

# 单 P 沟道 MOSFET

ELM58473A-S

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

## ■概要

ELM58473A-S 是 P 沟道低输入电容,低工作电压,低导通电阻的大电流 MOSFET。

## ■特点

- $V_{ds} = -60V$
- $I_d = -4.8A$
- $R_{ds(on)} = 135m\Omega$  ( $V_{gs} = -10V$ )
- $R_{ds(on)} = 155m\Omega$  ( $V_{gs} = -4.5V$ )

## ■绝对最大额定值

如没有特别注明时,  $T_a = 25^\circ C$

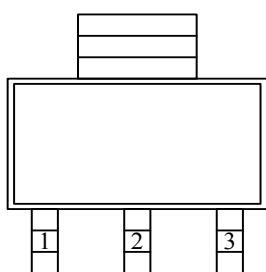
项目	记号	规格范围	单位	
漏极 - 源极电压	$V_{dss}$	-60	V	
栅极 - 源极电压	$V_{gs}$	$\pm 20$	V	
漏极电流 (定常)	Id	$T_a = 25^\circ C$	-4.8	A
		$T_a = 70^\circ C$	-3.6	
漏极电流 (脉冲)	$I_{dm}$	-10	A	
容许功耗	Pd	$T_c = 25^\circ C$	2.8	W
		$T_c = 70^\circ C$	1.2	
结合部温度及保存温度范围	$T_j, T_{stg}$	- 55 ~ 150	$^\circ C$	

## ■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	$^\circ C/W$

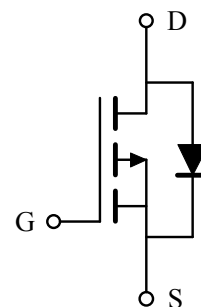
## ■引脚配置图

SOT-223(俯视图)



引脚编号	引脚名称
1	GATE
2	DRAIN
3	SOURCE

## ■电路图



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## ■电特性

如没有特别注明时, Ta=25℃

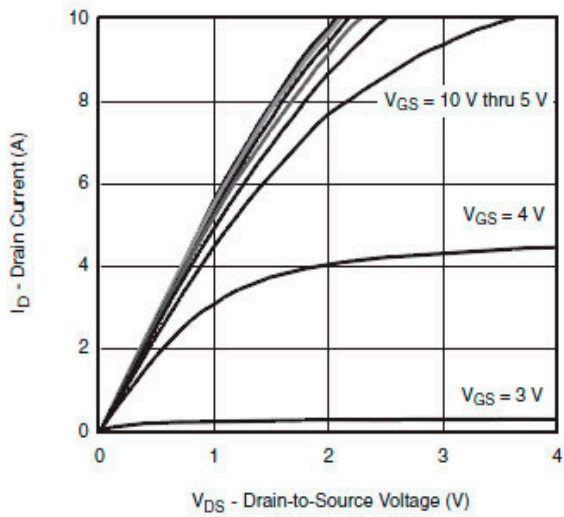
项目	记号	条件	最小值	典型值	最大值	单位
静态特性						
漏极 - 源极击穿电压	BV <sub>dss</sub>	I <sub>d</sub> =-250μA, V <sub>gs</sub> =0V	-60			V
栅极接地时漏极电流	I <sub>dss</sub>	V <sub>ds</sub> =-48V, V <sub>gs</sub> =0V Ta=85℃			-1	μA
					-30	
栅极漏电流	I <sub>gss</sub>	V <sub>ds</sub> =0V, V <sub>gs</sub> =±12V			±100	nA
栅极阈值电压	V <sub>gs(th)</sub>	V <sub>ds</sub> =V <sub>gs</sub> , I <sub>d</sub> =-250μA	-1.0		-2.0	V
导通时漏极电流	I <sub>d(on)</sub>	V <sub>gs</sub> =-10V, V <sub>ds</sub> =-5V	-5			A
漏极 - 源极导通电阻	R <sub>ds(on)</sub>	V <sub>gs</sub> =-10V, I <sub>d</sub> =-4.8A		125	135	mΩ
		V <sub>gs</sub> =-4.5V, I <sub>d</sub> =-3.6A		135	155	
正向跨导	G <sub>fs</sub>	V <sub>ds</sub> =-15V, I <sub>d</sub> =-2.2A		5		S
二极管正向压降	V <sub>sd</sub>	I <sub>s</sub> =-1.5A, V <sub>gs</sub> =0V		-0.75	-1.30	V
寄生二极管最大连续电流	I <sub>s</sub>				-1.6	A
动态特性						
输入电容	C <sub>iss</sub>	V <sub>gs</sub> =0V, V <sub>ds</sub> =-30V, f=1MHz		410		pF
输出电容	C <sub>oss</sub>			45		pF
反馈电容	C <sub>rss</sub>			20		pF
开关特性						
总栅极电荷	Q <sub>g</sub>	V <sub>gs</sub> =-4.5V, V <sub>ds</sub> =-30V I <sub>d</sub> =-2.2A		5.0	10.0	nC
栅极 - 源极电荷	Q <sub>gs</sub>			1.5		nC
栅极 - 漏极电荷	Q <sub>gd</sub>			2.5		nC
导通延迟时间	t <sub>d(on)</sub>	V <sub>gs</sub> =-10V, V <sub>ds</sub> =-30V R <sub>L</sub> =16.7Ω, I <sub>d</sub> =-1.8A R <sub>gen</sub> =1Ω		5	10	ns
导通上升时间	t <sub>r</sub>			15	25	ns
关闭延迟时间	t <sub>d(off)</sub>			20	35	ns
关闭下降时间	t <sub>f</sub>			10	20	ns

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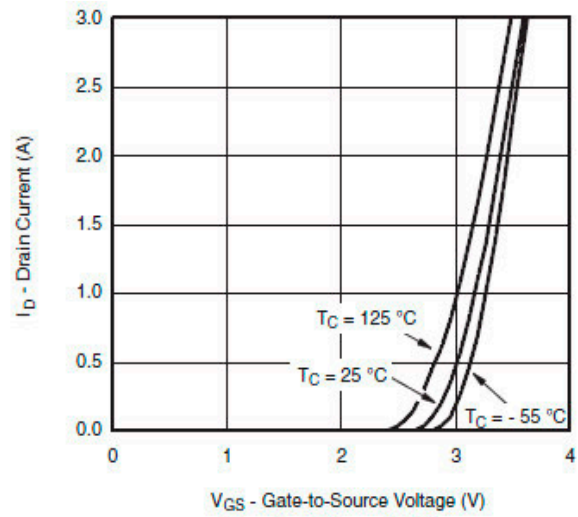
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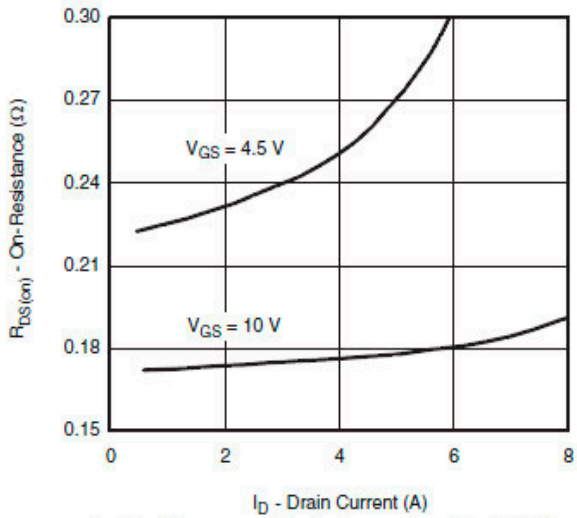
## 标准特性和热特性曲线



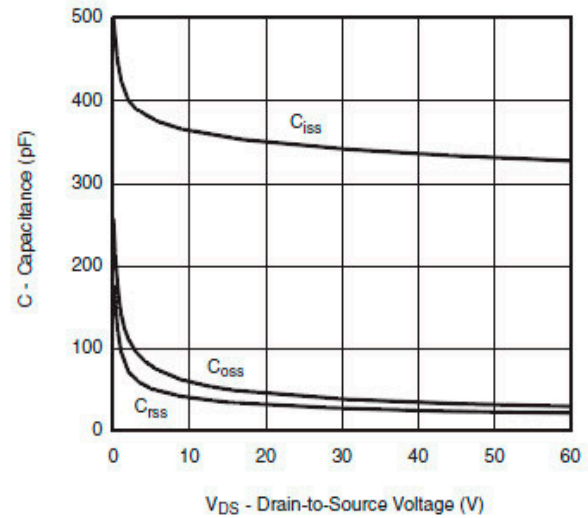
Output Characteristics



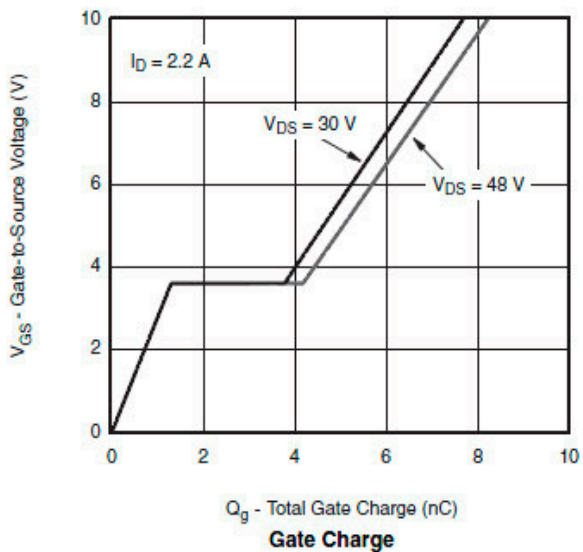
Transfer Characteristics



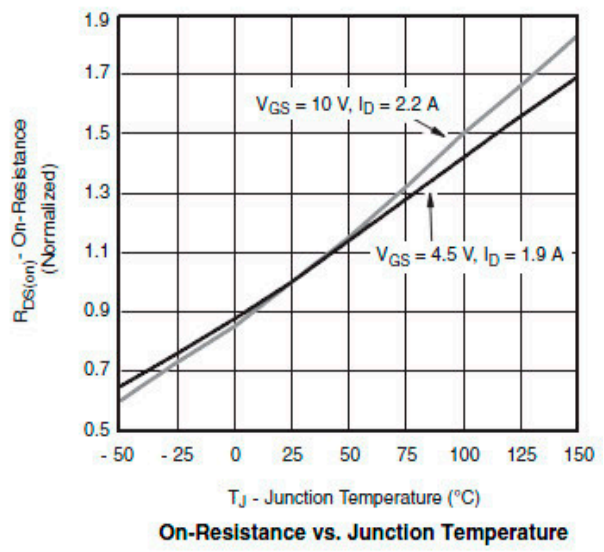
On-Resistance vs. Drain Current and Gate Voltage



Capacitance



Gate Charge

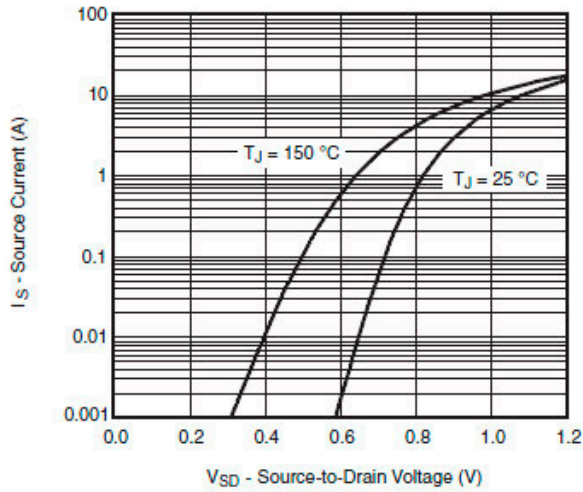


On-Resistance vs. Junction Temperature

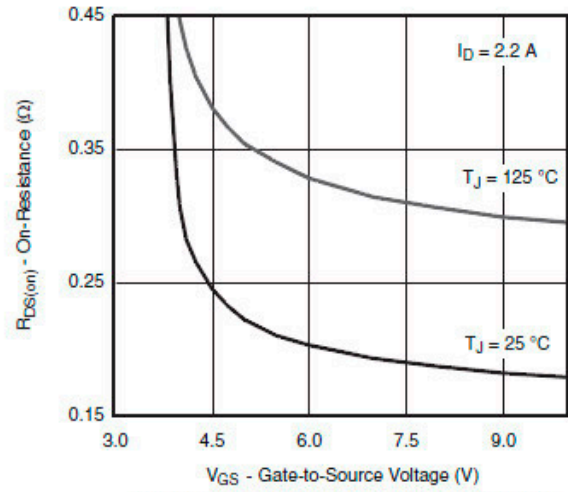
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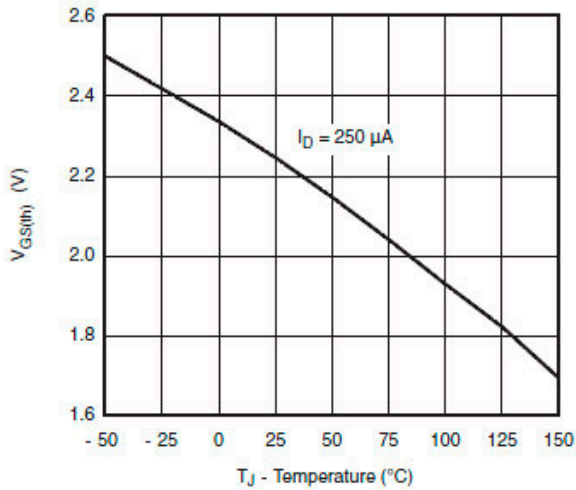
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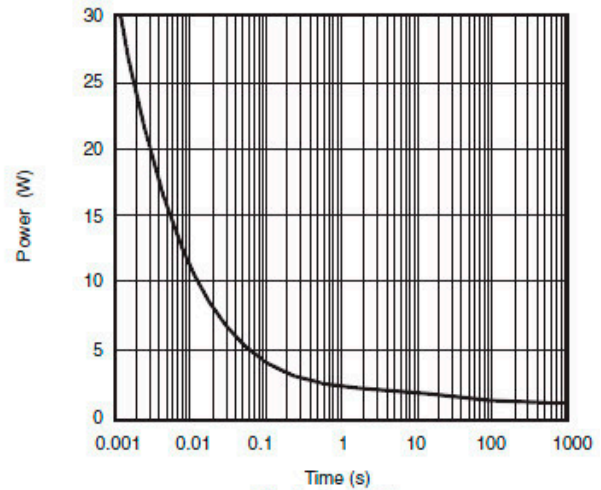
Source-Drain Diode Forward Voltage



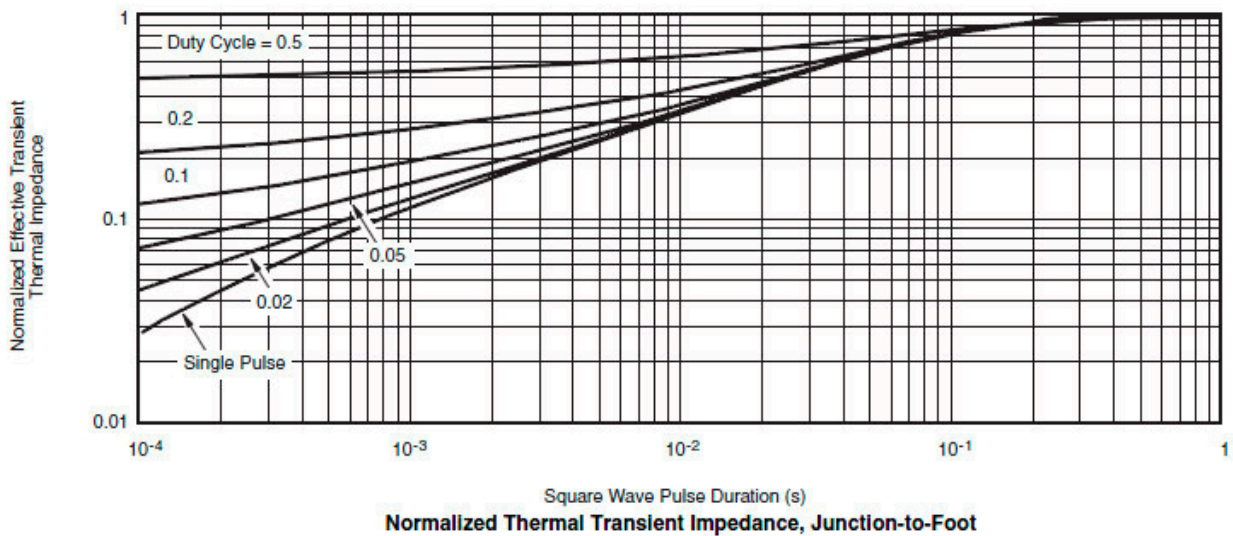
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Foot

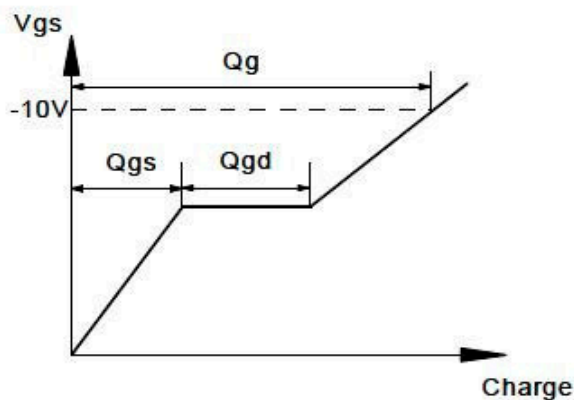
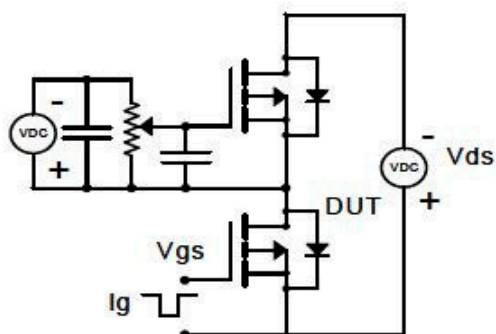
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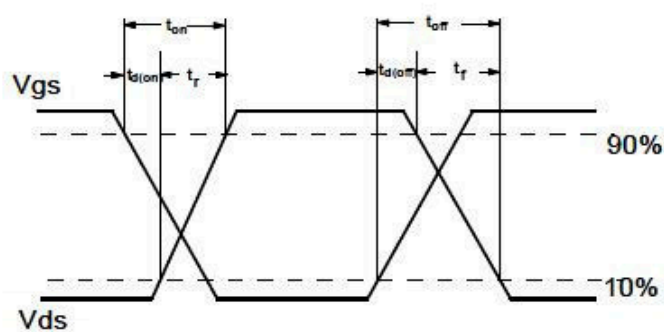
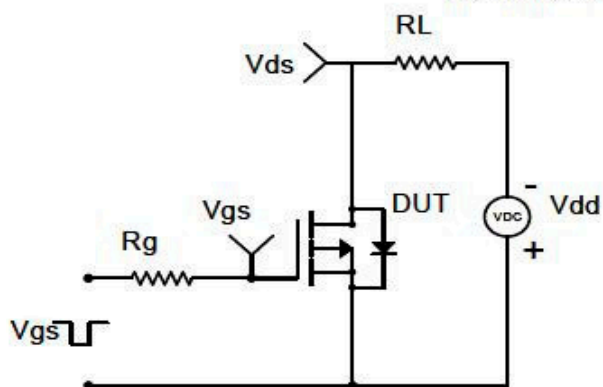
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## 测试电路和波形

### Gate Charge Test Circuit & Waveform



### Resistive Switching Test Circuit & Waveforms



### Diode Recovery Test Circuit & Waveforms

