

单 N 沟道 MOSFET

ELM584110WA-S

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

■概要

ELM584110WA-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

- $V_{ds}=100V$
- $I_d=5.8A$
- $R_{ds(on)} = 115m\Omega$ ($V_{gs}=10V$)
- $R_{ds(on)} = 125m\Omega$ ($V_{gs}=4.5V$)

■绝对最大额定值

如没有特别注明时, $T_a=25^\circ C$

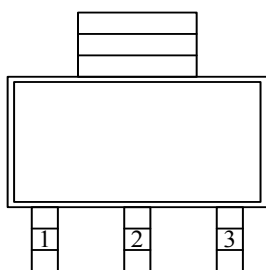
项目	记号	规格范围	单位
漏极 - 源极电压	V_{ds}	100	V
栅极 - 源极电压	V_{gs}	± 20	V
漏极电流 ($T_j=150^\circ C$)	Id	$T_a=25^\circ C$	5.8
		$T_a=70^\circ C$	4.2
漏极电流 (脉冲)	I_{dm}	10	A
容许功耗	Pd	$T_c=25^\circ C$	2.8
		$T_c=70^\circ C$	1.2
动作结合部温度	T_j	150	$^\circ C$
保存温度范围	T_{stg}	$-55 \sim 150$	$^\circ C$

■热特性

项目	记号	典型值	最大值	单位
最大结合部 - 环境热阻	$R_{\theta ja}$		120	$^\circ C/W$

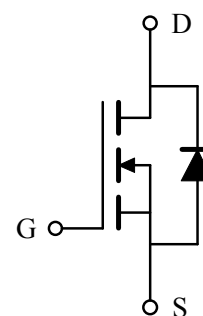
■引脚配置图

SOT-223(俯视图)



引脚编号	引脚名称
1	GATE
2	DRAIN
3	SOURCE

■电路图



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■电特性

如没有特别注明时, Ta=25℃

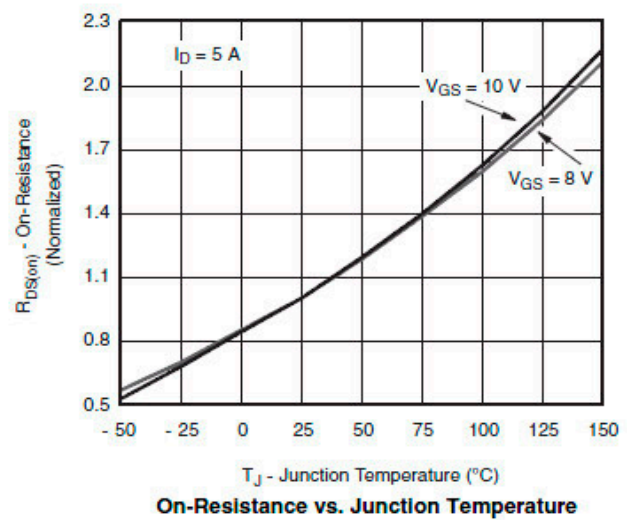
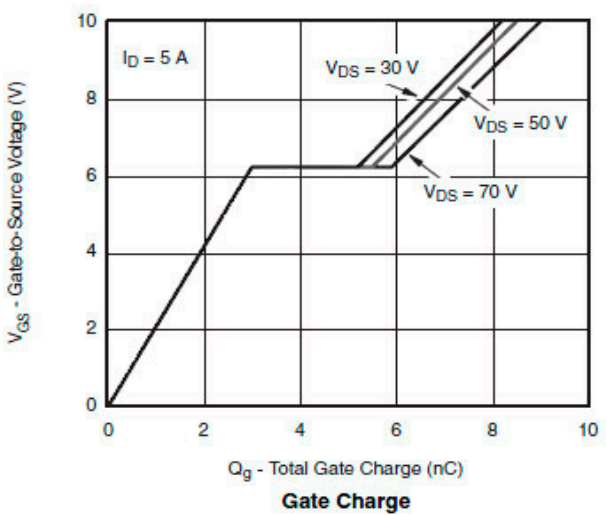
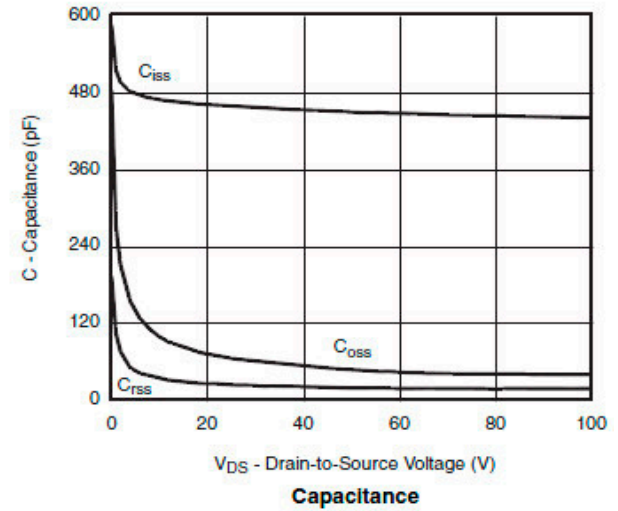
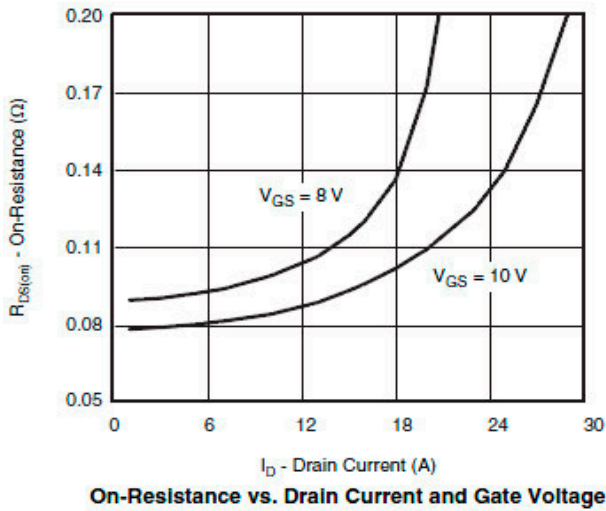
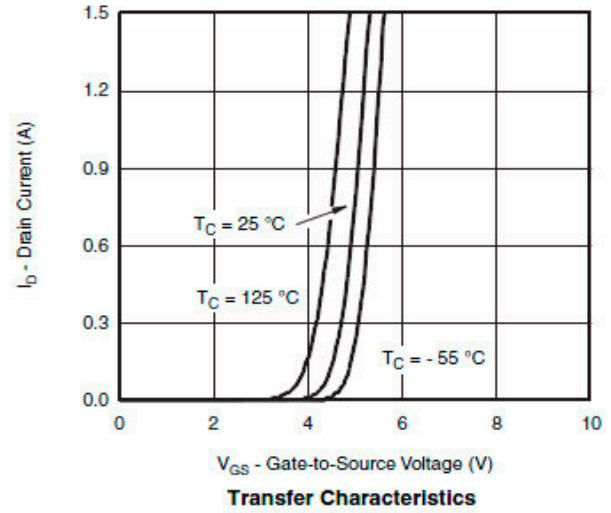
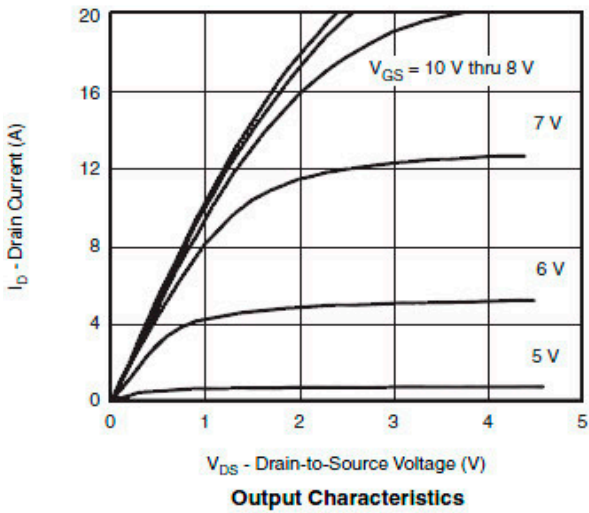
项目	记号	条件	最小值	典型值	最大值	单位
静态特性						
漏极 - 源极击穿电压	BVdss	Id=250μA, Vgs=0V	100			V
栅极接地时漏极电流	Idss	Vds=80V, Vgs=0V			1	μA
		Vds=80V, Vgs=0V, Ta=85℃			5	
栅极漏电流	Igss	Vds=0V, Vgs=±20V			±100	nA
栅极阈值电压	Vgs(th)	Vds=Vgs, Id=250μA	0.5		2.5	V
导通时漏极电流	Id(on)	Vgs=4.5V, Vds≥5V	10			A
漏极 - 源极导通电阻	Rds(on)	Vgs=10V, Id=5.8A		95	115	mΩ
		Vgs=4.5V, Id=4.6A		100	125	
正向跨导	Gfs	Vds=15V, Id=5.3A		24		S
二极管正向压降	Vsd	Is=2.0A, 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=50V, f=1MHz		600		pF
输出电容	Coss			90		pF
反馈电容	Crss			60		pF
开关特性						
总栅极电荷	Qg	Vgs=5V, Vds=50V, Id≐3.0A		12.0	18.0	nC
栅极 - 源极电荷	Qgs			4.2		nC
栅极 - 漏极电荷	Qgd			5.2		nC
导通延迟时间	td(on)	Vgs=10V, Vds=50V RL=12.5Ω, Id≐3.0A Rgen=1.0Ω		15	25	ns
导通上升时间	tr			15	25	ns
关闭延迟时间	td(off)			20	30	ns
关闭下降时间	tf			15	25	ns

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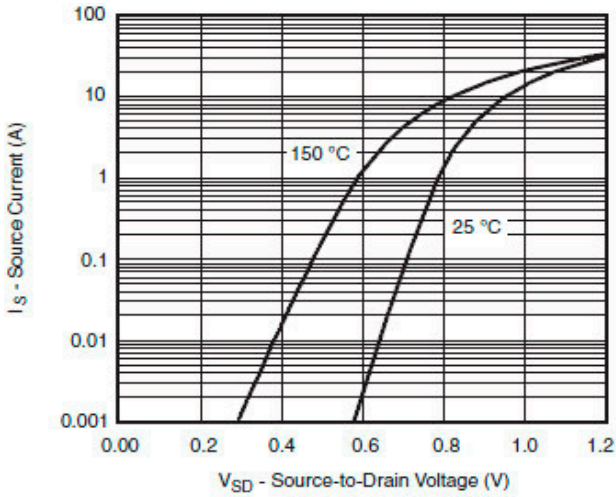
■ 标准特性和热特性曲线



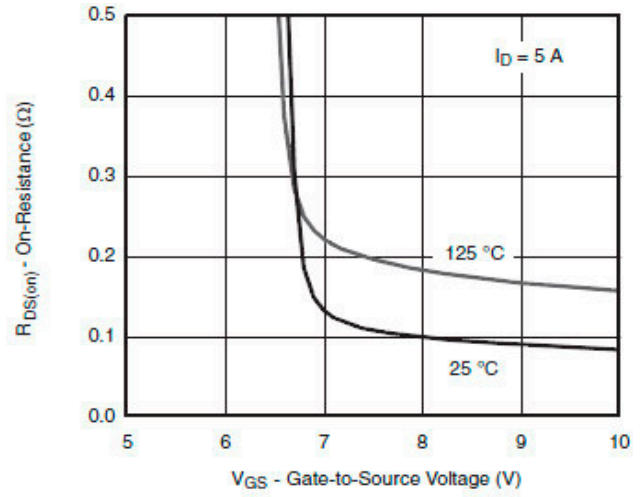
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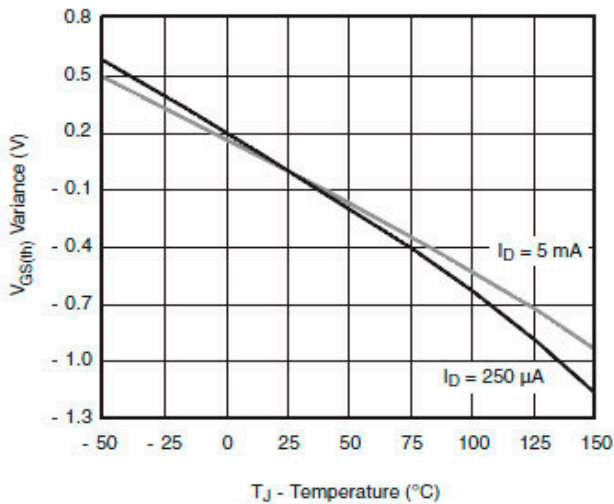
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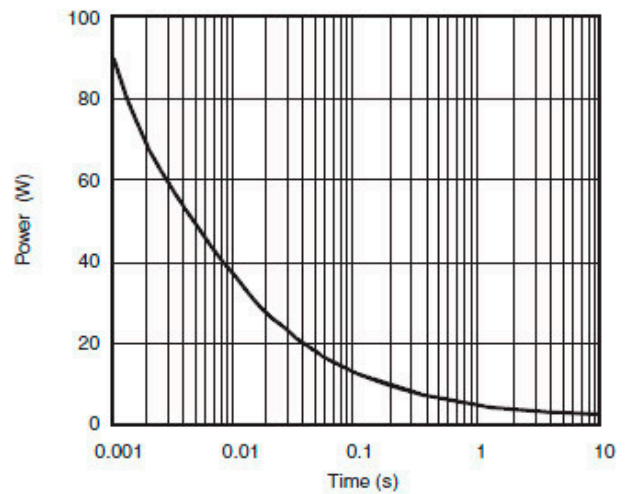
Source-Drain Diode Forward Voltage



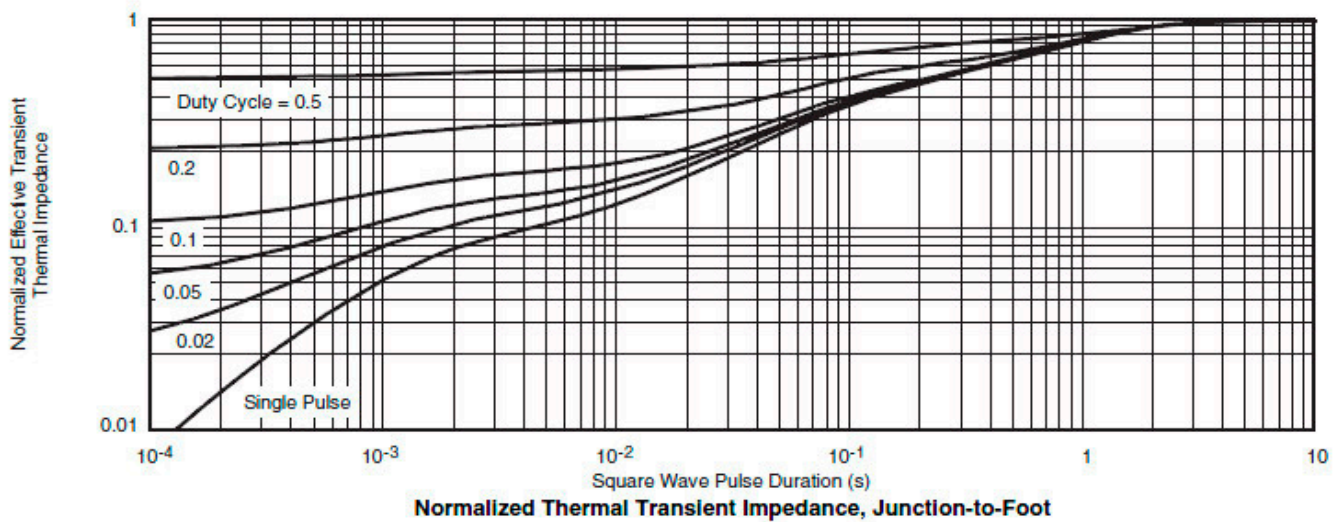
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

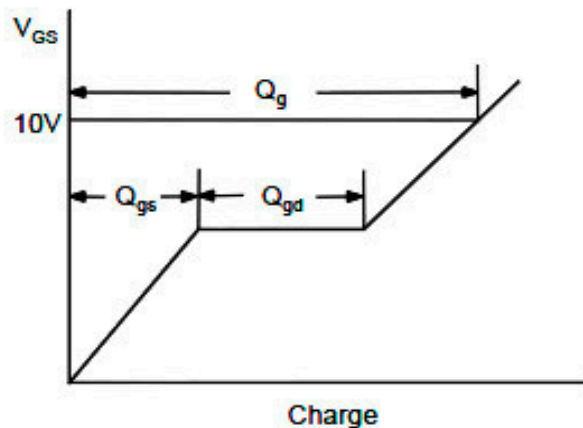
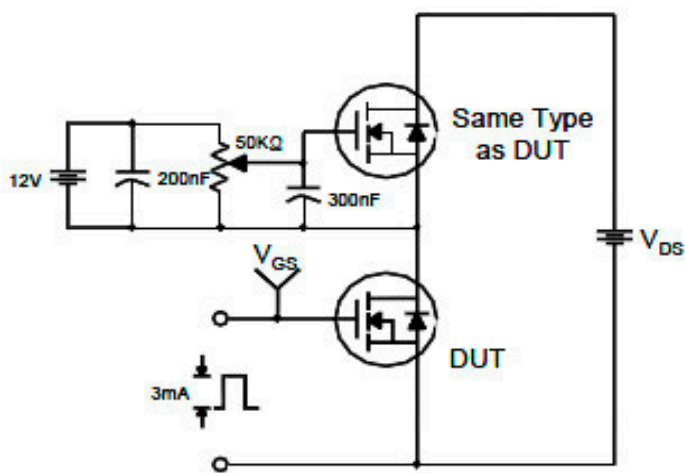
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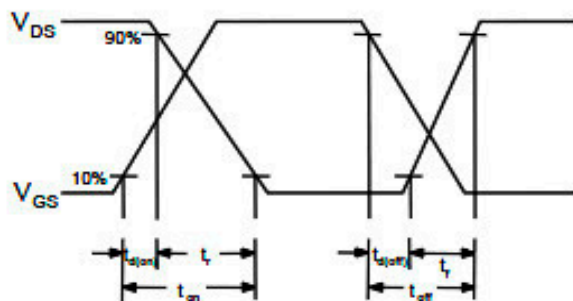
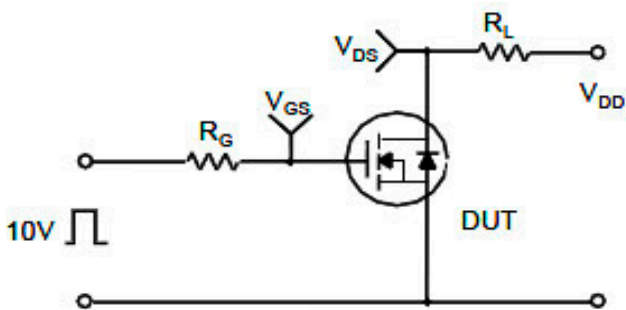
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■测试电路和波形

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms

