

单 N 沟道 MOSFET

ELM57400A-S

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

■ 概要

ELM57400A-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

- $V_{ds}=30V$
- $I_d=3.6A$
- $R_{ds(on)} = 82m\Omega$ ($V_{gs}=10V$)
- $R_{ds(on)} = 90m\Omega$ ($V_{gs}=4.5V$)
- $R_{ds(on)} = 102m\Omega$ ($V_{gs}=2.5V$)

■ 绝对最大额定值

如没有特别注明时, $T_a=25^\circ C$

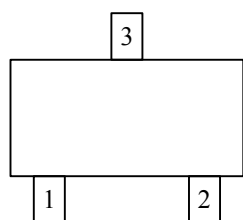
项目	记号	规格范围	单位
漏极 - 源极电压	V_{ds}	30	V
栅极 - 源极电压	V_{gs}	± 12	V
漏极电流 (定常) ($T_j=150^\circ C$)	Id	$T_a=25^\circ C$	3.6
		$T_a=70^\circ C$	2.6
漏极电流 (脉冲)	I_{dm}	10	A
容许功耗	Pd	$T_c=25^\circ C$	0.35
		$T_c=70^\circ C$	0.22
结合部温度及保存温度范围	T_j, T_{stg}	- 55 ~ 150	$^\circ C$

■ 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	$^\circ C/W$

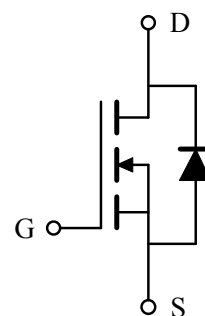
■ 引脚配置图

SC-70(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

如没有特别注明时, Ta=25℃

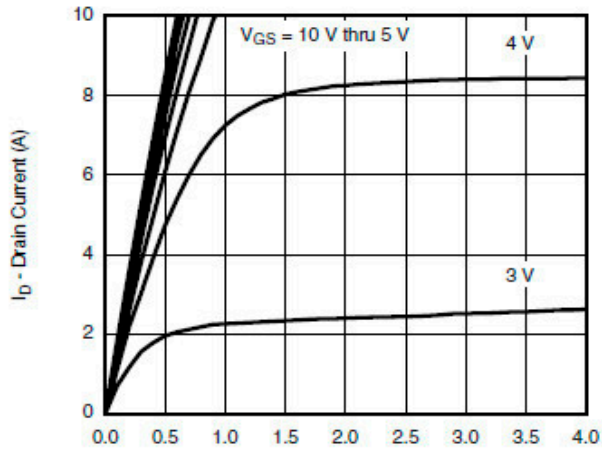
项目	记号	条件	最小值	典型值	最大值	单位
静态特性						
漏极 - 源极击穿电压	BV _{dss}	I _d =250μA, V _{gs} =0V	30			V
栅极接地时漏极电流	I _{dss}	V _{ds} =24V V _{gs} =0V			1	μA
		Ta=85℃			30	
栅极漏电流	I _{gss}	V _{ds} =0V, V _{gs} =±12V			±100	nA
栅极阈值电压	V _{gs(th)}	V _{ds} =V _{gs} , I _d =250μA	0.3		1.2	V
导通时漏极电流	I _{d(on)}	V _{gs} =4.5V, V _{ds} =5V	30			A
漏极 - 源极导通电阻	R _{dson}	V _{gs} =10V, I _d =3.6A		77	82	mΩ
		V _{gs} =4.5V, I _d =3.0A		82	90	
		V _{gs} =2.5V, I _d =2.2A		93	102	
正向跨导	G _{fs}	V _{ds} =10V, I _d =6.1A		20		S
二极管正向压降	V _{sD}	I _s =1.7A, V _{gs} =0V		0.8	1.2	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} =15V, f=1MHz		280		pF
输出电容	C _{oss}			40		pF
反馈电容	C _{rss}			20		pF
开关特性						
总栅极电荷	Q _g	V _{gs} =4.5V, V _{ds} =15V, I _d =3.6A		2.3	3.0	nC
栅极 - 源极电荷	Q _{gs}			1.0		nC
栅极 - 漏极电荷	Q _{gd}			0.6		nC
导通延迟时间	t _{d(on)}	V _{gs} =10V, V _{ds} =15V I _d =1.0A, R _L =15Ω R _{gen} =6Ω		10	15	ns
导通上升时间	t _r			12	20	ns
关闭延迟时间	t _{d(off)}			15	25	ns
关闭下降时间	t _f			10	15	ns

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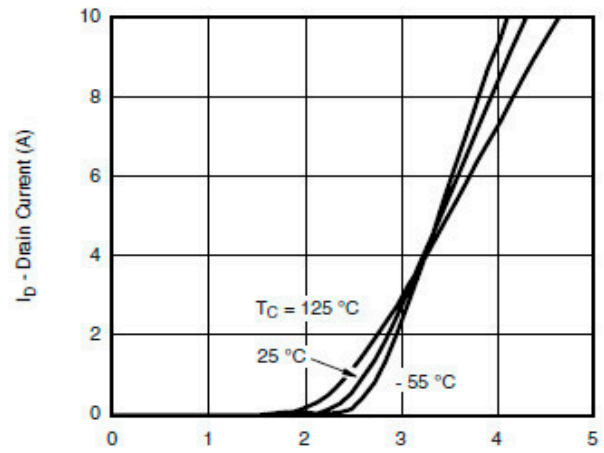
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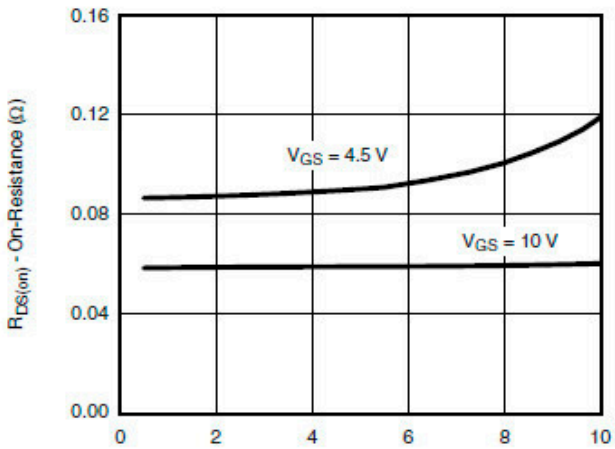
■ 标准特性和热特性曲线



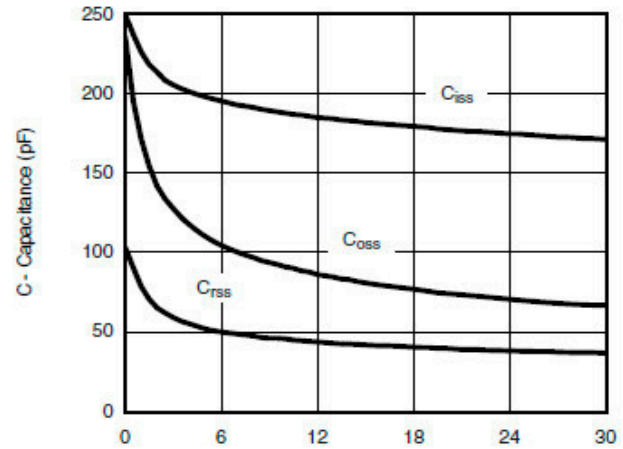
Output Characteristics



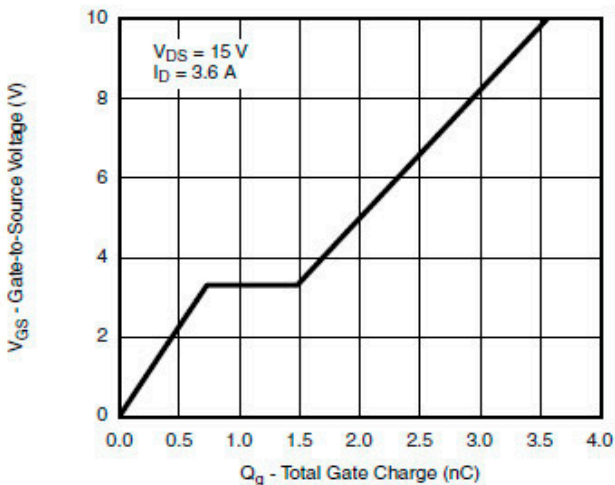
Transfer Characteristics



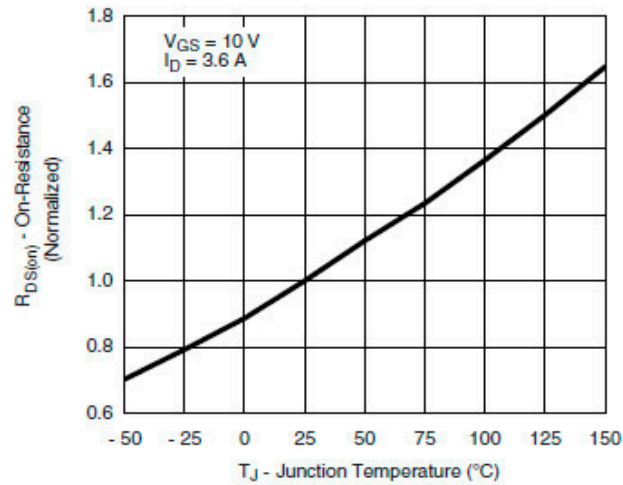
On-Resistance vs. Drain Current



Capacitance



Gate Charge

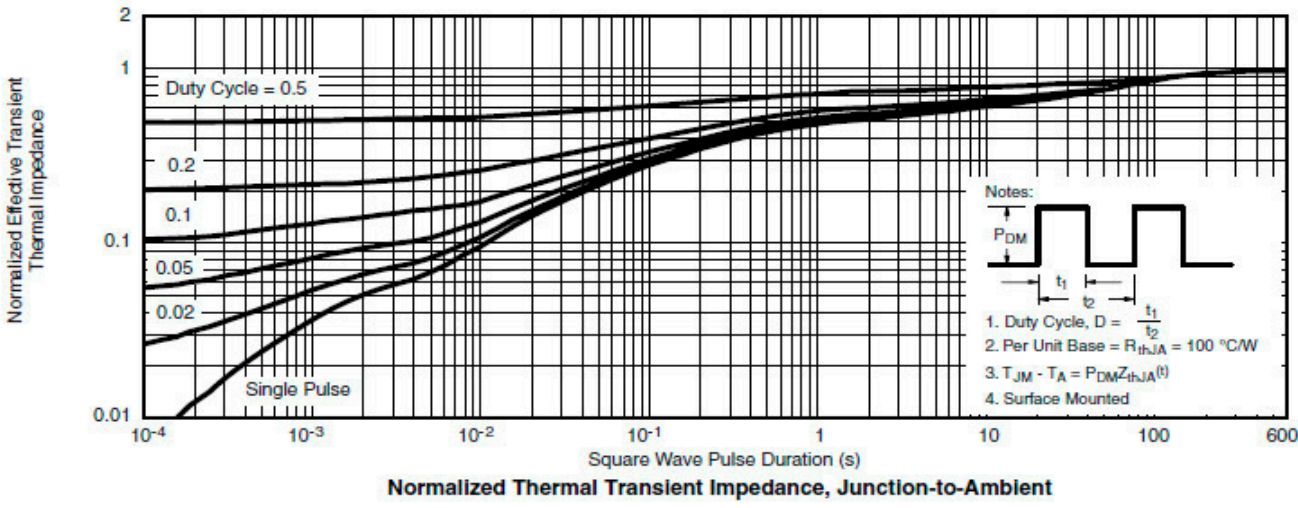
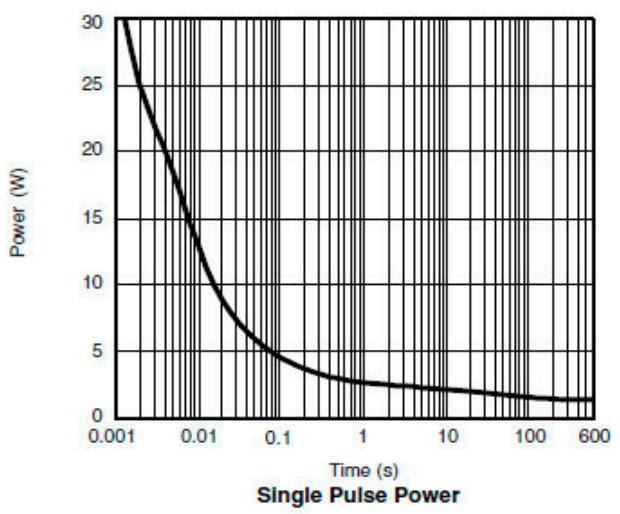
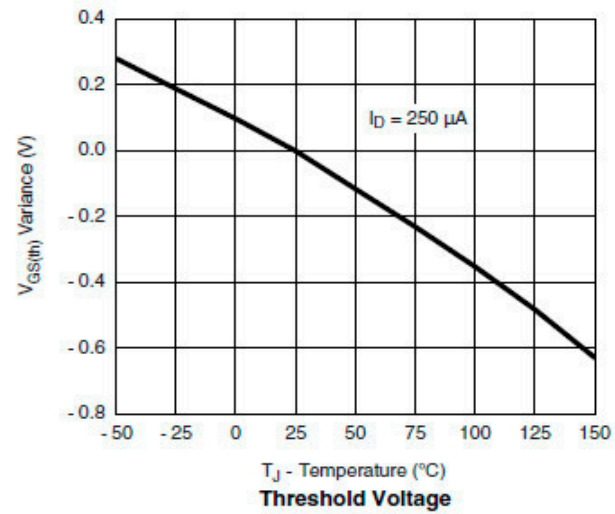
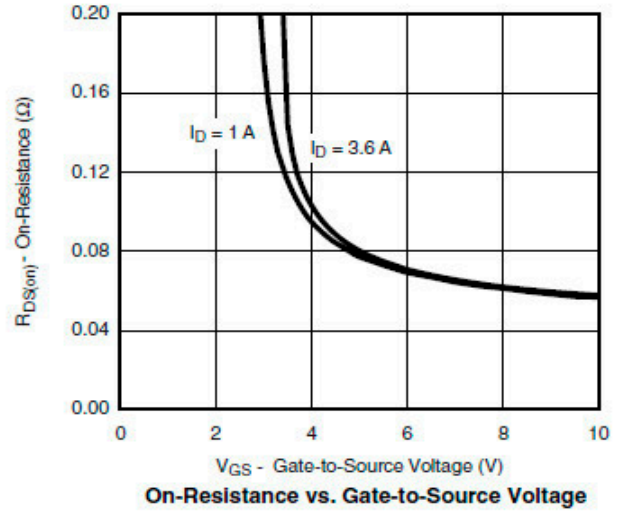
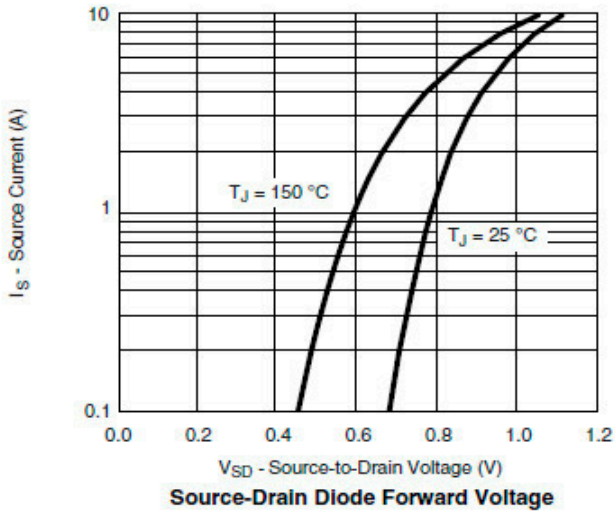


On-Resistance vs. Junction Temperature

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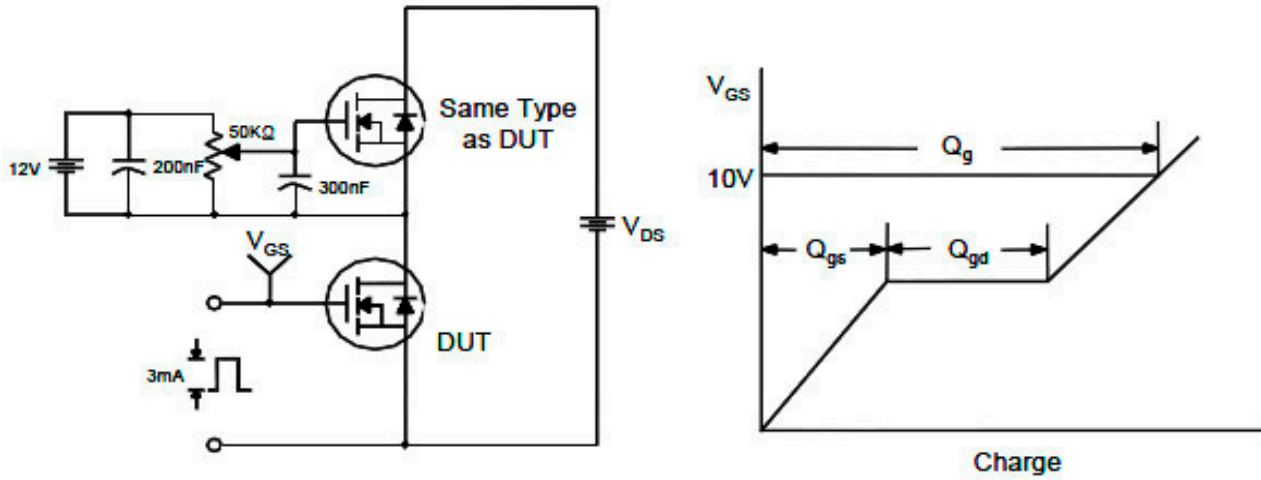
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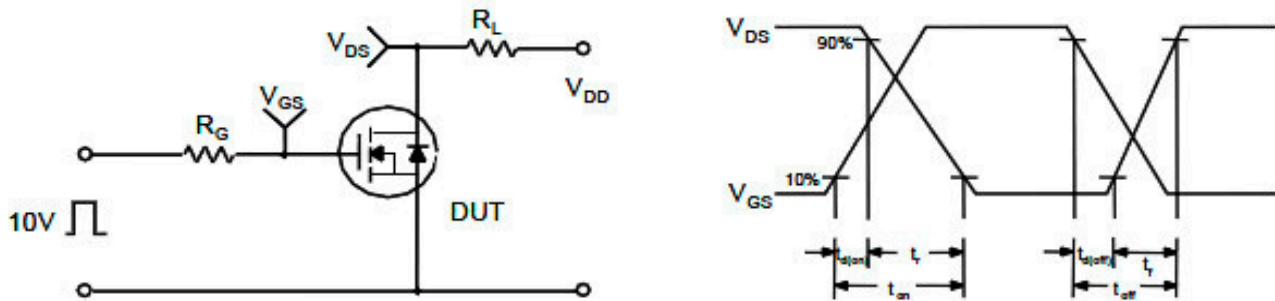
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