Dual P-channel MOSFET

ELM53911WA-N

■General description

ELM53911WA-N uses advanced trench technology to provide excellent Rds(on) and low gate charge.

■Features

- Vds=-30V
- Id=-4.3A
- Rds(on)=68mΩ (Vgs=-10V)
- Rds(on)=88mΩ (Vgs=-4.5V)

■Maximum absolute ratings

Ta=25°C. Unless otherwise noted.

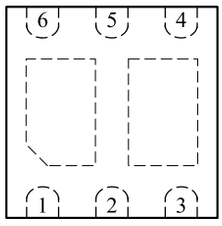
Parameter		Symbol	Limit	Unit
Drain-source voltage		Vds	-30	V
Gate-source voltage		Vgs	±20	V
Continuous drain current(Tj=150°C)	Ta=25°C	Id	-4.3	A
	Ta=70°C		-3.4	
Pulsed drain current		Idm	-28	A
Power dissipation	Tc=25°C	Pd	7.8	W
	Tc=70°C		5.0	
Operating junction temperature		Tj	150	°C
Storage temperature range		Tstg	-55 to 150	°C

■Thermal characteristics

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

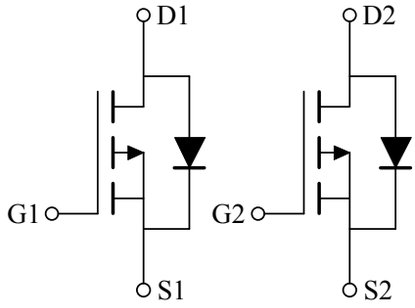
■Pin configuration

DFN6-2×2(TOP VIEW)



Pin No.	Pin name
1	SOURCE1
2	GATE1
3	DRAIN2
4	SOURCE2
5	GATE2
6	DRAIN1

■Circuit

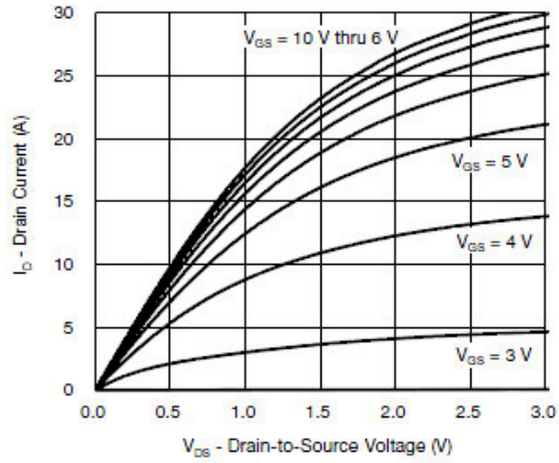


■Electrical characteristics

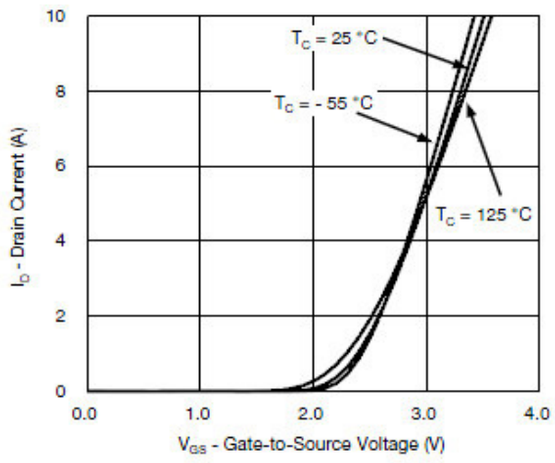
Ta=25°C. Unless otherwise noted.

Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
STATIC PARAMETERS							
Drain-source breakdown voltage	BVdss	Id=-250μA, Vgs=0V		-30			V
Zero gate voltage drain current	Idss	Vds=-24V, 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		-1.0		-2.0	V
On state drain current	Id(on)	Vgs=-10V, Vds≥-5V		-10			A
Static drain-source on-resistance	Rds(on)	Vgs=-10V, Id=-3A			55	68	mΩ
		Vgs=-4.5V, Id=-2A			75	88	
Forward transconductance	Gfs	Vds=-15V, Id=-3A			8		S
Diode forward voltage	Vsd	Is=-3A, Vgs=0V			-0.75	-1.30	V
Max. body-diode continuous current	Is					-1.6	A
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=-15V, f=1MHz			450		pF
Output capacitance	Coss				56		pF
Reverse transfer capacitance	Crss				46		pF
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=-4.5V, Vds=-10V Id≡-4.0A			4.2	7.2	nC
Gate-source charge	Qgs				1.3		nC
Gate-drain charge	Qgd				1.6		nC
Turn-on delay time	td(on)	Vgs=-10V, Vds=-15V Id≡-3A, RL=5Ω Rgen=1Ω			10	20	ns
Turn-on rise time	tr				5	10	ns
Turn-off delay time	td(off)				20	40	ns
Turn-off fall time	tf				5	10	ns

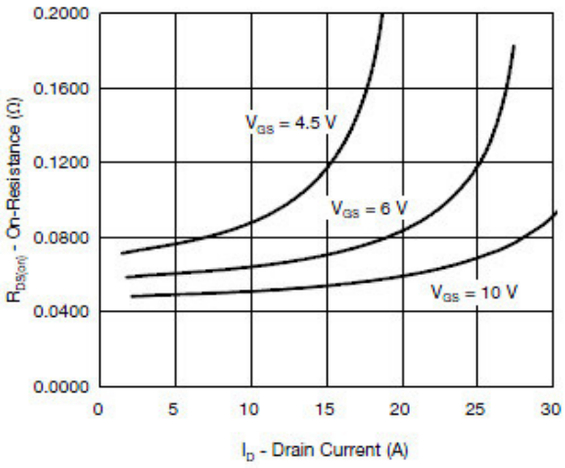
■Typical electrical and thermal characteristics



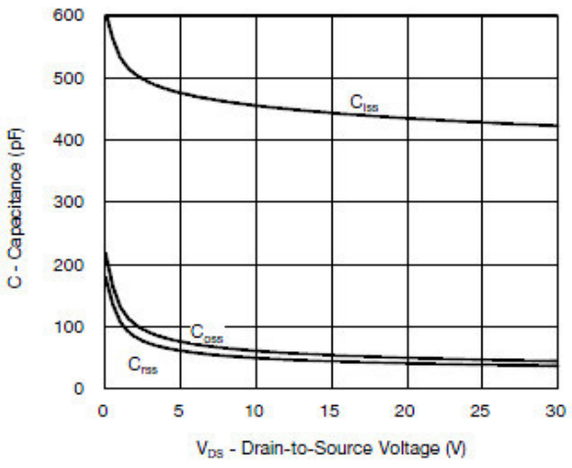
Output Characteristics



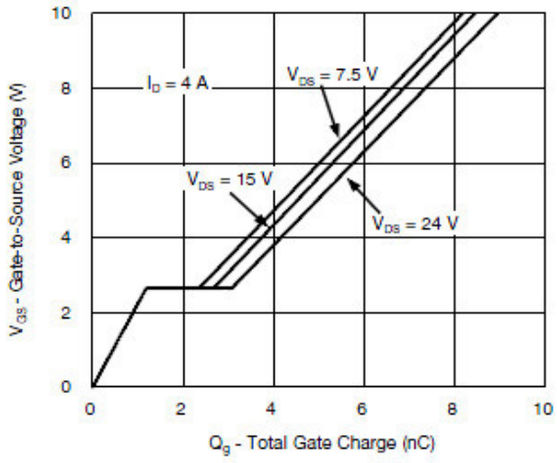
Transfer Characteristics



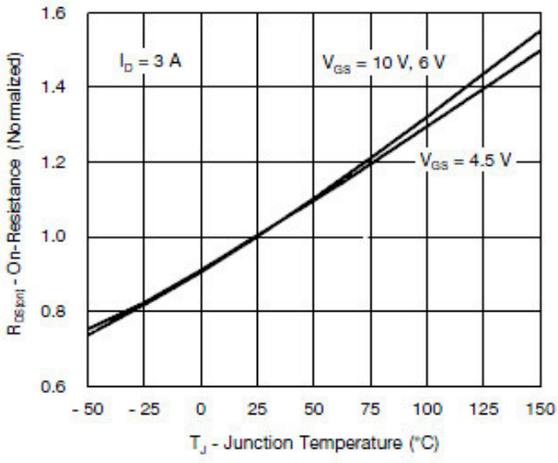
On-Resistance vs. Drain Current and Gate Voltage



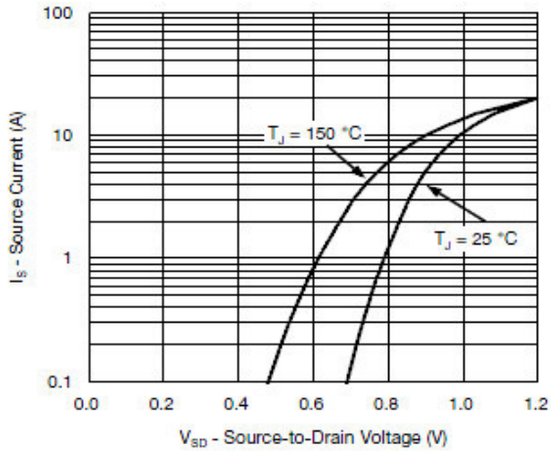
Capacitance



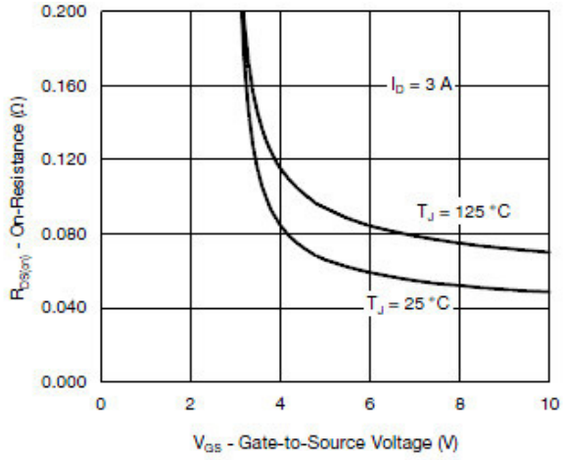
Gate Charge



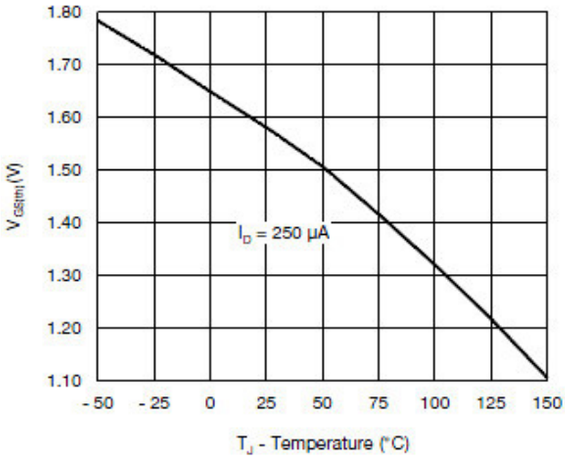
On-Resistance vs. Junction Temperature



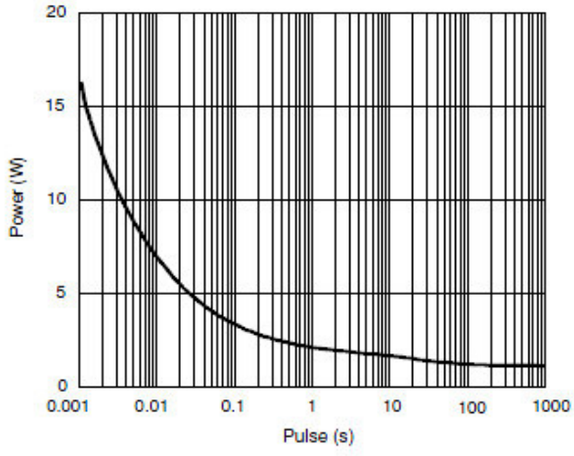
Soure-Drain Diode Forward Voltage



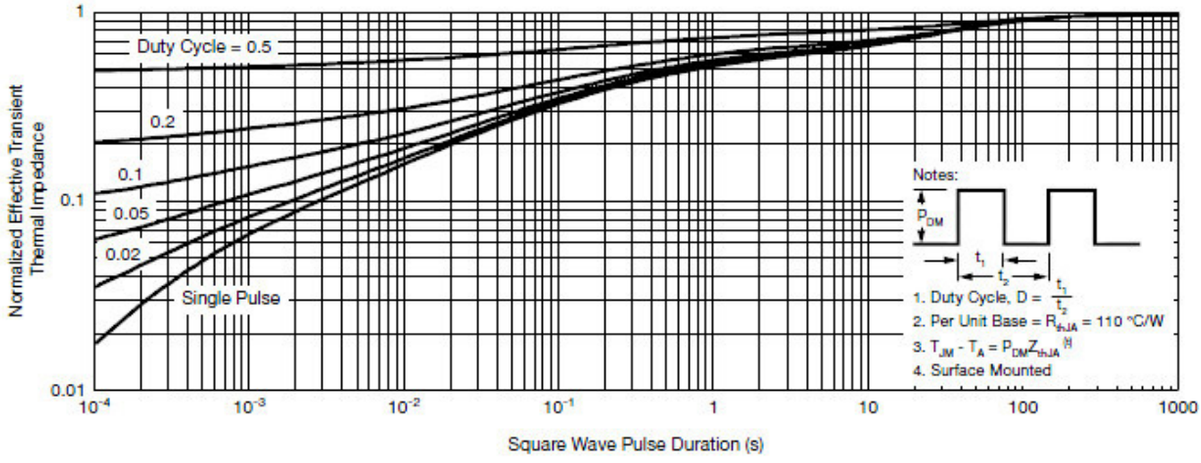
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



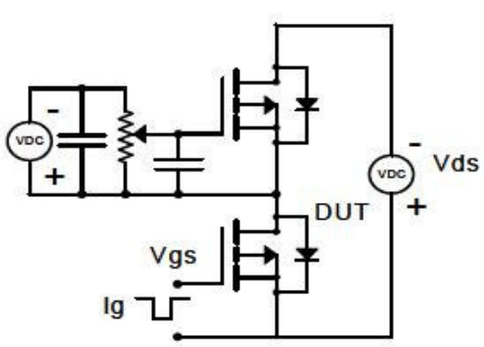
Single Pulse Power, Junction-to-Ambient

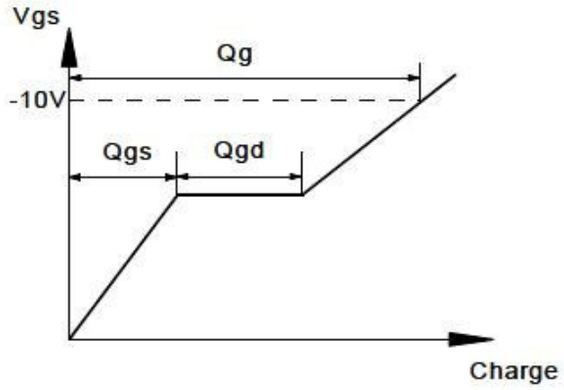


Normalized Thermal Transient Impedance, Junction-to-Ambient

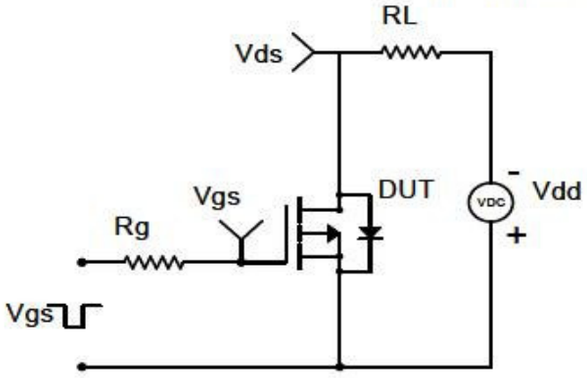
■Test circuit & waveform

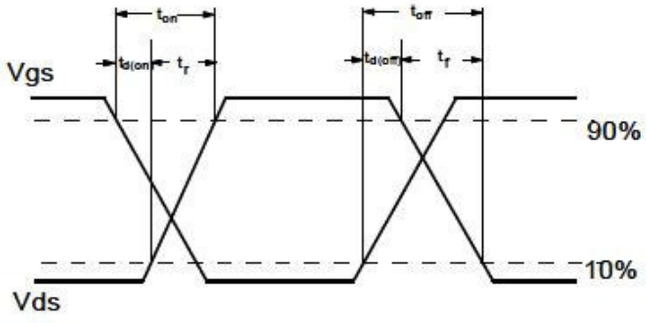
Gate Charge Test Circuit & Waveform





Resistive Switching Test Circuit & Waveforms





Diode Recovery Test Circuit & Waveforms