

双 N 沟道 MOSFET

ELM51024EA-S

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

■概要

ELM51024EA-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，内藏有两个 MOSFET。另外，此芯片还内藏 ESD 保护电路。

■特点

- $V_{ds}=20V$
- $I_d=0.7A$
- $R_{ds(on)} = 360m\Omega$ ($V_{gs}=4.5V$)
- $R_{ds(on)} = 420m\Omega$ ($V_{gs}=2.5V$)
- $R_{ds(on)} = 560m\Omega$ ($V_{gs}=1.8V$)
- ESD 保护

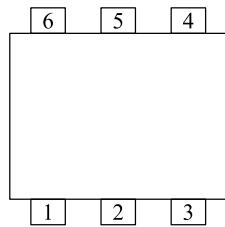
■绝对最大额定值

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 ($T_j=150^\circ C$)	$T_a=25^\circ C$	I_d	0.7	A
	$T_a=70^\circ C$		0.4	
漏极电流 (脉冲)		I_{dm}	1.0	A
容许功耗	$T_c=25^\circ C$	P_d	0.27	W
	$T_c=70^\circ C$		0.16	
动作结合部温度		T_j	$-55 \sim 150$	$^\circ C$
保存温度范围		T_{stg}	$-55 \sim 150$	$^\circ C$

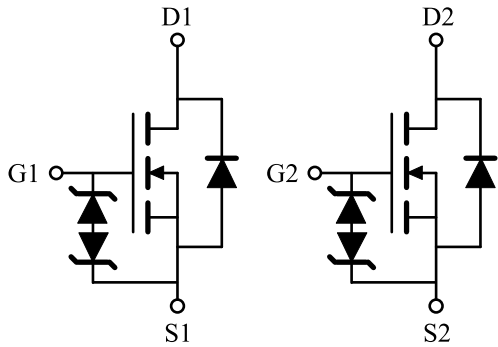
■引脚配置图

SOT-563(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

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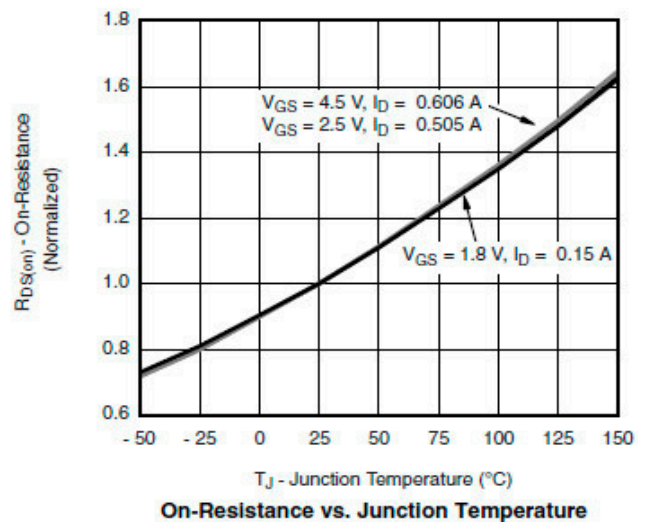
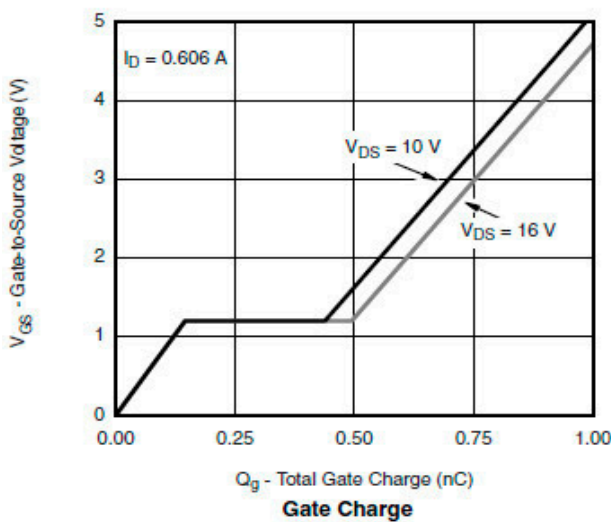
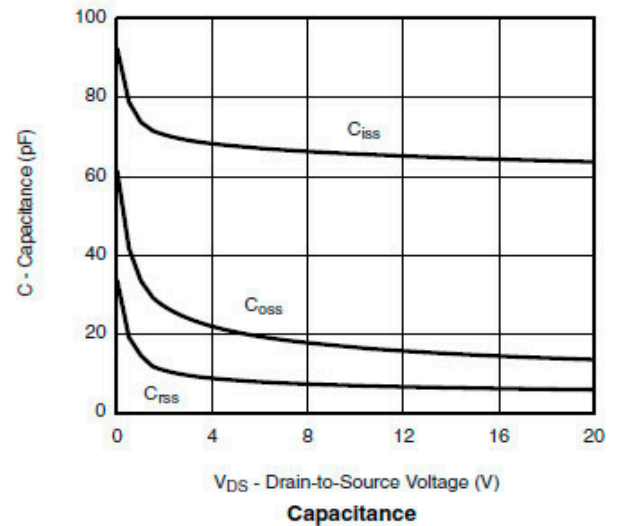
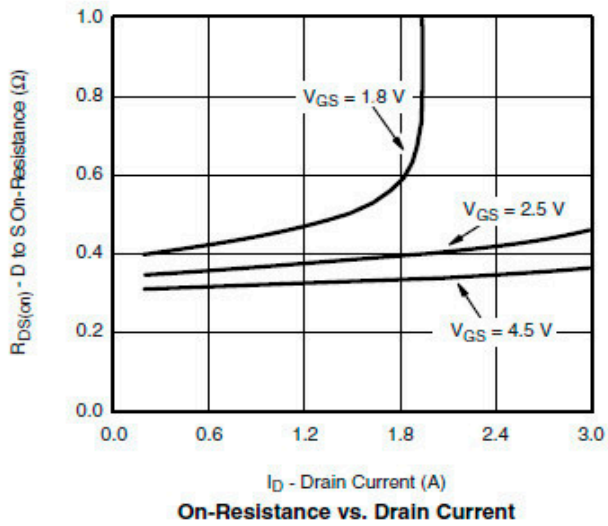
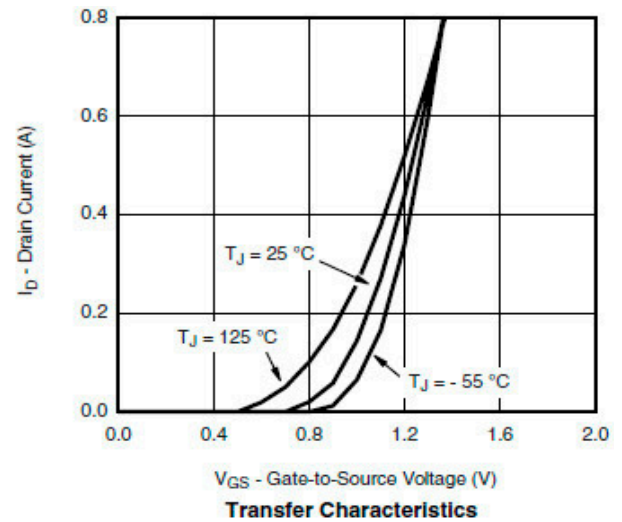
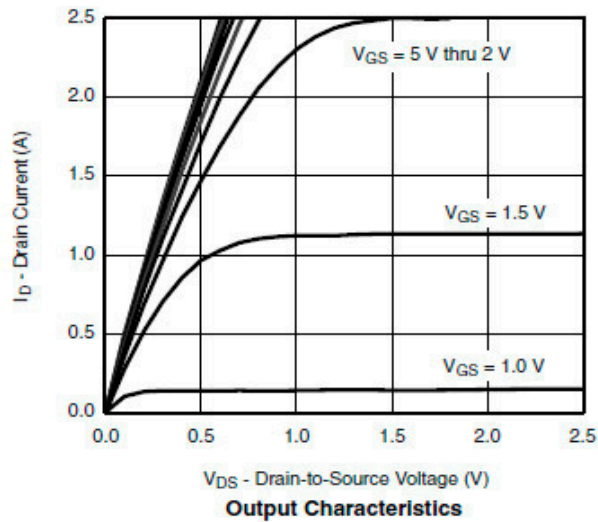
项目	记号	条件	最小值	典型值	最大值	单位
静态特性						
漏极 – 源极击穿电压	BV _{dss}	Id=250μA, V _{gs} =0V	20			V
栅极接地时漏极电流	Id _{ss}	V _{ds} =16V, V _{gs} =0V			1	μA
		T _a =85℃			5	
栅极漏电电流	I _{gss}	V _{ds} =0V, V _{gs} = ± 12V			± 1	mA
栅极阈值电压	V _{gs} (th)	V _{ds} =V _{gs} , Id=250 μA	0.3		0.8	V
导通时漏极电流	Id(on)	V _{gs} =4.5V, V _{ds} ≥5V	0.7			A
漏极 – 源极导通电阻	R _{ds} (on)	V _{gs} =4.5V , Id=0.6A		240	360	mΩ
		V _{gs} =2.5V, Id=0.5A		300	420	
		V _{gs} =1.8V, Id=0.4A		420	560	
正向跨导	G _{fs}	V _{ds} =10V, Id=0.4A		1		S
二极管正向压降	V _{sd}	I _s =0.15A, V _{gs} =0V		0.8	1.2	V
寄生二极管最大连续电流	I _s				0.3	A
动态特性						
输入电容	C _{iss}	V _{gs} =0V, V _{ds} =10V, f=1MHz		70		pF
输出电容	C _{oss}			20		pF
反馈电容	C _{rss}			8		pF
开关特性						
总栅极电荷	Q _g	V _{gs} =4.5V, V _{ds} =10V, Id≡0.6A		1.06	1.38	nC
栅极 – 源极电荷	Q _{gs}			0.18		nC
栅极 – 漏极电荷	Q _{gd}			0.32		nC
导通延迟时间	t _d (on)	V _{gs} =4.5V, V _{ds} =10V RL=20Ω, Id≡0.5A, R _{gen} =1.0Ω		18	26	ns
导通上升时间	t _r			20	28	ns
关闭延迟时间	t _d (off)			70	110	ns
关闭下降时间	t _f			25	40	ns

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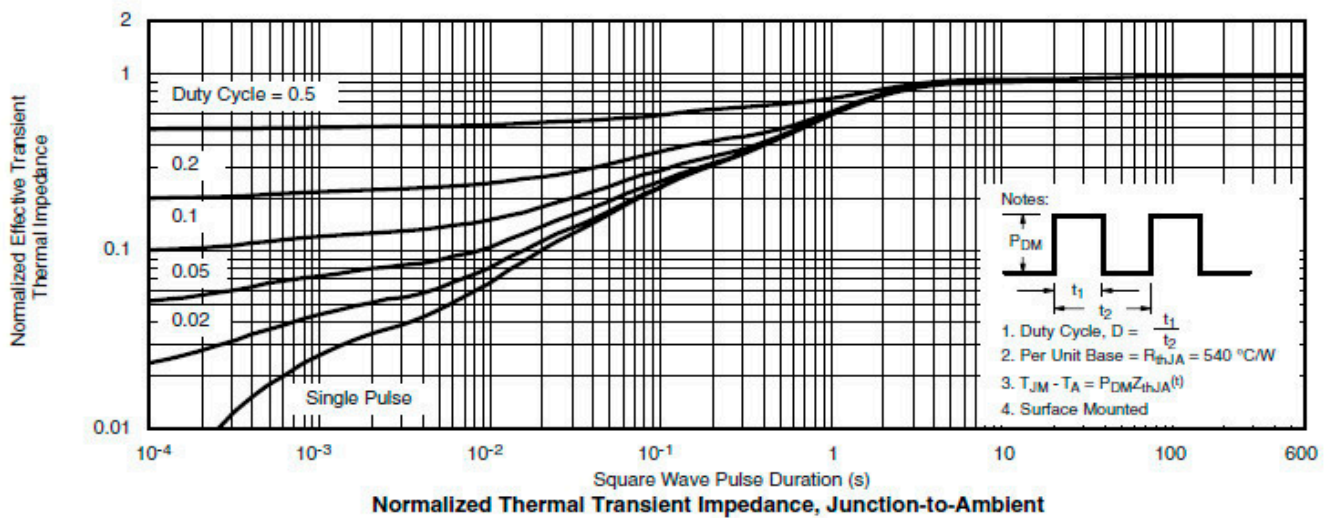
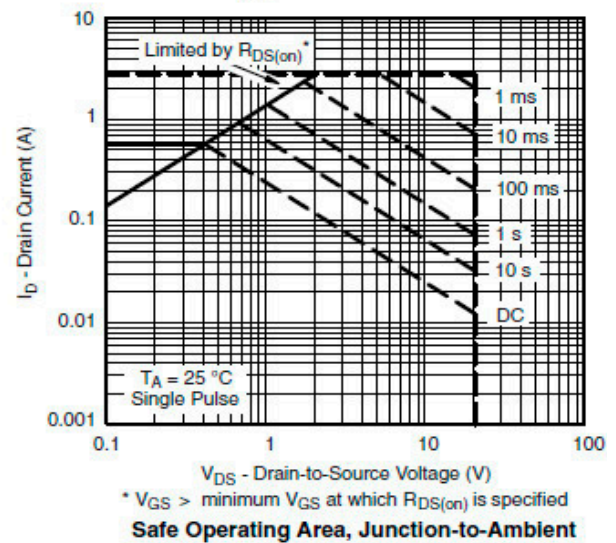
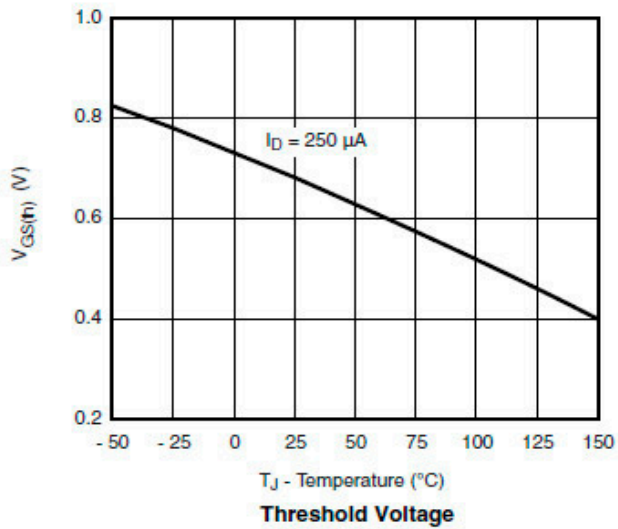
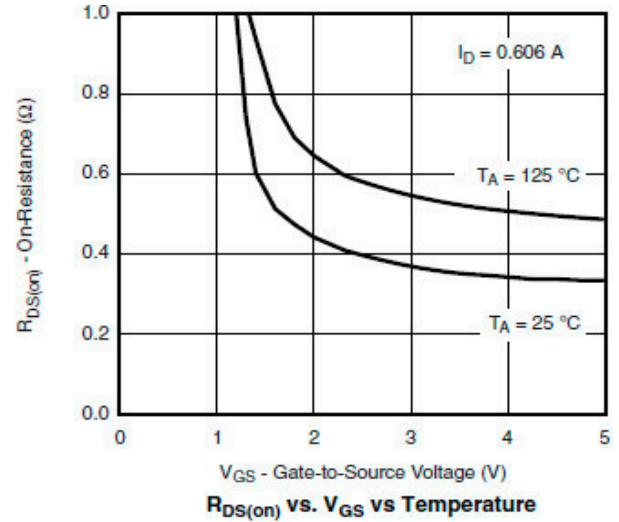
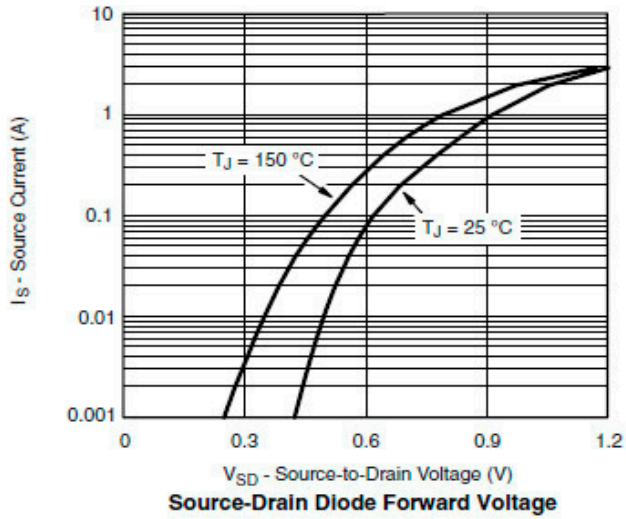
■ 标准特性和热特性曲线



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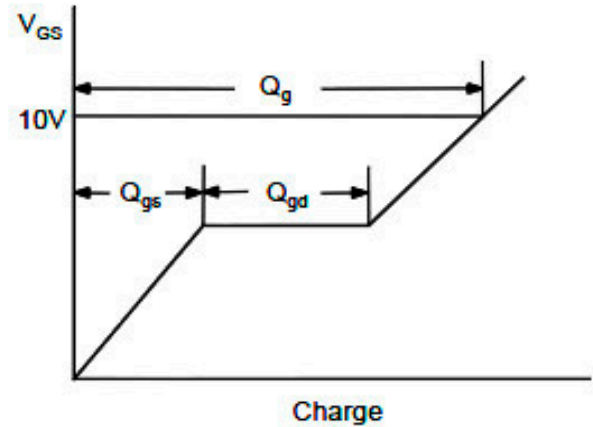
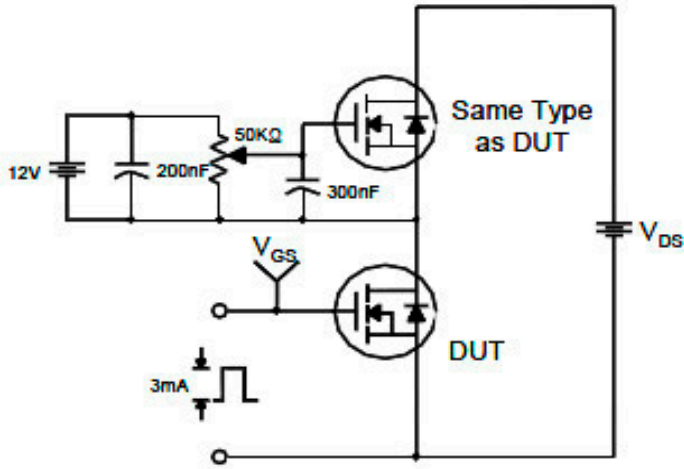
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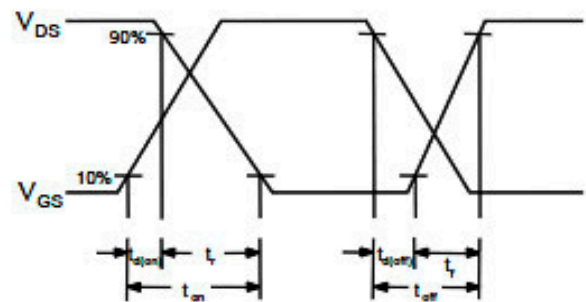
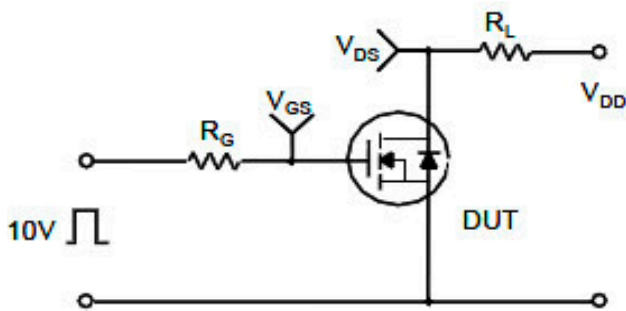
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■测试电路和波形

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