

Dual P-channel MOSFET

ELM54943WSA-N

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

■General description

ELM54943WSA-N uses advanced trench technology to provide excellent $R_{ds(on)}$ and low gate charge.

■Features

- $V_{ds}=-20V$
- $I_d=-9.0A$
- $R_{ds(on)}=23m\Omega$ ($V_{gs}=-4.5V$)
- $R_{ds(on)}=28m\Omega$ ($V_{gs}=-2.5V$)
- $R_{ds(on)}=35m\Omega$ ($V_{gs}=-1.8V$)

■Maximum absolute ratings

$T_a=25^\circ C$. Unless otherwise noted.

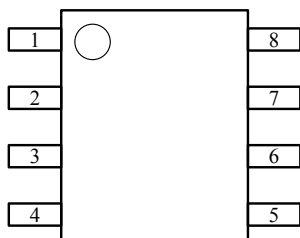
Parameter	Symbol	Limit	Unit
Drain-source voltage	V_{ds}	-20	V
Gate-source voltage	V_{gs}	± 12	V
Continuous drain current($T_j=150^\circ C$)	I_d	-9.0	A
		-7.0	
Pulsed drain current	I_{dm}	-30	A
Power dissipation	P_d	2.8	W
		1.8	
Operating junction temperature	T_j	150	$^\circ C$
Storage temperature range	T_{stg}	-55 to 150	$^\circ C$

■Thermal characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal resistance junction-to-ambient	$R_{\theta ja}$		62.5	$^\circ C/W$

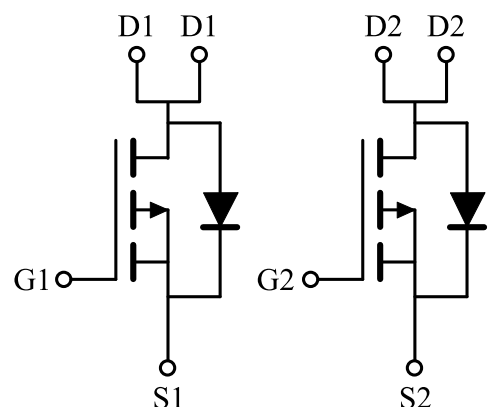
■Pin configuration

SOP-8(TOP VIEW)



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

■Circuit



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■Electrical characteristics

Ta=25°C. Unless otherwise noted.

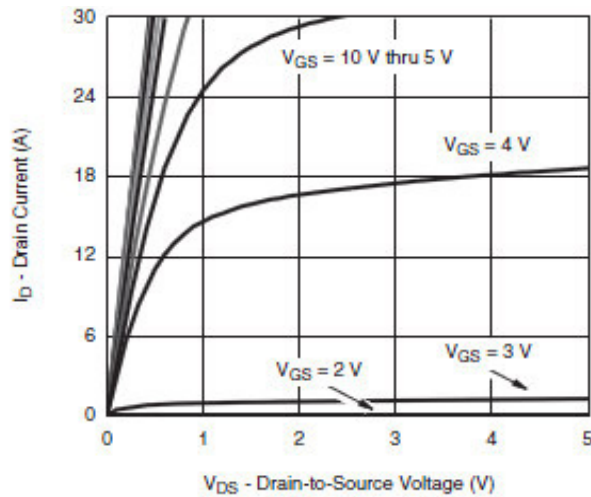
Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
STATIC PARAMETERS							
Drain-source breakdown voltage	BVdss	Id=-250μA, Vgs=0V		-20			V
Zero gate voltage drain current	Idss	Vds=-16V, Vgs=0V				-1	μA
			Ta=85°C			-30	
Gate-body leakage current	Igss	Vds=0V, Vgs=±12V				±100	nA
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=-250μA		-0.4		-1.0	V
On state drain current	Id(on)	Vgs=-10V, Vds≥-5V		-30			A
Static drain-source on-resistance	Rds(on)	Vgs=-4.5V, Id=-9.0A			18	23	mΩ
		Vgs=-2.5V, Id=-7.0A			23	28	
		Vgs=-1.8V, Id=-3.0A			30	35	
Forward transconductance	Gfs	Vds=-10V, Id=-9.0A			22		S
Diode forward voltage	Vsd	Is=-7.0A, Vgs=0V			-0.7	-1.3	V
Max. body-diode continuous current	Is					-1.7	A
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=-10V, f=1MHz			1850		pF
Output capacitance	Coss				450		pF
Reverse transfer capacitance	Crss				380		pF
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=-4.5V, Vds=-10V Id≒-7.0A			20	30	nC
Gate-source charge	Qgs				6		nC
Gate-drain charge	Qgd				10		nC
Turn-on delay time	td(on)	Vgs=-10V, Vds=-10V Id≒-7.0A, RL=1.5Ω Rgen=1Ω			15	25	ns
Turn-on rise time	tr				12	24	ns
Turn-off delay time	td(off)				35	55	ns
Turn-off fall time	tf				10	20	ns

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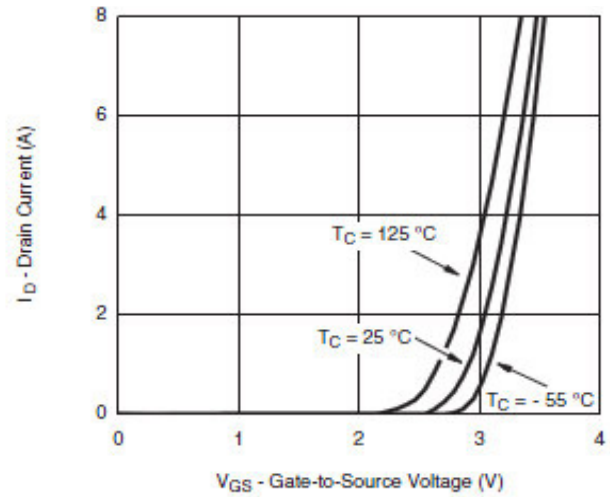
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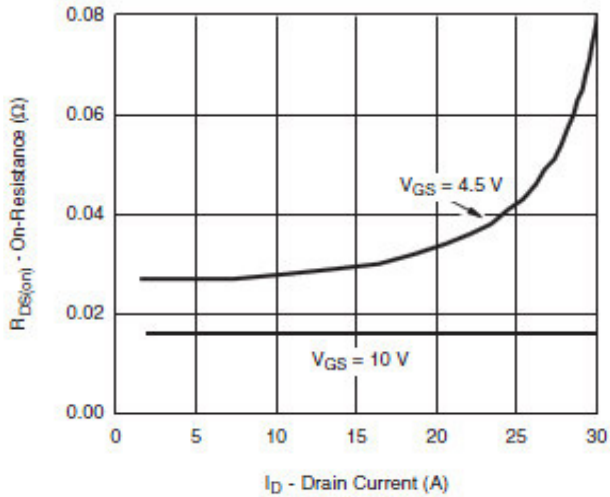
■ Typical electrical and thermal characteristics



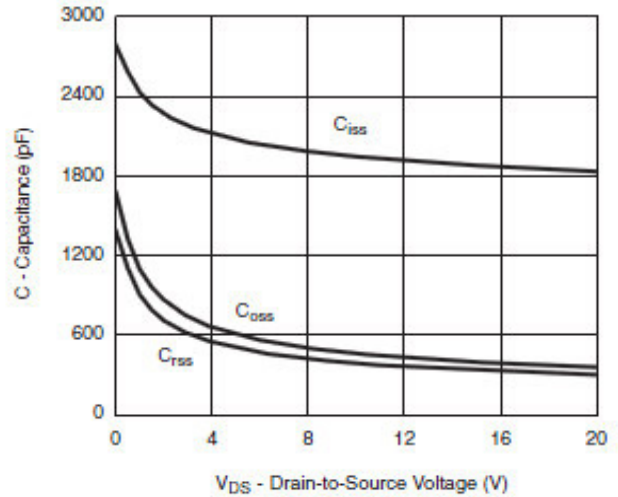
Output Characteristics



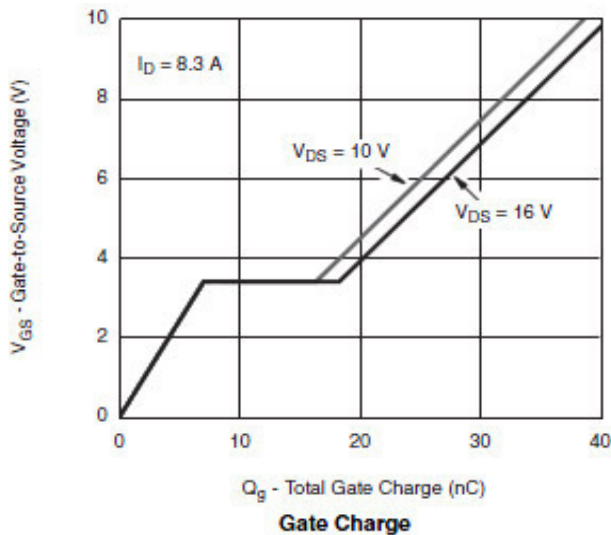
Transfer Characteristics



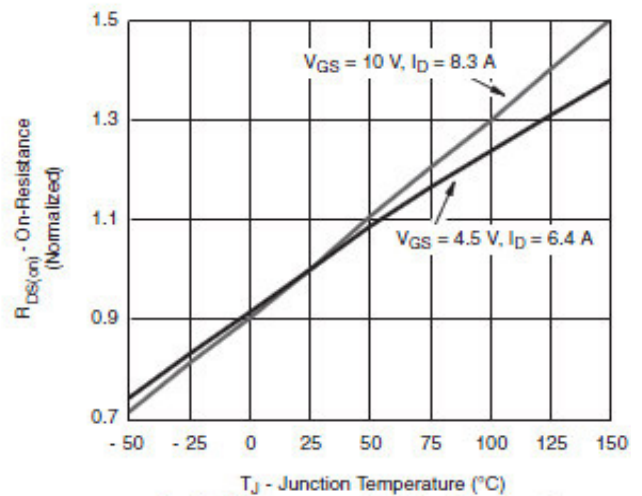
On-Resistance vs. Drain Current and Gate Voltage



Capacitance



Gate Charge

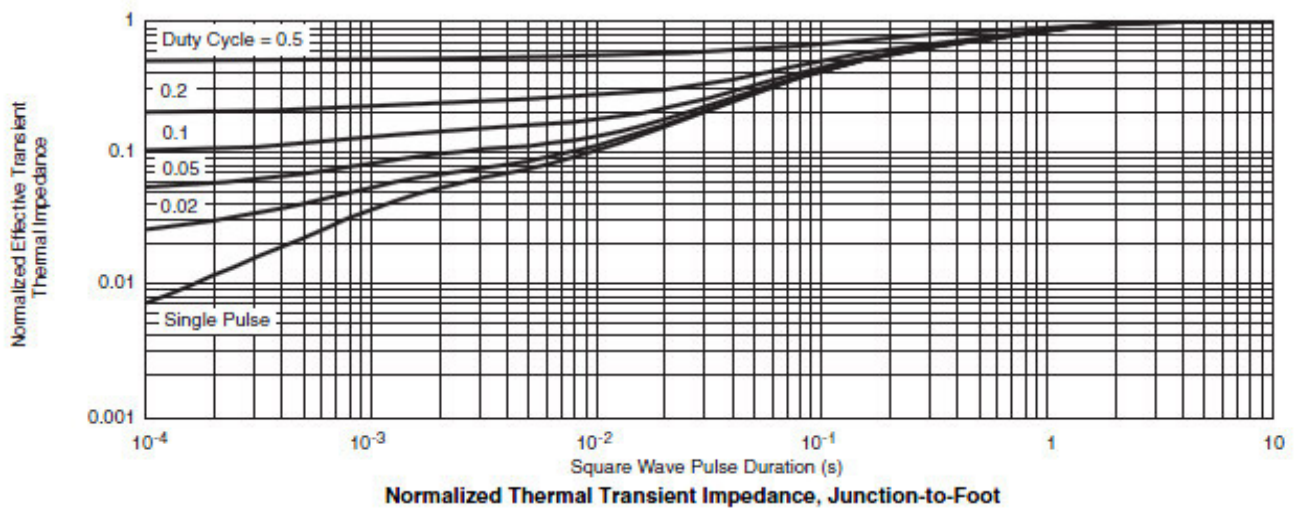
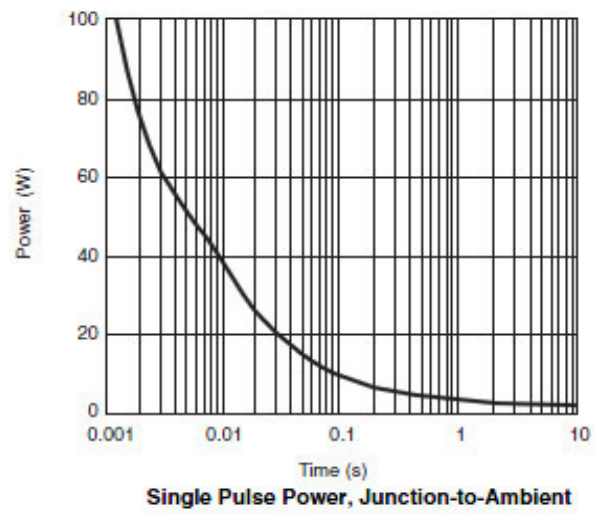
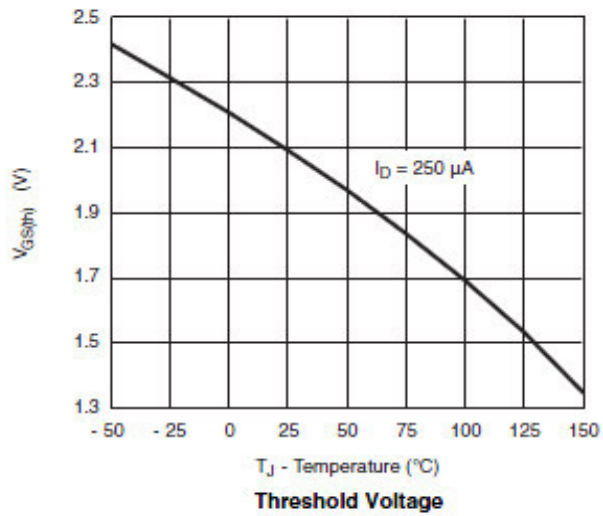
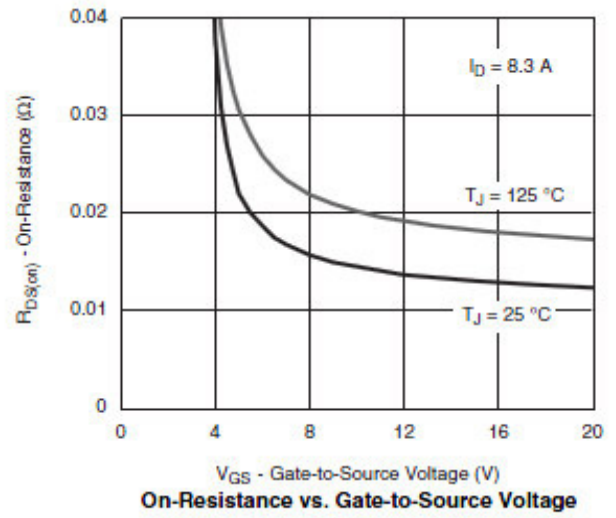
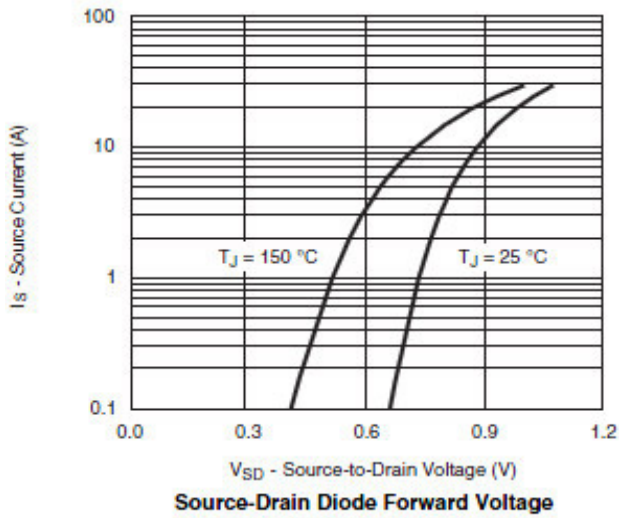


On-Resistance vs. Junction Temperature

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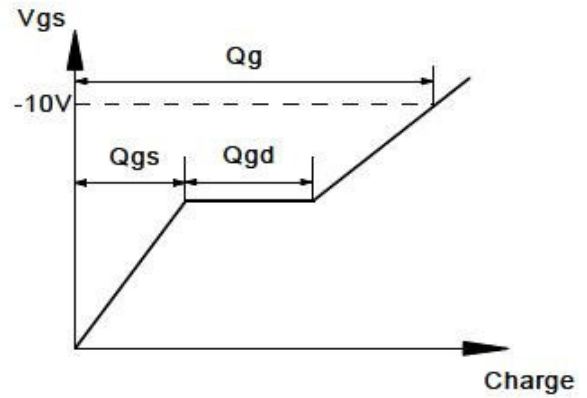
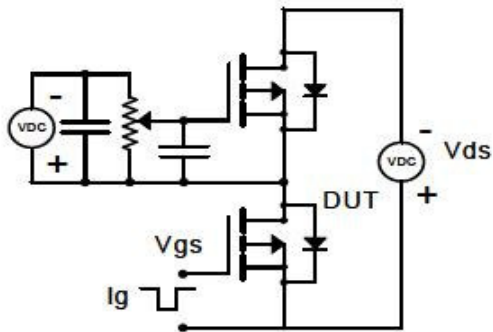
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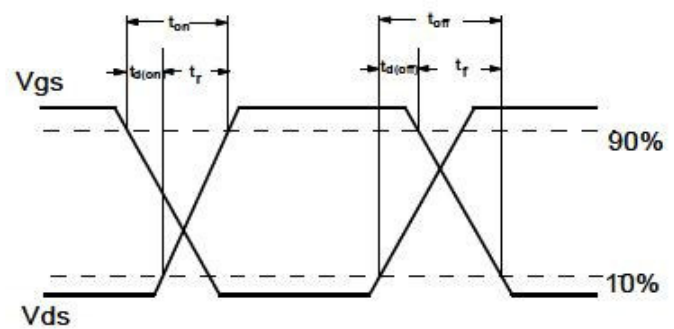
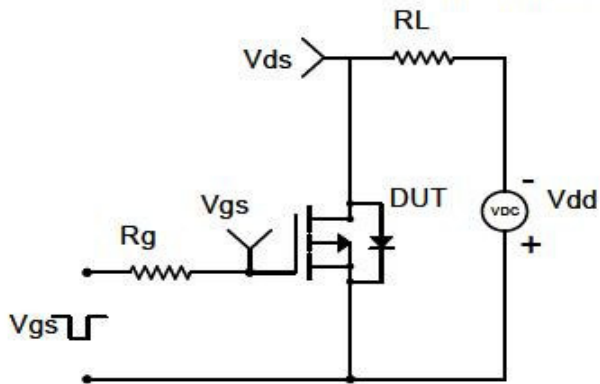
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■ Test circuit & waveform

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

