

双 P 沟道 MOSFET

ELM52911WA-N

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

■概要

ELM52911WA-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

- $V_{ds} = -20V$
- $I_d = -4.5A$, $R_{ds(on)} = 96m\Omega$ ($V_{gs} = -4.5V$)
- $I_d = -3.8A$, $R_{ds(on)} = 128m\Omega$ ($V_{gs} = -2.5V$)
- $I_d = -2.5A$, $R_{ds(on)} = 180m\Omega$ ($V_{gs} = -1.8V$)

■绝对最大额定值

如没有特别注明时, $T_a = 25^\circ C$

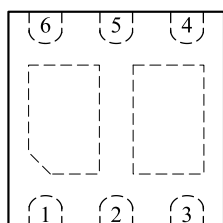
项目	记号	规格范围	单位
漏极 - 源极电压	V_{ds}	-20	V
栅极 - 源极电压	V_{gs}	± 12	V
漏极电流 (定常)	I_d	$T_a = 25^\circ C$	-4.5
		$T_a = 70^\circ C$	-3.8
漏极电流 (脉冲)	I_{dm}	-12	A
容许功耗	P_d	$T_c = 25^\circ C$	6.5
		$T_c = 70^\circ C$	4.2
动作结合部温度	T_j	150	$^\circ C$
保存温度范围	T_{stg}	-55 ~ 150	$^\circ C$

■热特性

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

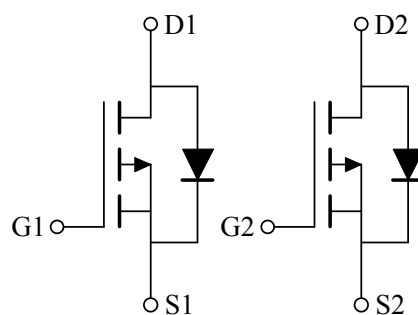
■引脚配置图

DFN6-2 × 2(俯视图)



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

■电路图



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■电特性

如没有特别注明时, Ta=25℃

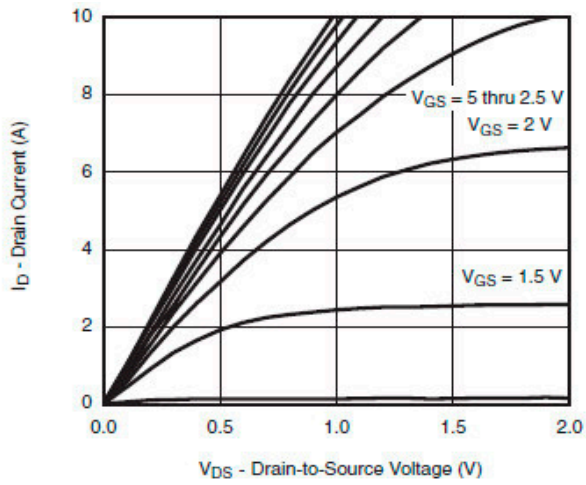
项目	记号	条件	最小值	典型值	最大值	单位
静态特性						
漏极 - 源极击穿电压	BV _{dss}	I _d =-250μA, V _{gs} =0V	-20			V
栅极接地时漏极电流	I _{dss}	V _{ds} =-16V, V _{gs} =0V Ta=85℃			-1	μA
					-30	
栅极漏电流	I _{gss}	V _{ds} =0V, V _{gs} =±12V			±100	nA
栅极阈值电压	V _{gs(th)}	V _{ds} =V _{gs} , I _d =-250μA	-0.3		-0.8	V
导通时漏极电流	I _{d(on)}	V _{gs} =-4.5V, V _{ds} ≥-5V	-8			A
		V _{gs} =-2.5V, V _{ds} ≥-5V	-3			
漏极 - 源极导通电阻	R _{ds(on)}	V _{gs} =-4.5V, I _d =-4.5A		86	96	mΩ
		V _{gs} =-2.5V, I _d =-3.8A		114	128	
		V _{gs} =-1.8V, I _d =-2.5A		150	180	
正向跨导	G _{fs}	V _{ds} =-5V, I _d =-2.8A		6.5		S
二极管正向压降	V _{sd}	I _s =-1.25A, V _{gs} =0V		-0.75	-1.30	V
寄生二极管最大连续电流	I _s				-1.6	A
动态特性						
输入电容	C _{iss}	V _{gs} =0V, V _{ds} =-10V, f=1MHz		375		pF
输出电容	C _{oss}			80		pF
反馈电容	C _{rss}			60		pF
开关特性						
总栅极电荷	Q _g	V _{gs} =-4.5V, V _{ds} =-10V I _d ≡-3.5A		5.00	10.00	nC
栅极 - 源极电荷	Q _{gs}			0.85		nC
栅极 - 漏极电荷	Q _{gd}			1.50		nC
导通延迟时间	t _{d(on)}	V _{gs} =-4.5V, V _{ds} =-10V I _d ≡-3.5A, R _L =2.85Ω R _{gen} =1Ω		15	25	ns
导通上升时间	t _r			36	60	ns
关闭延迟时间	t _{d(off)}			25	50	ns
关闭下降时间	t _f			15	25	ns

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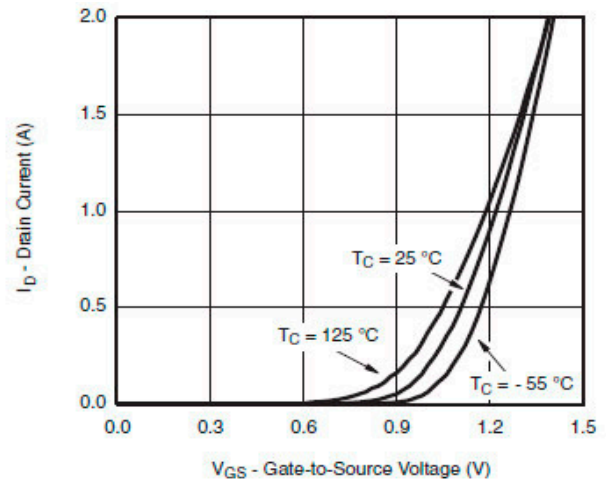
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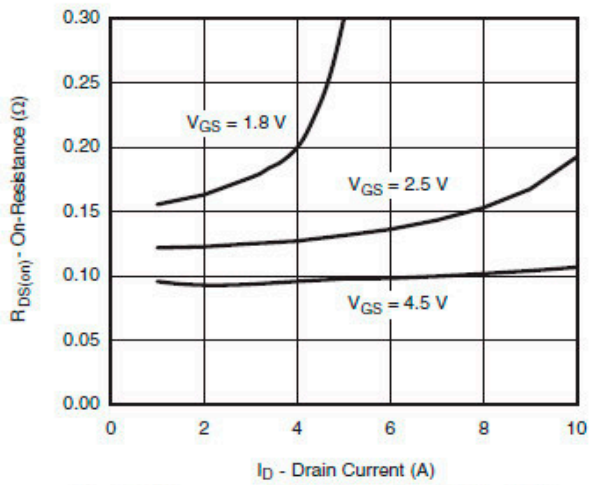
■ 标准特性和热特性曲线



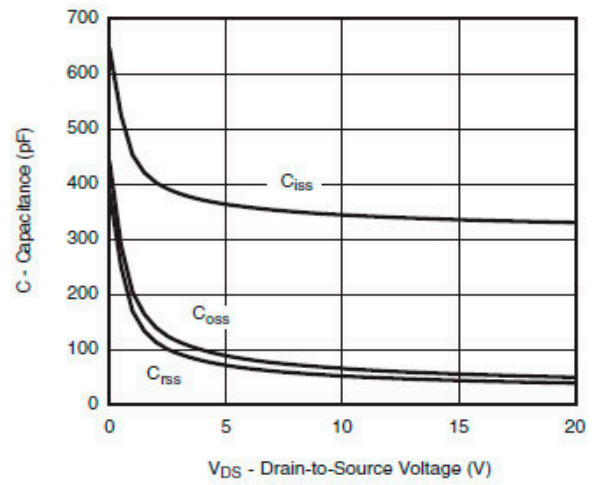
Output Characteristics



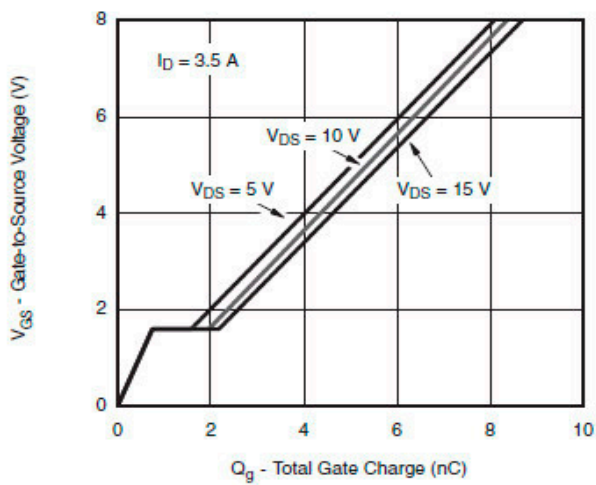
Transfer Characteristics



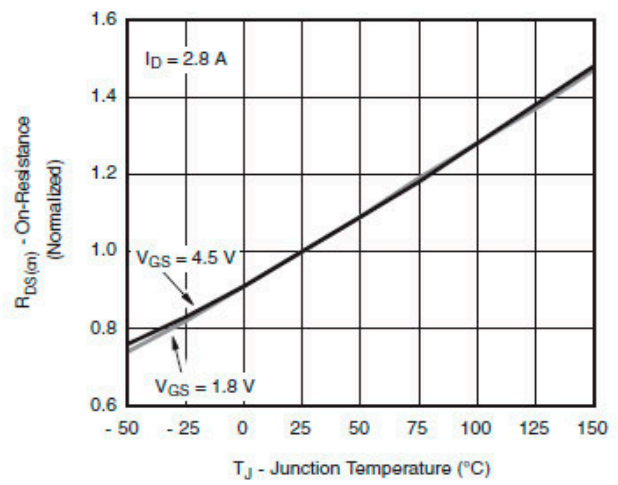
On-Resistance vs. Drain Current and Gate Voltage



Capacitance



Gate Charge

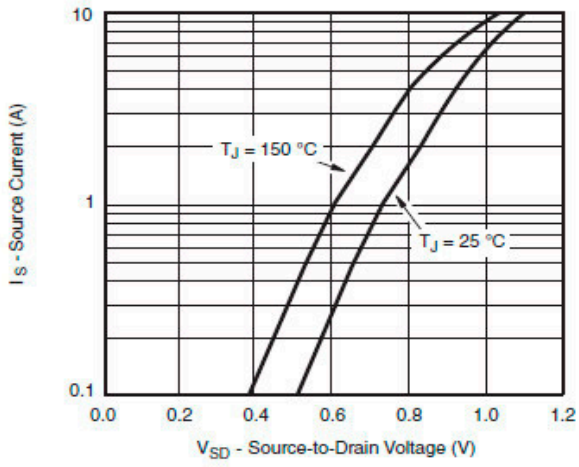


On-Resistance vs. Junction Temperature

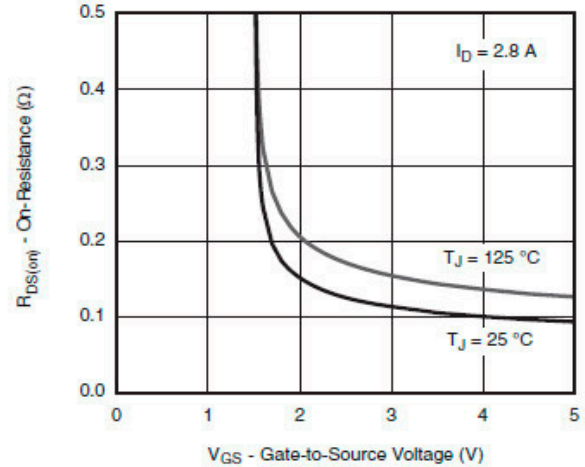
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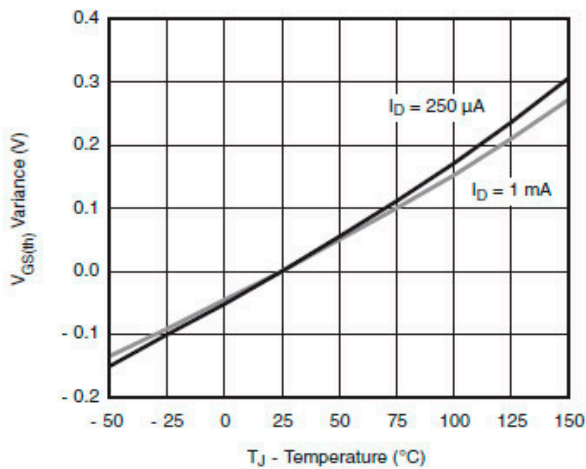
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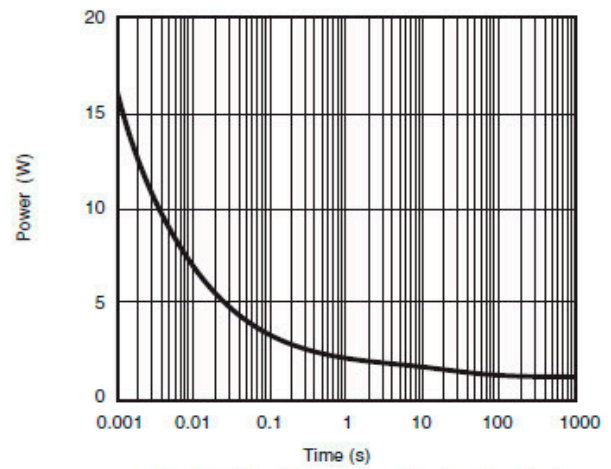
Source-Drain Diode Forward Voltage



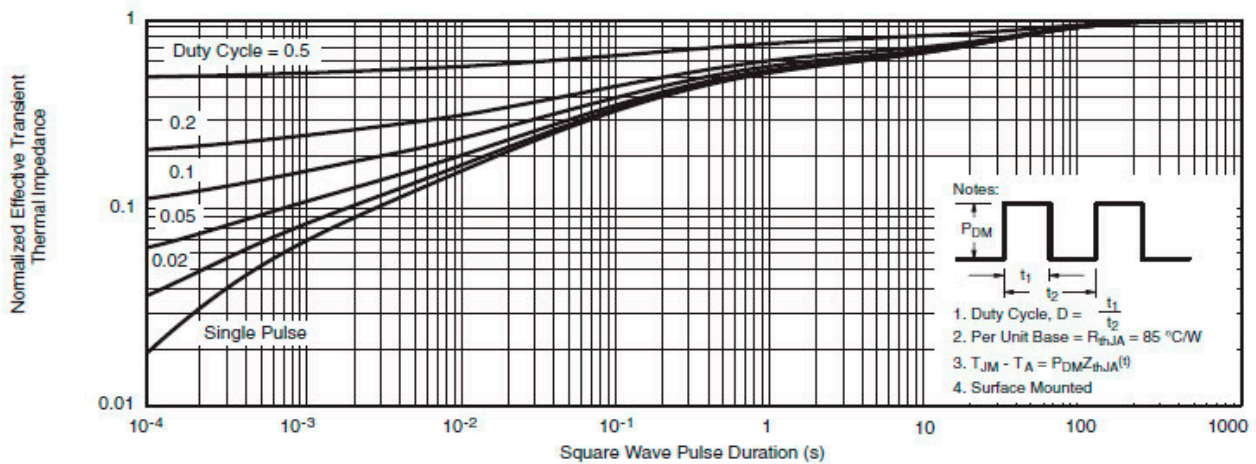
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Ambient

- Notes:
1. Duty Cycle, $D = \frac{t_1}{t_2}$
 2. Per Unit Base = $R_{\theta JA} = 85^\circ\text{C/W}$
 3. $T_{JM} - T_A = P_{DM} Z_{thJA}^{(t)}$
 4. Surface Mounted

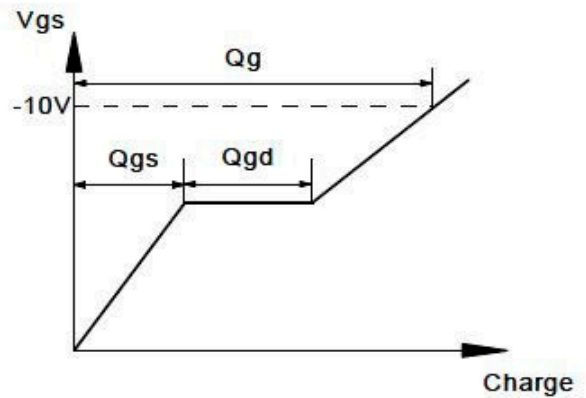
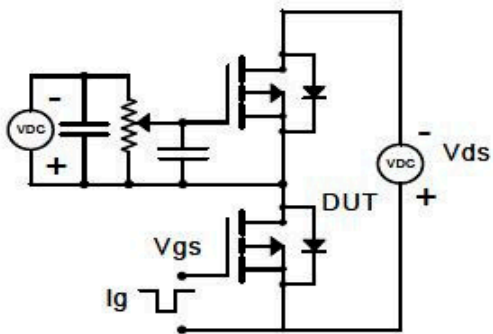
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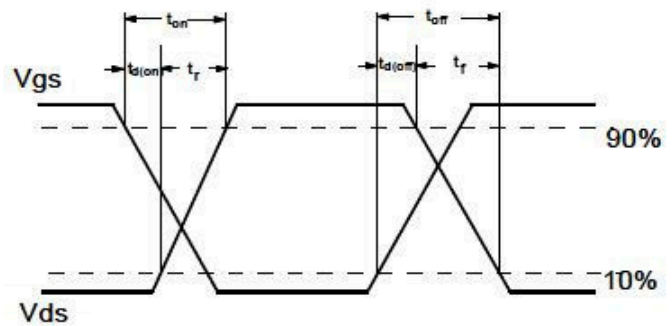
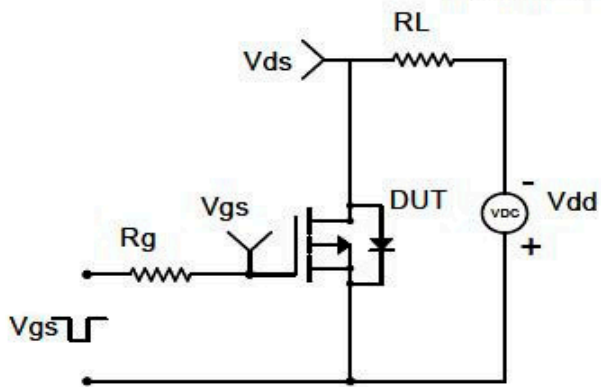
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■ 试验电路图和测试波形图

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

