Single P-channel MOSFET

ELM58473A-S

■General description

ELM58473A-S uses advanced trench technology to provide excellent Rds(on), low gate charge and low gate threshold voltage.

■Features

- Vds=-60V
- Id=-4.8A
- Rds(on) = 135mΩ (Vgs=-10V)
- Rds(on) = 155mΩ (Vgs=-4.5V)

■Maximum absolute ratings

Ta=25°C. Unless otherwise noted.

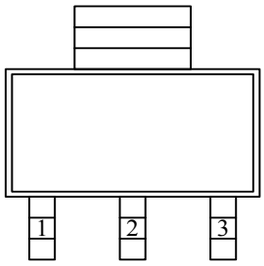
Parameter		Symbol	Limit	Unit
Drain-source voltage		Vdss	-60	V
Gate-source voltage		Vgs	±20	V
Continuous drain current	Ta=25°C	Id	-4.8	A
	Ta=70°C		-3.6	
Pulsed drain current		Idm	-10	A
Power dissipation	Tc=25°C	Pd	2.8	W
	Tc=70°C		1.2	
Junction and storage temperature range		Tj, Tstg	- 55 to 150	°C

■Thermal characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal resistance junction-to-ambient	Rθja		120	°C/W

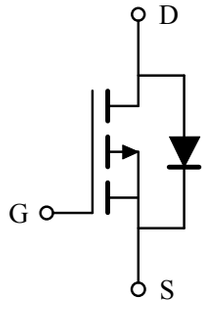
■Pin configuration

SOT-223(TOP VIEW)



Pin No.	Pin name
1	GATE
2	DRAIN
3	SOURCE

■Circuit

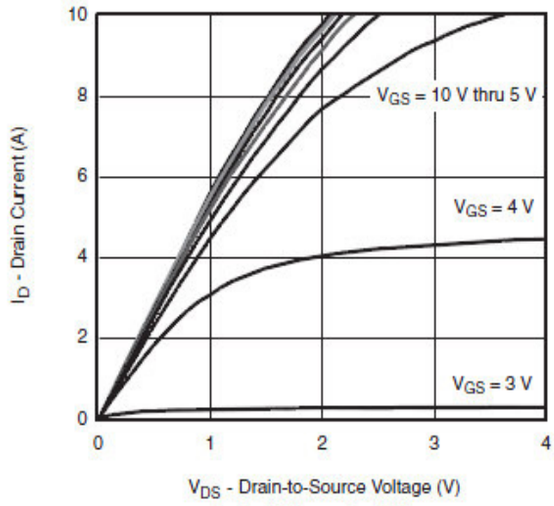


■Electrical characteristics

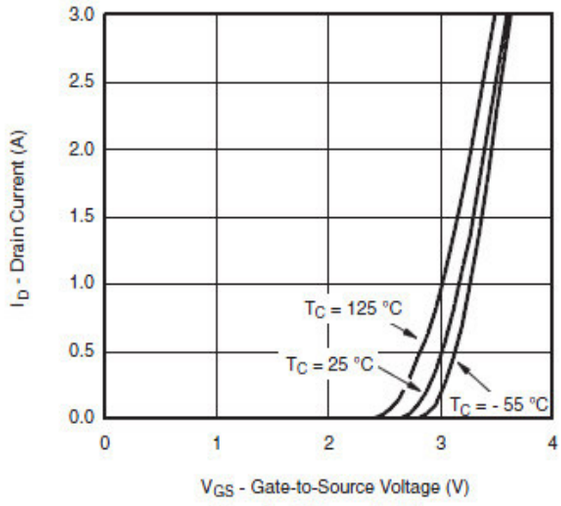
Ta=25°C. Unless otherwise noted.

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	BVdss	Vgs=0V, Id=-250μA	-60			V
Zero gate voltage drain current	Idss	Vds=-48V, Vgs=0V			-1	μA
		Vds=-48V, Vgs=0V, Ta=85°C			-30	
Gate-body leakage current	Igss	Vds=0V, Vgs=±12V			±100	nA
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=-250μA	-1.0		-2.0	V
On state drain current	Id(on)	Vgs=-10V, Vds=-5V	-5			A
Static drain-source on-resistance	Rds(on)	Vgs=-10V, Id=-4.8A		125	135	mΩ
		Vgs=-4.5V, Id=-3.6A		135	155	
Forward transconductance	Gfs	Vds=-15V, Id=-2.2A		5		S
Diode forward voltage	Vsd	Is=-1.5A, Vgs=0V		-0.75	-1.30	V
Max. body-diode continuous current	Is				-1.6	A
DYNAMIC PARAMETERS						
Input capacitance	Ciss	Vgs=0V, Vds=-30V, f=1MHz		410		pF
Output capacitance	Coss			45		pF
Reverse transfer capacitance	Crss			20		pF
SWITCHING PARAMETERS						
Total gate charge	Qg	Vgs=-4.5V, Vds=-30V Id=-2.2A		5.0	10.0	nC
Gate-source charge	Qgs			1.5		nC
Gate-drain charge	Qgd			2.5		nC
Turn-on delay time	td(on)	Vgs=-10V, Vds=-30V RL=16.7Ω, Id=-1.8A Rgen=1Ω		5	10	ns
Turn-on rise time	tr			15	25	ns
Turn-off delay time	td(off)			20	35	ns
Turn-off fall time	tf			10	20	ns

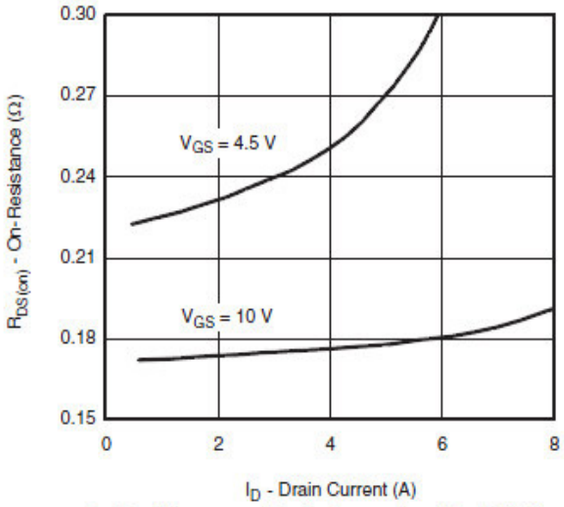
■Typical electrical and thermal characteristics



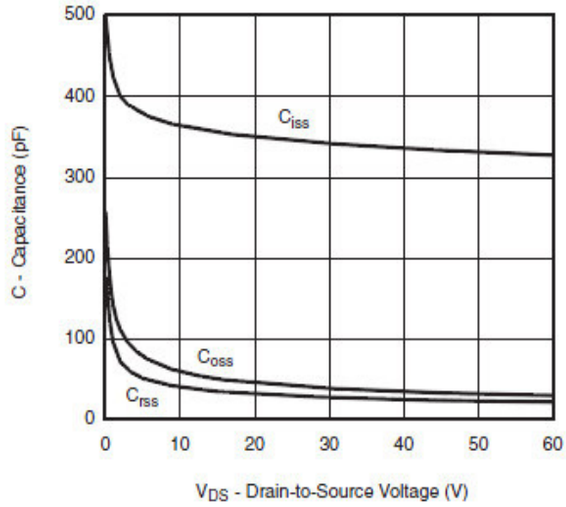
Output Characteristics



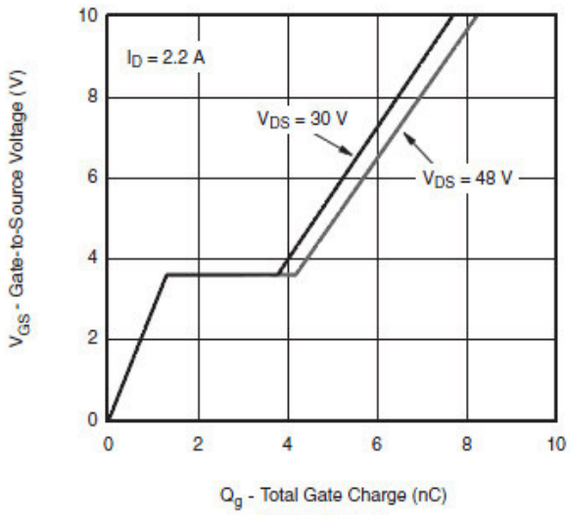
Transfer Characteristics



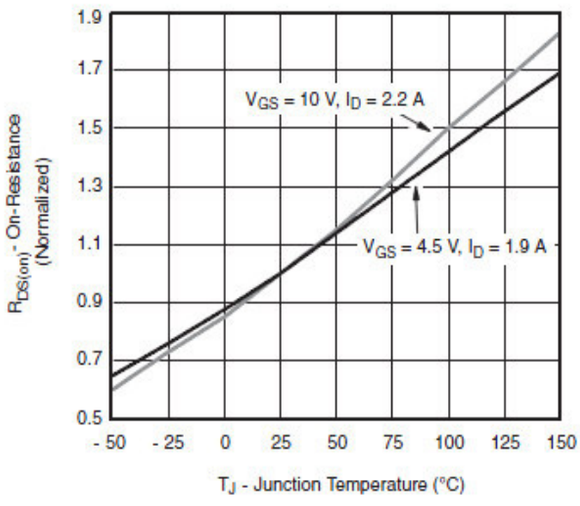
On-Resistance vs. Drain Current and Gate Voltage



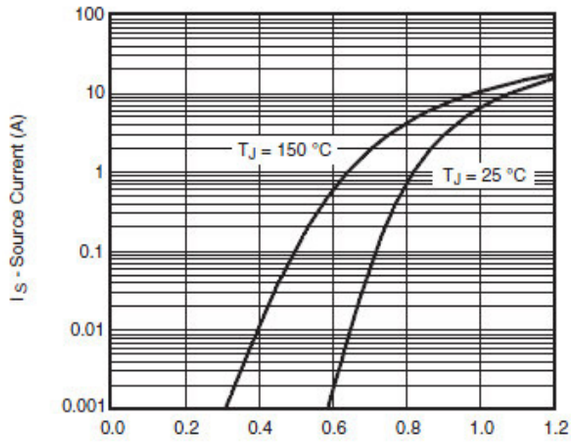
Capacitance



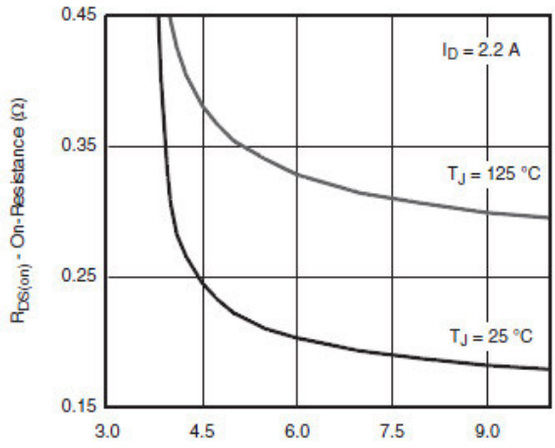
Gate Charge



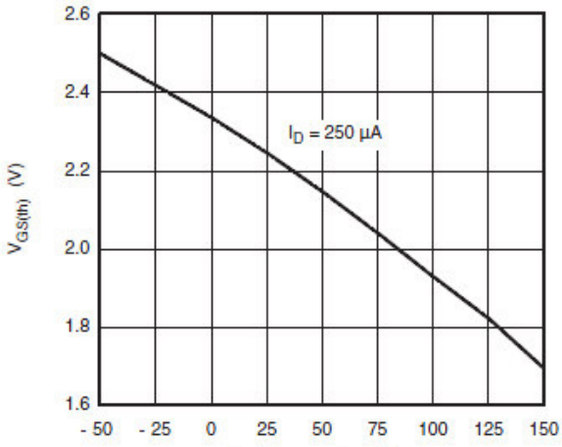
On-Resistance vs. Junction Temperature



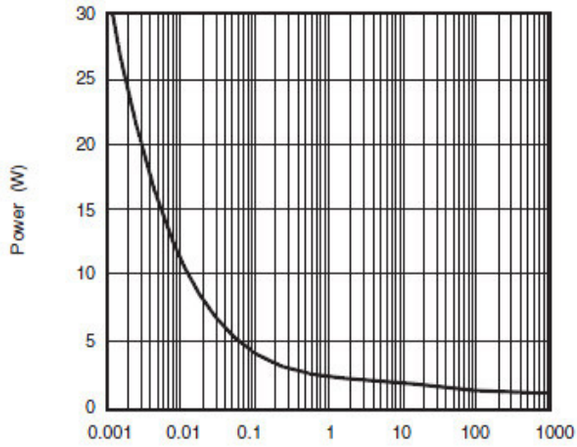
Source-Drain Diode Forward Voltage



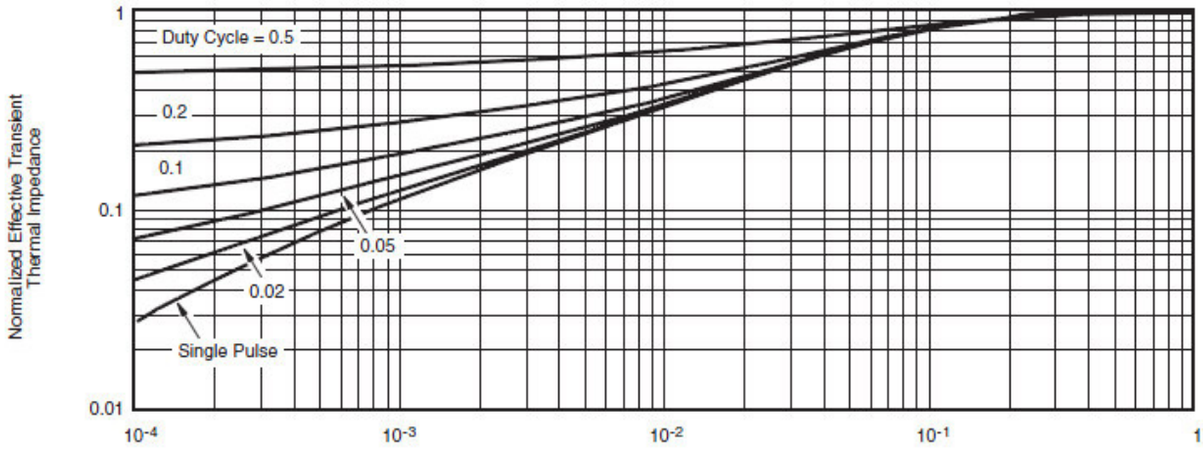
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



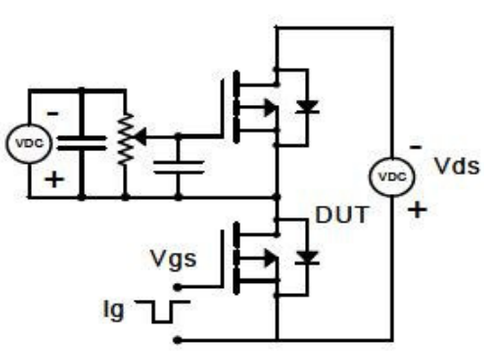
Single Pulse Power

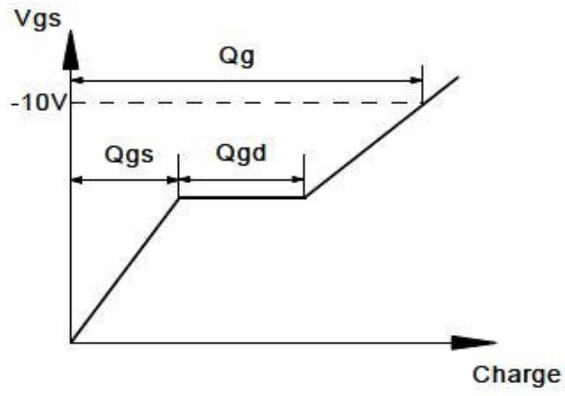


Normalized Thermal Transient Impedance, Junction-to-Foot

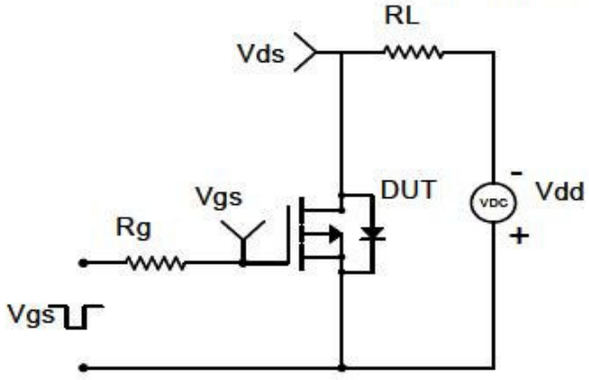
■Test circuit and waveform

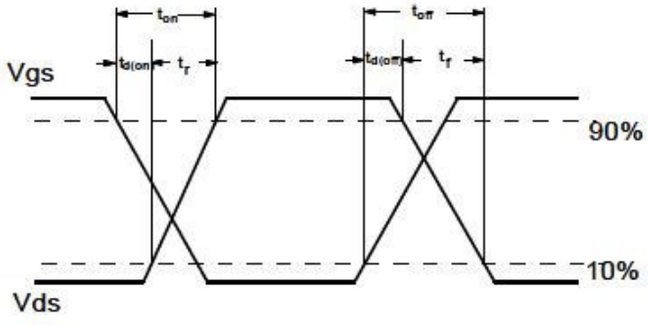
Gate Charge Test Circuit & Waveform





Resistive Switching Test Circuit & Waveforms





Diode Recovery Test Circuit & Waveforms