

单 N 沟道 MOSFET

ELM51062KSA-S

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

■概要

ELM51062KSA-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。另外、此芯片还内藏 ESD 保护电路。

■特点

- $V_{ds}=60V$
- $I_d=0.35A$
- $R_{ds(on)} = 2.4\Omega$ ($V_{gs}=10V$)
- $R_{ds(on)} = 3.0\Omega$ ($V_{gs}=4.5V$)
- ESD 规格：2KV, HBM

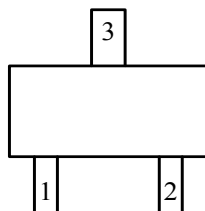
■绝对最大额定值

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}	60	V
栅极 - 源极电压		V_{gs}	± 20	V
漏极电流 (定常) $T_j=150^\circ C$	$T_a=25^\circ C$	I_d	0.35	A
	$T_a=70^\circ C$		0.25	
漏极电流 (脉冲)		I_{dm}	0.65	A
容许功耗	$T_c=25^\circ C$	P_d	0.27	W
	$T_c=70^\circ C$		0.16	
结合部温度及保存温度范围		T_j, T_{stg}	-55 to 150	$^\circ C$
栅极 - 源极 ESD 等级 (HBM, 3015 模式)			2000	V

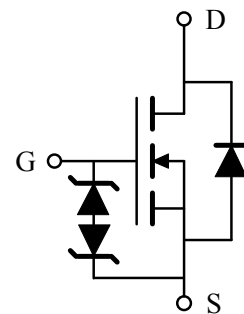
■引脚配置图

SOT-523(俯视图)



引脚编号	引脚名称
1	GATE
2	SOURCE
3	DRAIN

■电路图



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■电特性

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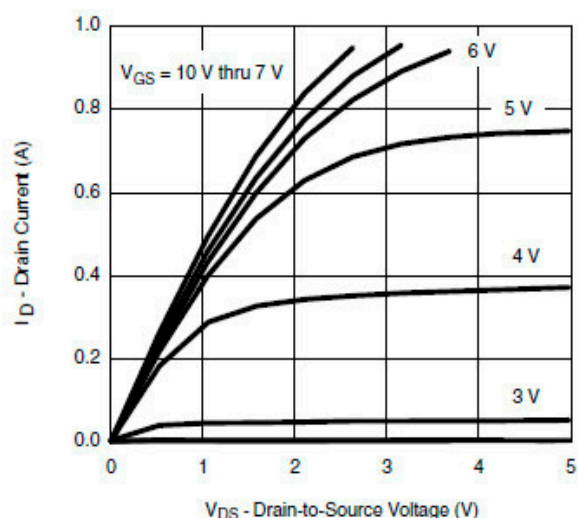
项目	记号	条件	最小值	典型值	最大值	单位	
静态特性							
漏极 – 源极击穿电压	BV _{dss}	I _d =250μA, V _{gs} =0V		60		V	
栅极接地时漏极电流	I _{dss}	V _{ds} =60V V _{gs} =0V			1	μA	
		T _a =85℃			10		
栅极漏电流	I _{gss}	V _{ds} =0V, V _{gs} = ± 20V			3	μA	
栅极阈值电压	V _{gs} (th)	V _{ds} =V _{gs} , I _d =250 μA		1.0	2.0	V	
漏极 – 源极导通电阻	R _{ds} (on)	V _{gs} =10V, I _d =0.5A			1.2	2.4	Ω
		V _{gs} =4.5V, I _d =0.3A			1.6	3.0	
正向跨导	G _{fs}	V _{ds} =10V, I _d =0.2A			0.2	S	
二极管正向压降	V _{sd}	I _s =0.2A, V _{gs} =0V			0.75	1.40	V
寄生二极管最大连续电流	I _s				0.45	A	
动态特性							
输入电容	C _{iss}	V _{gs} =0V, V _{ds} =25V, f=1MHz			30	pF	
输出电容	C _{oss}				8	pF	
反馈电容	C _{rss}				5	pF	
开关特性							
总栅极电荷	Q _g	V _{gs} =4.5V, V _{ds} =10V, I _d ≡0.25A			400	pC	
栅极 – 源极电荷	Q _{gs}				110	pC	
栅极 – 漏极电荷	Q _{gd}				150	pC	
导通延迟时间	t _d (on)	V _{gs} =4.5V, V _{ds} =30V R _L =150Ω, I _d ≡0.2A R _{gen} =10Ω			10	20	ns
导通上升时间	t _r				35	50	ns
关闭延迟时间	t _d (off)				20	30	ns
关闭下降时间	t _f				40	60	ns

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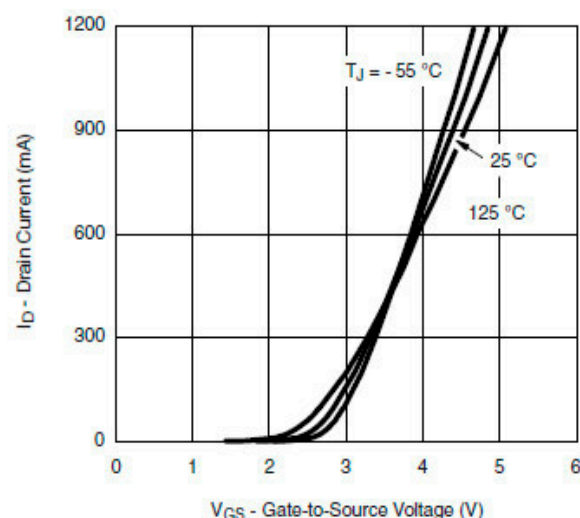
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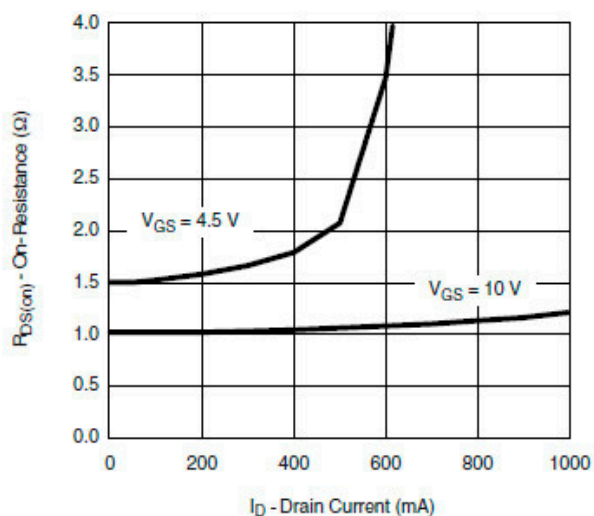
■ 标准特性和热特性曲线



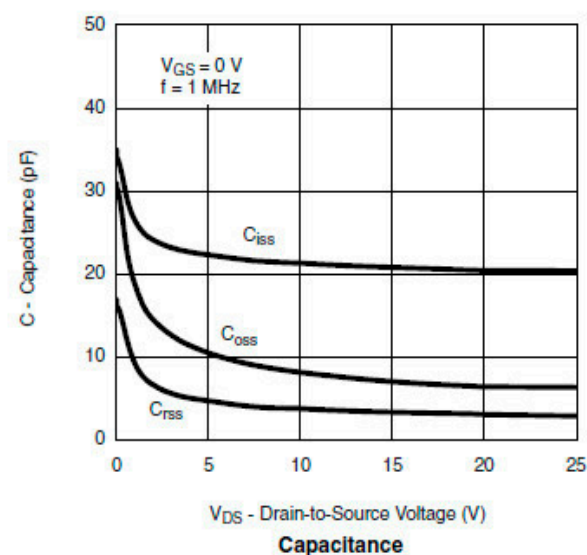
Output Characteristics



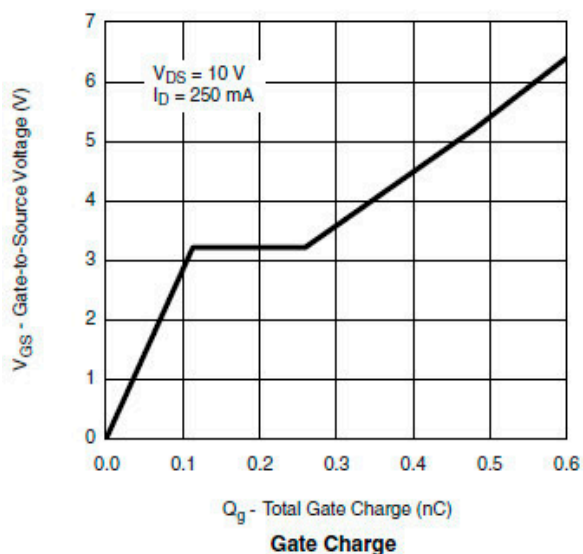
Transfer Characteristics



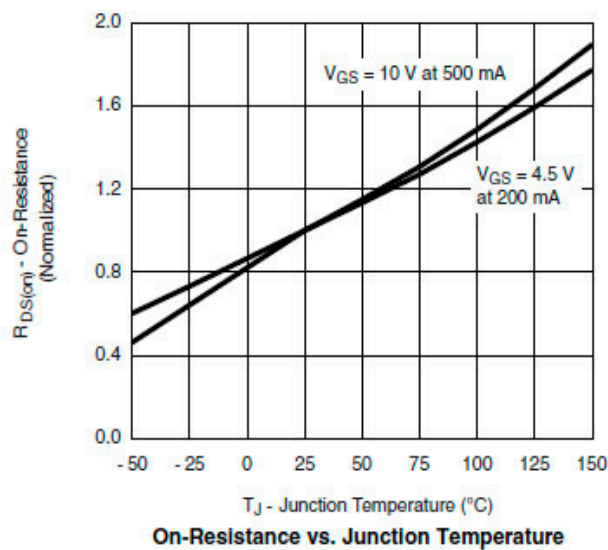
On-Resistance vs. Drain Current



Capacitance



Gate Charge

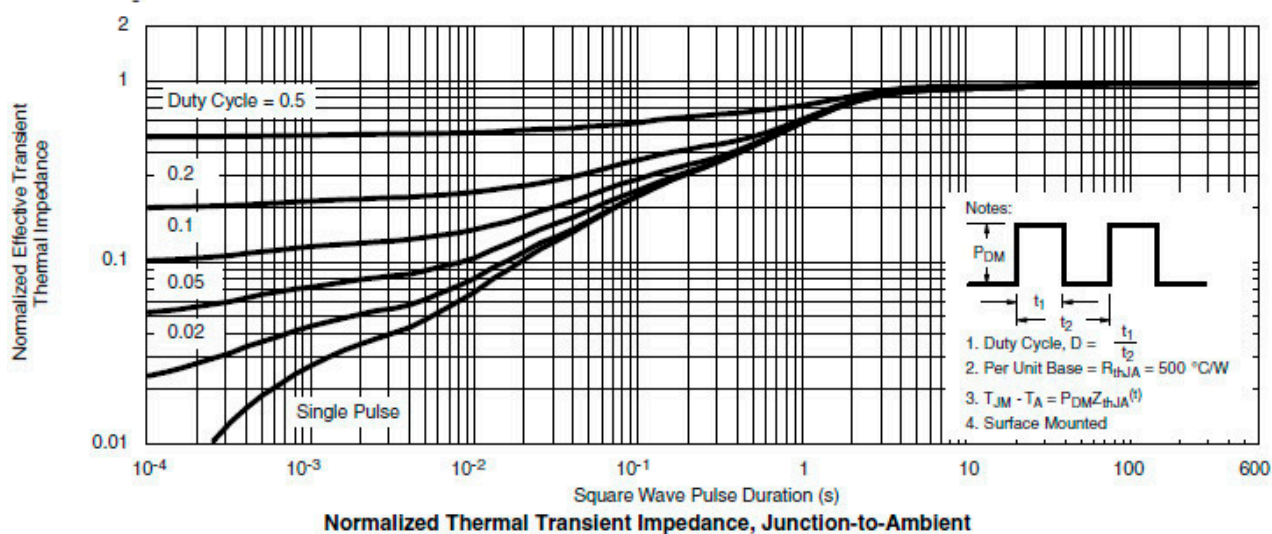
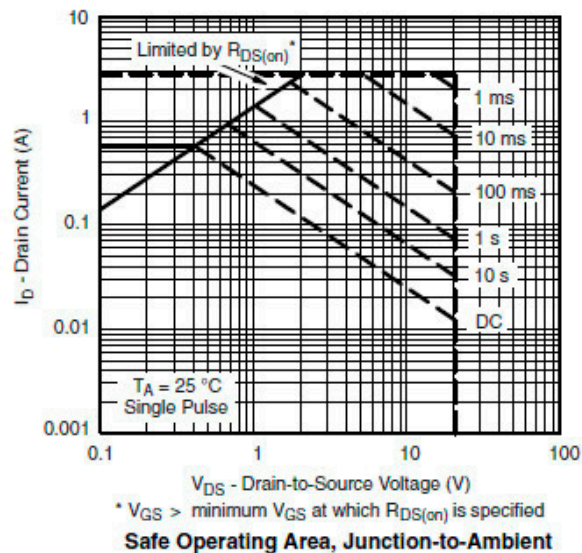
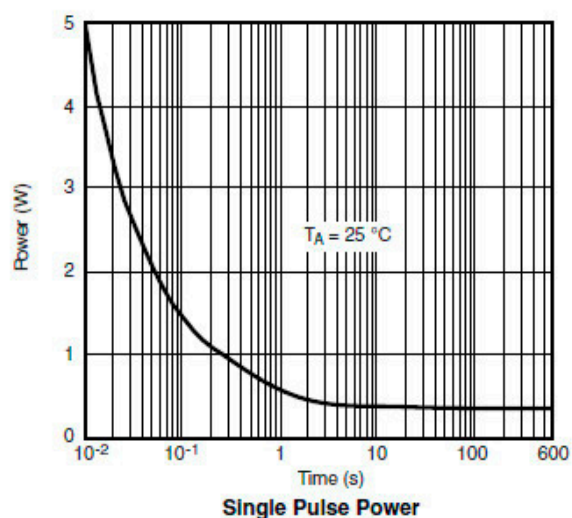
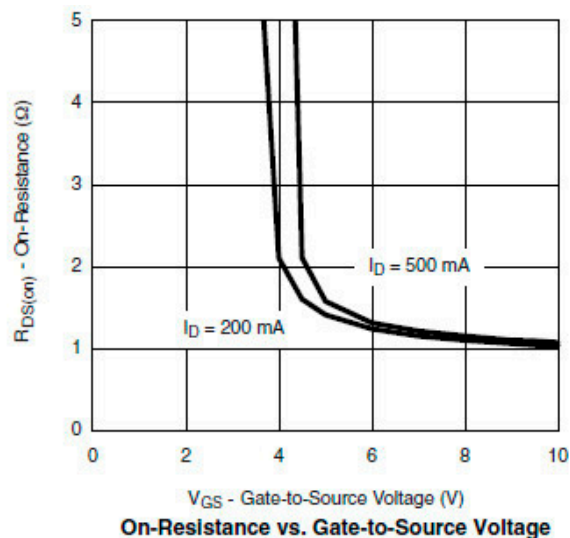
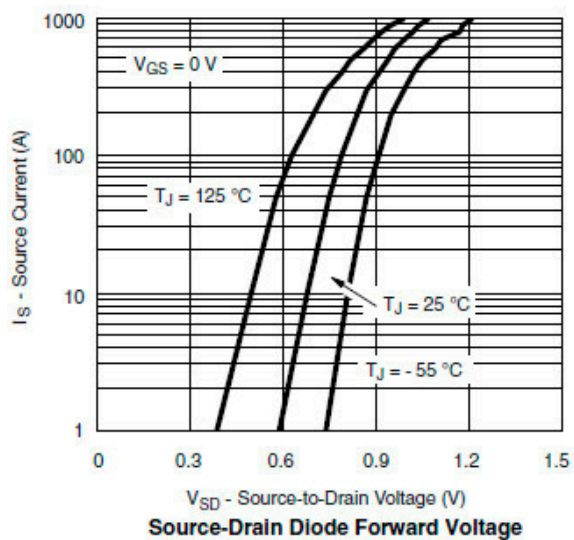


On-Resistance vs. Junction Temperature

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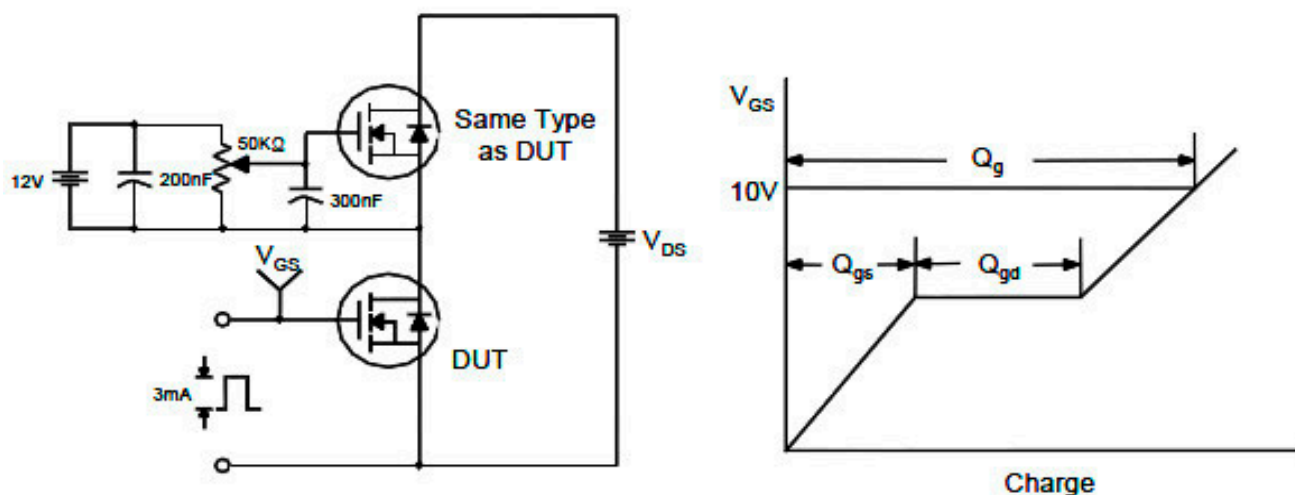
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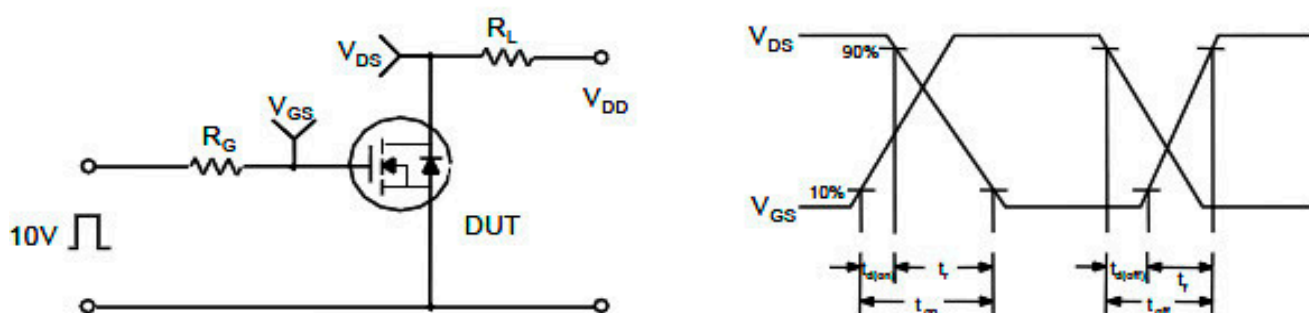
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■测试电路和波形

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms

