Single P-channel MOSFET

ELM53439WA-S

■General description

ELM53439WA-S uses advanced trench technology to provide excellent Rds(on), low gate charge and low gate threshold voltage.

■Features

- Vds=-150V
- Id=-1.4A
- Rds(on) = 800mΩ (Vgs=-10V)
- Rds(on) = 850mΩ (Vgs=-6V)

■Maximum absolute ratings

Ta=25°C. Unless otherwise noted.

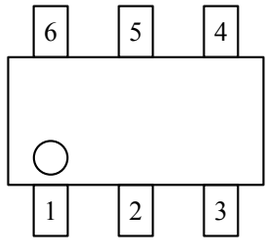
Parameter		Symbol	Limit	Unit
Drain-source voltage		Vds	-150	V
Gate-source voltage		Vgs	±20	V
Continuous drain current(Tj=150°C)	Ta=25°C	Id	-1.4	A
	Ta=70°C		-1.0	
Pulsed drain current		Idm	-5	A
Power dissipation	Tc=25°C	Pd	3.2	W
	Tc=70°C		2.1	
Operating junction temperature		Tj	150	°C
Junction and storage temperature range		Tstg	-55 to 150	°C

■Thermal characteristics

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

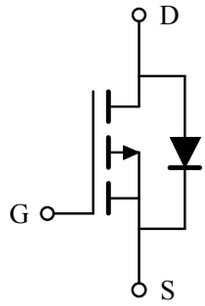
■Pin configuration

SOT-26(TOP VIEW)



Pin No.	Pin name
1	DRAIN
2	DRAIN
3	GATE
4	SOURCE
5	DRAIN
6	DRAIN

■Circuit

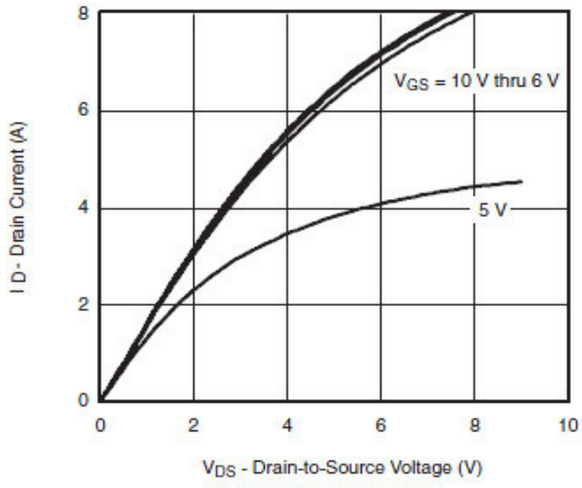


■Electrical characteristics

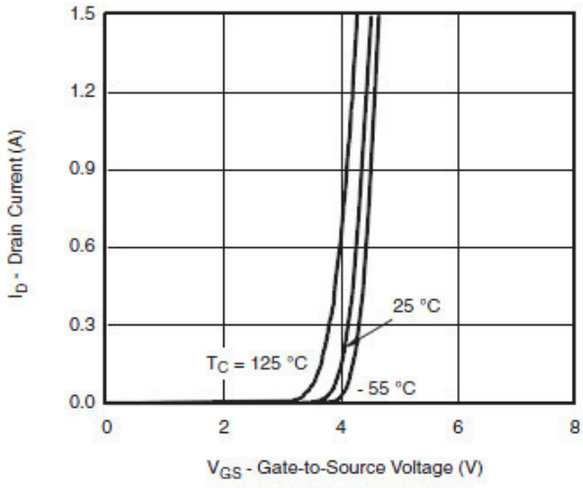
Ta=25°C. Unless otherwise noted.

Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
STATIC PARAMETERS							
Drain-source breakdown voltage	BVdss	Id=-250μA, Vgs=0V		-150			V
Zero gate voltage drain current	Idss	Vds=-120V Vgs=0V				-1	μA
			Ta=85°C			-30	
Gate-body leakage current	Igss	Vds=0V, Vgs=±20V				±100	nA
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=-250μA		-2.0		-3.0	V
On state drain current	Id(on)	Vgs=-10V, Vds≥-10V		-3			A
Static drain-source on-resistance	Rds(on)	Vgs=-10V, Id=-1.4A			700	800	mΩ
		Vgs=-6V, Id=-1.0A			750	850	
Forward transconductance	Gfs	Vds=-10V, Id=-1.4A			4.5		S
Diode forward voltage	Vsd	Is=-1.0A, Vgs=0V			-0.75	-1.20	V
Max. body-diode continuous current	Is					-1.6	A
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=-50V, f=1MHz			520		pF
Output capacitance	Coss				30		pF
Reverse transfer capacitance	Crss				20		pF
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=-6V, Vds=-75V Id≡-1.0A			10.0	15.0	nC
Gate-source charge	Qgs				2.5		nC
Gate-drain charge	Qgd				5.0		nC
Turn-on delay time	td(on)	Vgs=-10V, Vds=-75V RL=75Ω, Id≡-1.0A Rgen=1.0Ω			10	20	ns
Turn-on rise time	tr				12	25	ns
Turn-off delay time	td(off)				30	60	ns
Turn-off fall time	tf				12	25	ns

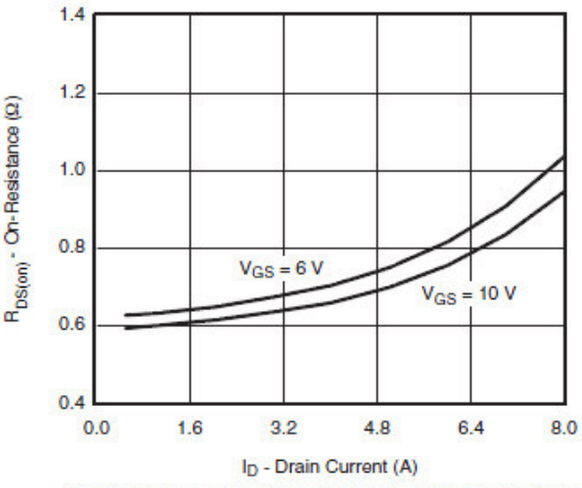
■Typical electrical and thermal characteristics



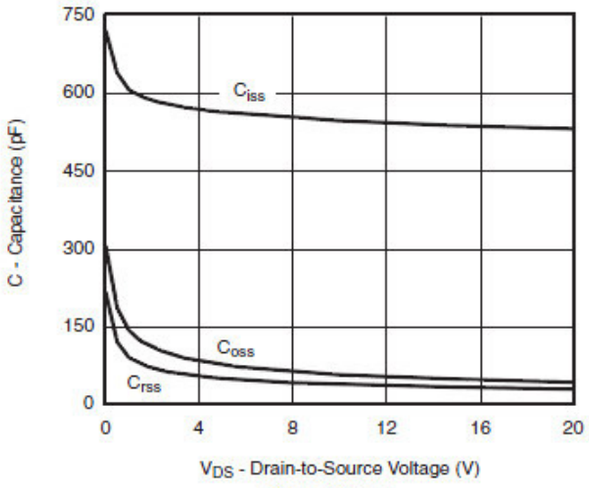
Output Characteristics



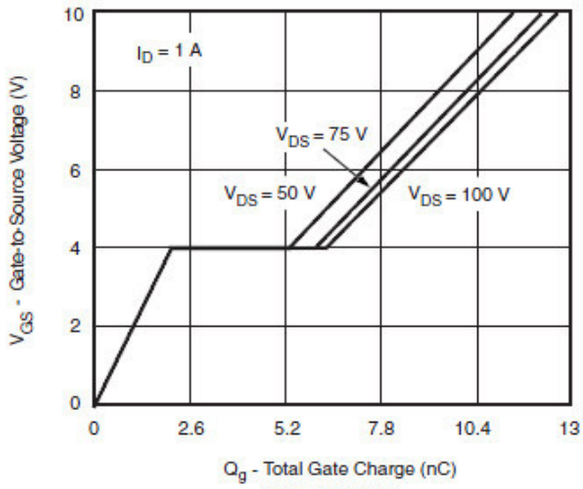
Transfer Characteristics



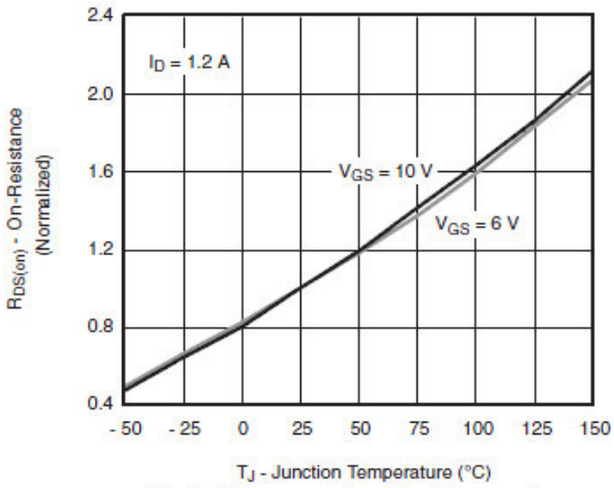
On-Resistance vs. Drain Current and Gate Voltage



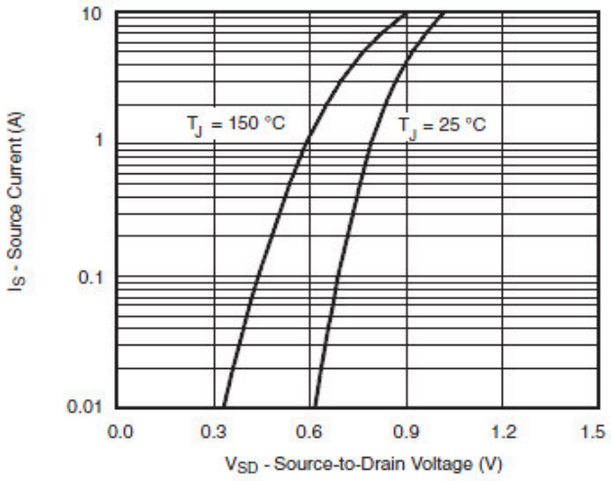
Capacitance



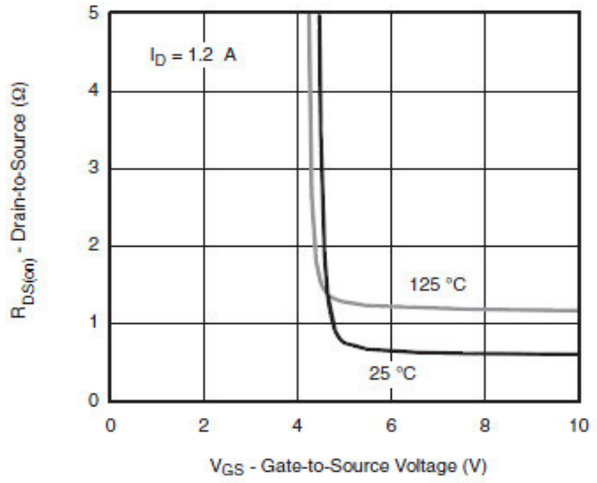
Gate Charge



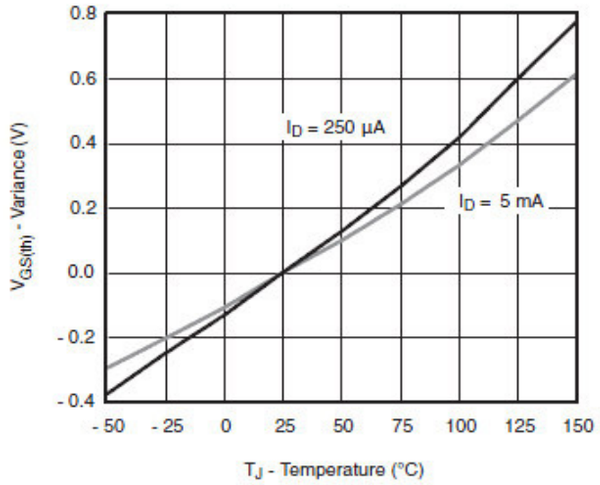
On-Resistance vs. Junction Temperature



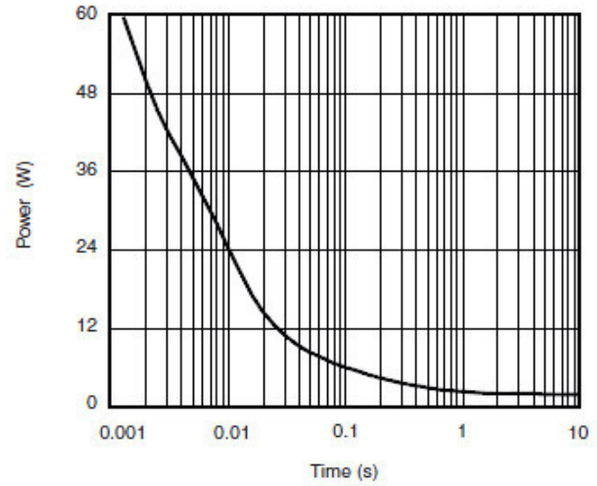
Source-Drain Diode Forward Voltage



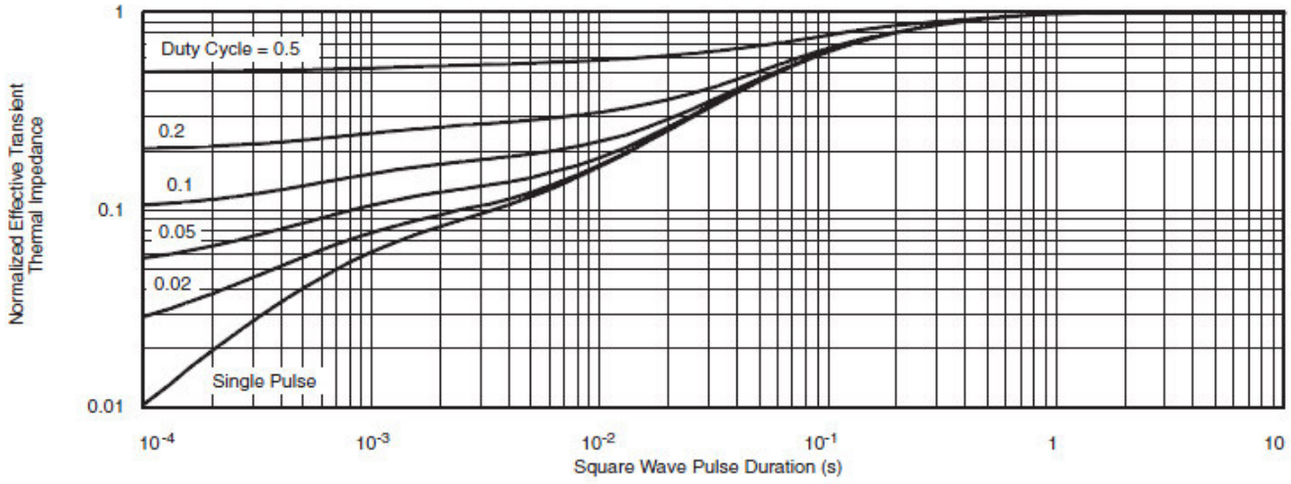
On-Resistance vs. Gate-to-Source Temperature



Threshold Voltage



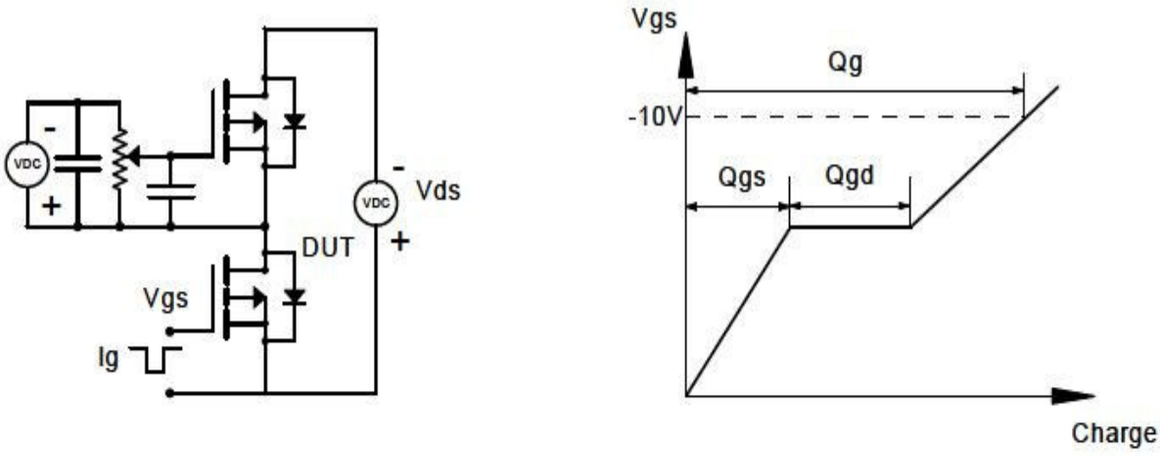
Single Pulse Power, Junction-to-Ambient



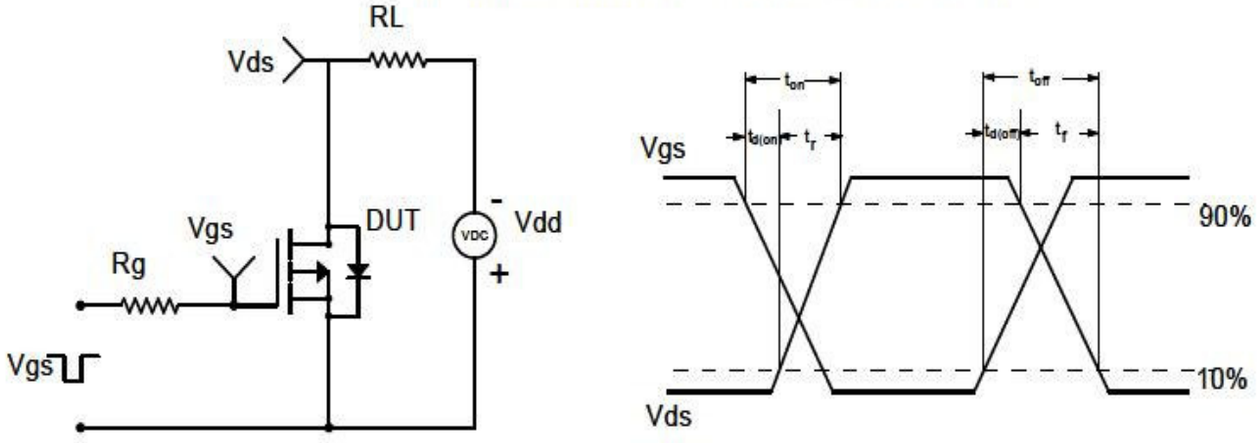
Normalized Thermal Transient Impedance, Junction-to-Foot

■Test circuit and waveform

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms