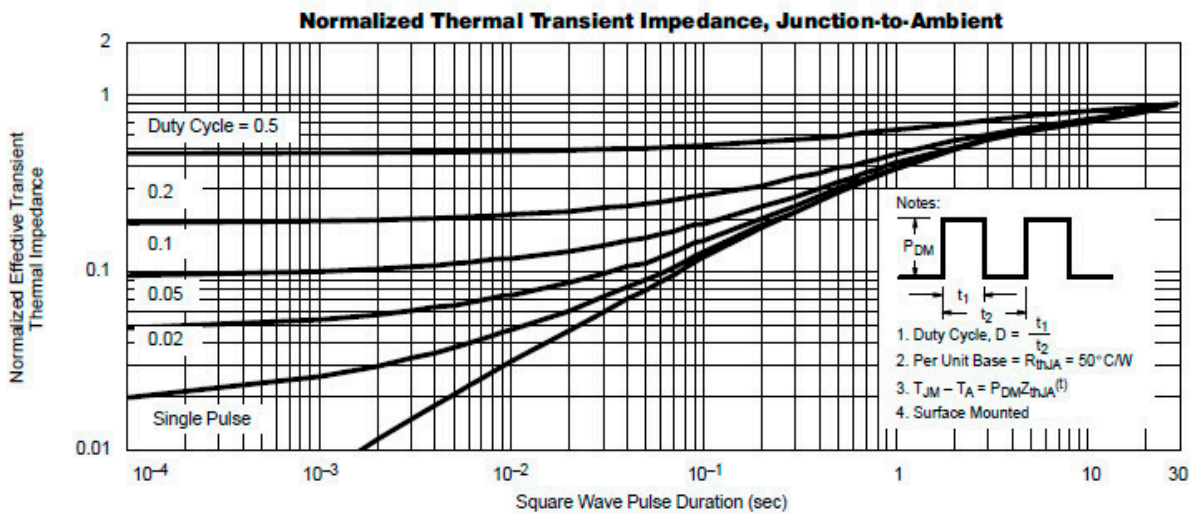
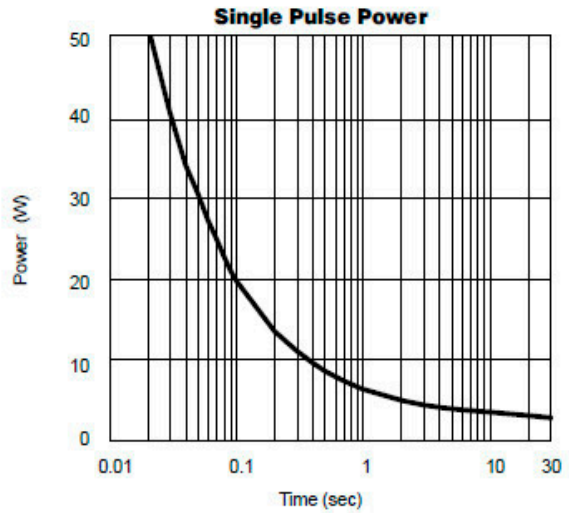
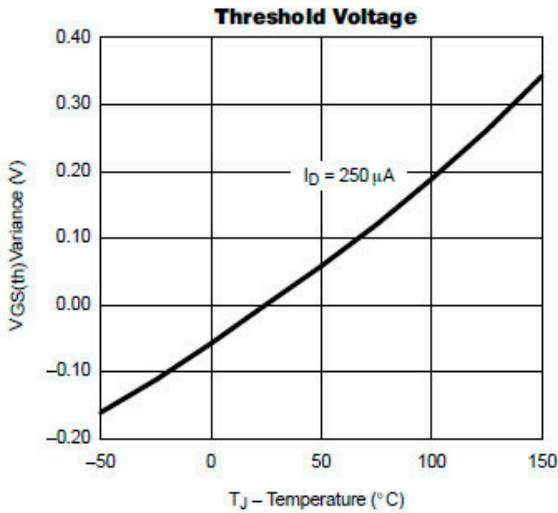
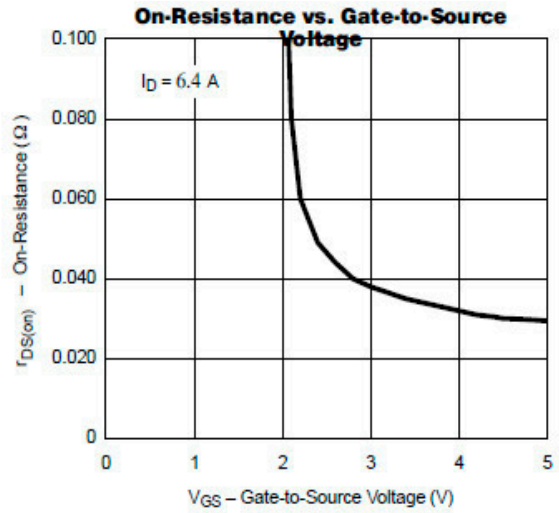
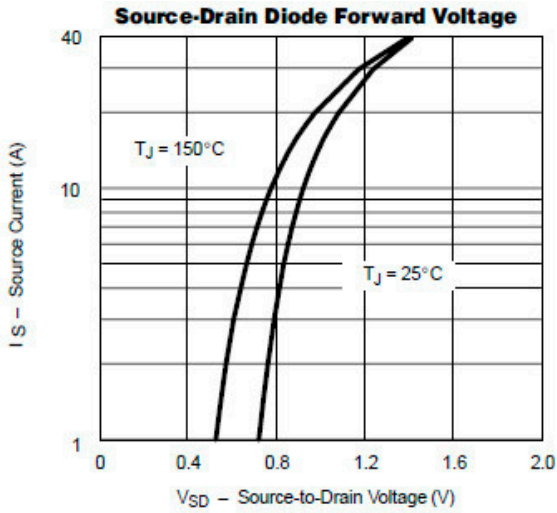
## ■ 标准特性和热特性曲线



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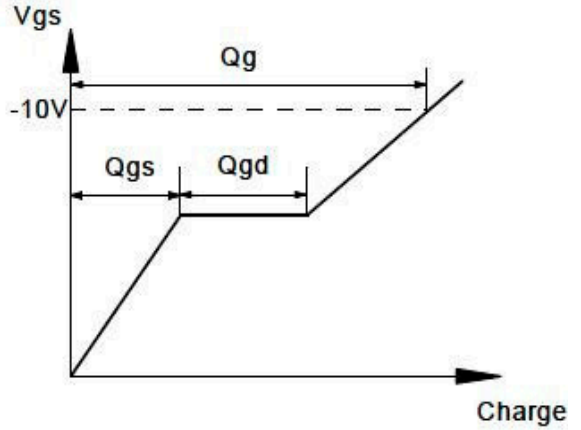
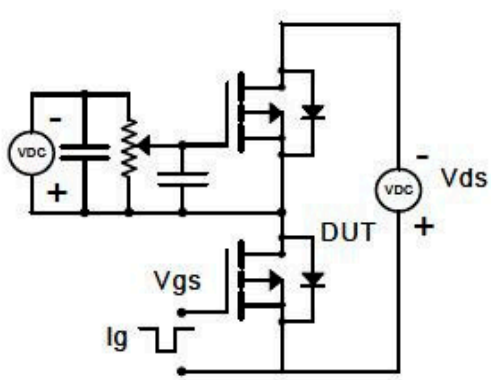
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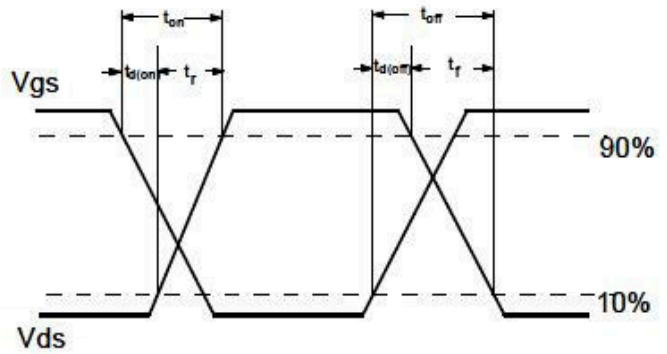
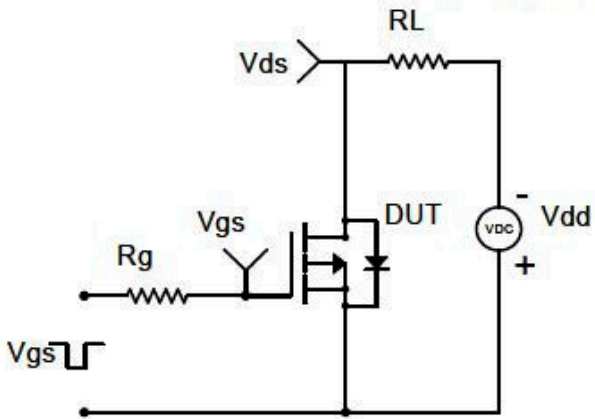
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## ■ 试验电路图和测试波形图

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

