

# 单 N 沟道 MOSFET

ELM52416WA-N

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

## ■概要

ELM52416WA-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

- $V_{ds}=100V$
- $I_d=8A$
- $R_{ds(on)} = 120m\Omega$  ( $V_{gs}=10V$ )
- $R_{ds(on)} = 130m\Omega$  ( $V_{gs}=4.5V$ )

## ■绝对最大额定值

如没有特别注明时,  $T_a=25^\circ C$

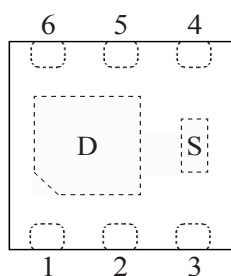
项目	记号	规格范围	单位	
漏极 - 源极电压	$V_{ds}$	100	V	
栅极 - 源极电压	$V_{gs}$	$\pm 20$	V	
漏极电流 ( $T_j=150^\circ C$ )	Id	$T_a=25^\circ C$	8	A
		$T_a=70^\circ C$	6	
漏极电流 (脉冲)	$I_{dm}$	15	A	
容许功耗	Pd	$T_c=25^\circ C$	3.5	W
		$T_c=70^\circ C$	2.2	
动作结合部温度	$T_j$	150	$^\circ C$	
保存温度范围	$T_{stg}$	$-55 \sim 150$	$^\circ C$	

## ■热特性

项目	记号	典型值	最大值	单位
最大结合部 - 环境热阻	$R_{\theta ja}$		36	$^\circ C/W$

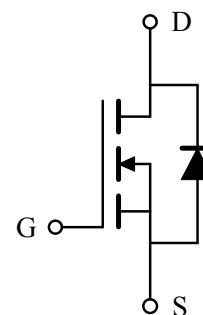
## ■引脚配置图

DFN6-2 × 2(俯视图)



引脚编号	引脚名称
1	DRAIN
2	DRAIN
3	GATE
4	SOURCE
5	DRAIN
6	DRAIN

## ■电路图



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## ■电特性

如没有特别注明时, Ta=25℃

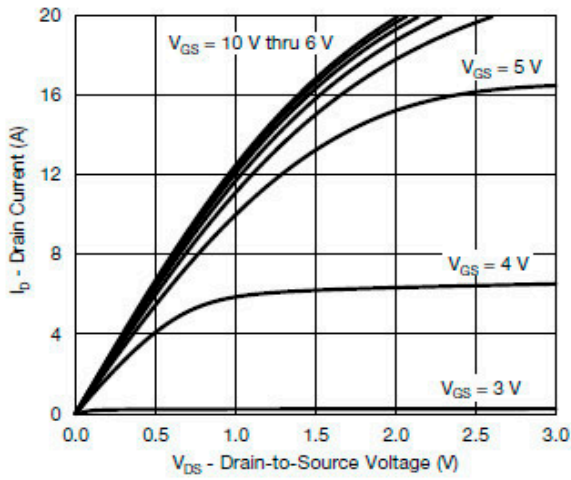
项目	记号	条件	最小值	典型值	最大值	单位
静态特性						
漏极 - 源极击穿电压	BVdss	Id=250μA, Vgs=0V	100			V
栅极接地时漏极电流	Idss	Vds=80V, Vgs=0V			1	μA
		Vds=80V, Vgs=0V, Ta=85℃			10	
栅极漏电流	Igss	Vds=0V, Vgs=±20V			±100	nA
栅极阈值电压	Vgs(th)	Vds=Vgs, Id=250μA	0.8		2.5	V
导通时漏极电流	Id(on)	Vgs=10V, Vds≥5V	8			A
漏极 - 源极导通电阻	Rds(on)	Vgs=10V, Id=3.2A		105	120	mΩ
		Vgs=4.5V, Id=2.6A		115	130	
正向跨导	Gfs	Vds=10V, Id=3.2A		8		S
二极管正向压降	Vsd	Is=2.6A, Vgs=0V		0.85	1.20	V
寄生二极管最大连续电流	Is				2.9	A
动态特性						
输入电容	Ciss	Vgs=0V, Vds=50V, f=1MHz		350		pF
输出电容	Coss			98		pF
反馈电容	Crss			20		pF
开关特性						
总栅极电荷	Qg	Vgs=4.5V, Vds=50V, Id≐4.8A		4.0	8.0	nC
栅极 - 源极电荷	Qgs			1.4		nC
栅极 - 漏极电荷	Qgd			2.0		nC
导通延迟时间	td(on)	Vgs=10V, Vds=50V RL=12.8Ω, Id≐3.9A Rgen=1Ω		8	20	ns
导通上升时间	tr			15	30	ns
关闭延迟时间	td(off)			12	25	ns
关闭下降时间	tf			12	25	ns

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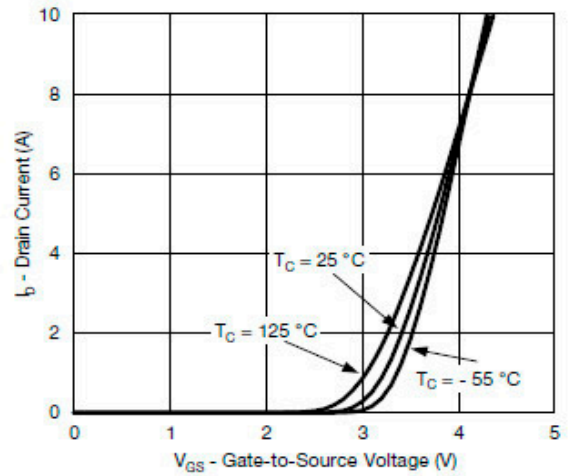
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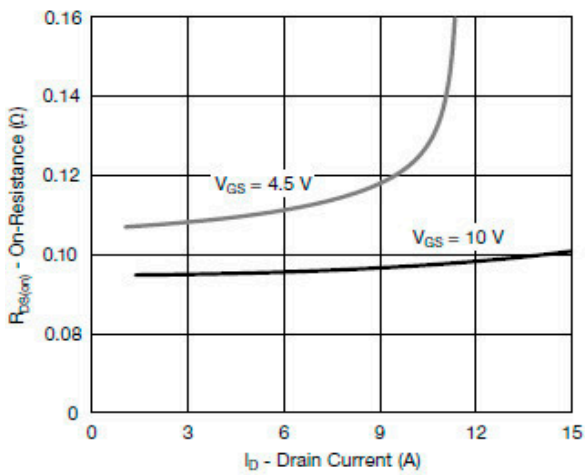
## 标准特性和热特性曲线



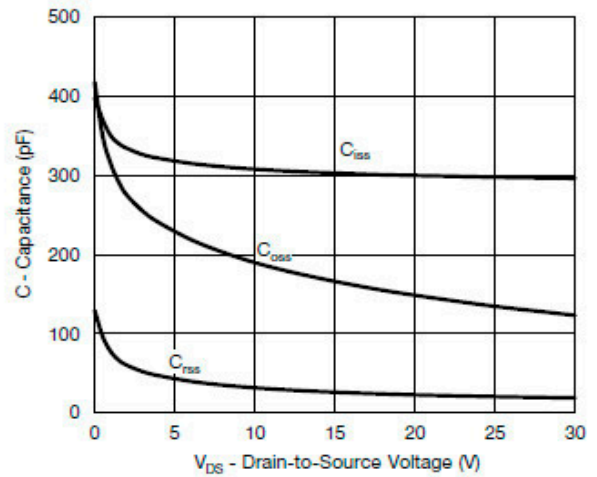
Output Characteristics



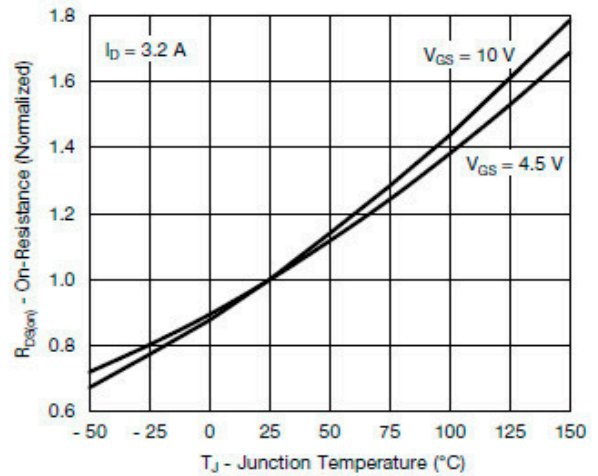
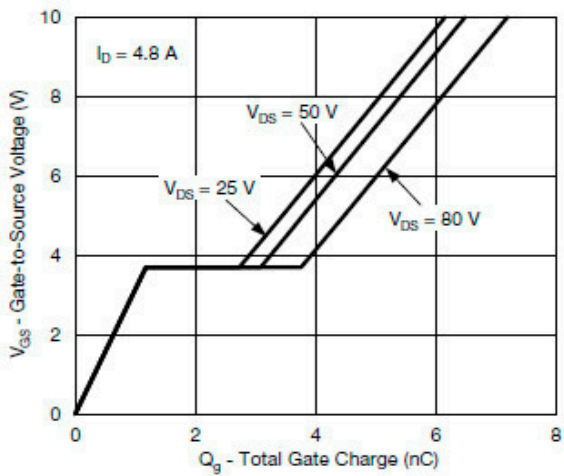
Transfer Characteristics



On-Resistance vs. Drain Current and Gate Voltage



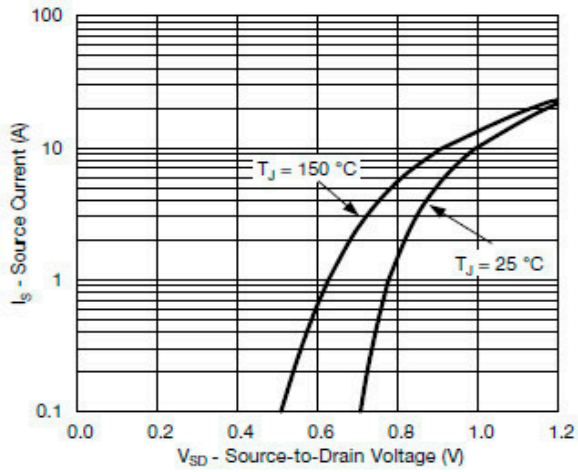
Capacitance



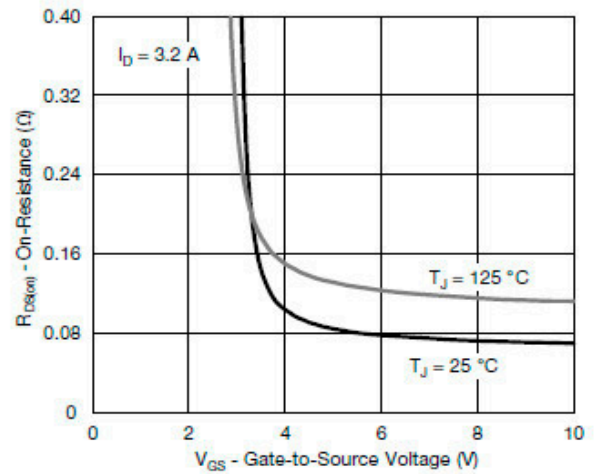
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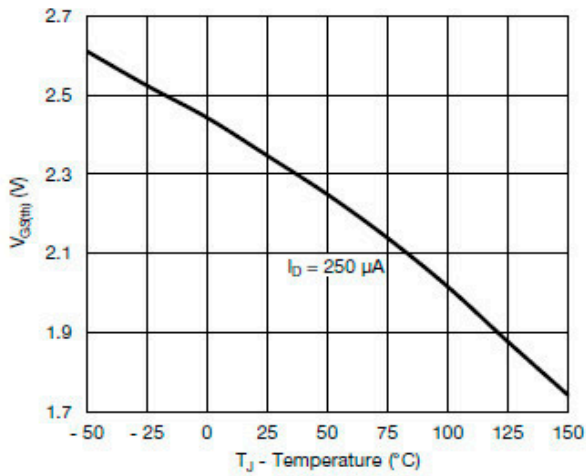
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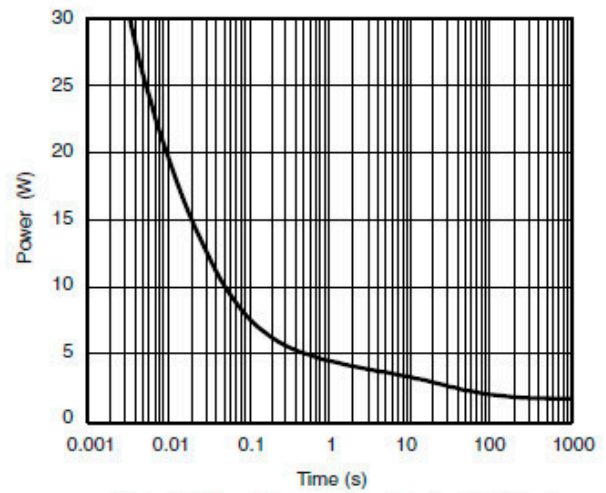
Source-Drain Diode Forward Voltage



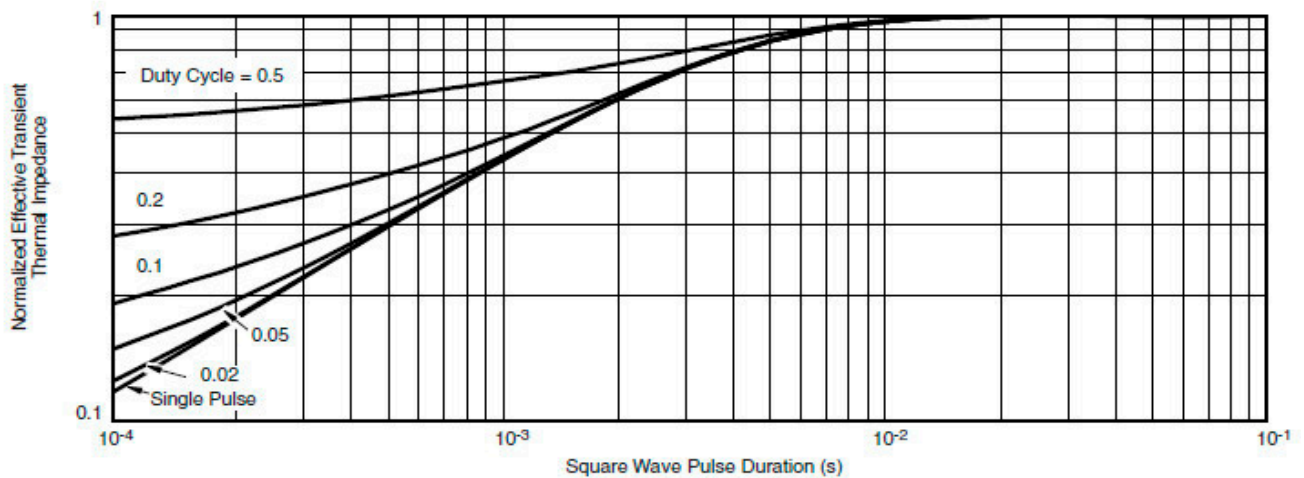
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient



Normalized Thermal Transient Impedance. Junction-to-Case

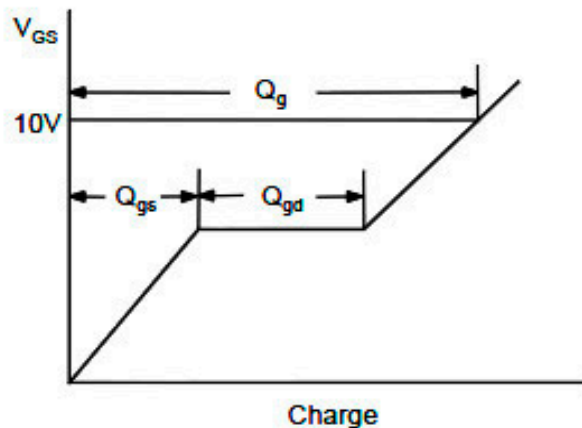
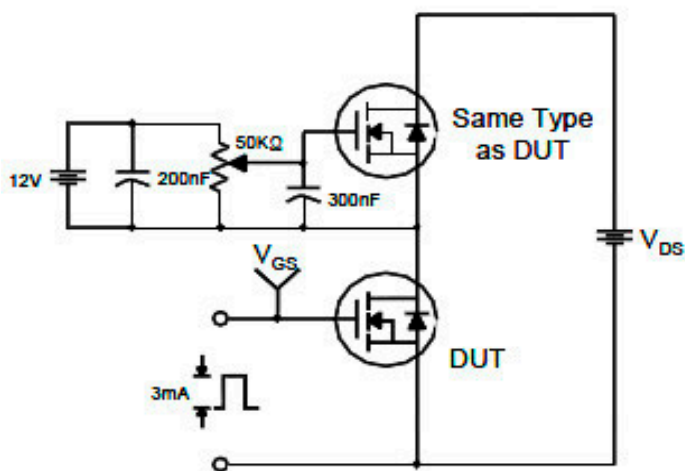
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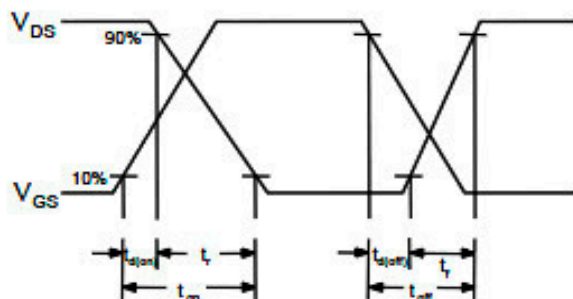
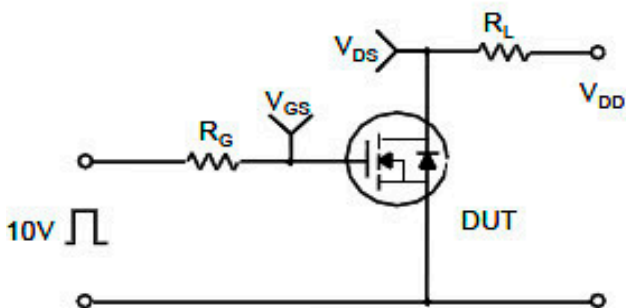
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## 测试电路和波形

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms

