

Dual N-channel MOSFET

ELM56802WSA-S

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

■General description

ELM56802WSA-S uses advanced trench technology to provide excellent $R_{ds(on)}$ and low gate charge.

■Features

- $V_{ds}=30V$
- $I_d=4.0A$
- $R_{ds(on)} = 28m\Omega$ ($V_{gs}=10V$)
- $R_{ds(on)} = 32m\Omega$ ($V_{gs}=4.5V$)

■Maximum absolute ratings

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

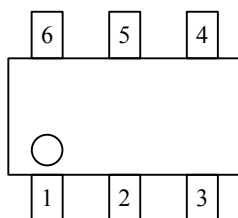
Parameter		Symbol	Limit	Unit
Drain-source voltage		V_{ds}	30	V
Gate-source voltage		V_{gs}	± 20	V
Continuous drain current($T_j=150^{\circ}C$)	$T_a=25^{\circ}C$	I_d	4.0	A
	$T_a=70^{\circ}C$		2.8	
Pulsed drain current		I_{dm}	18	A
Power dissipation	$T_c=25^{\circ}C$	P_d	2.0	W
	$T_c=70^{\circ}C$		1.3	
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	$R_{\theta ja}$		120	$^{\circ}C/W$

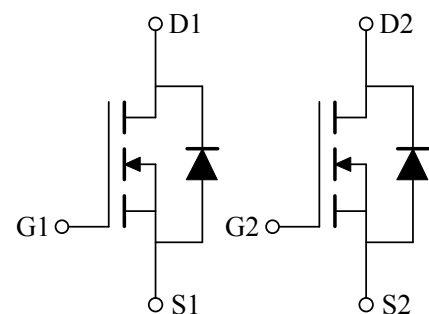
■Pin configuration

SOT-26(TOP VIEW)



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

■Circuit



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■Electrical characteristics

Ta=25°C. Unless otherwise noted.

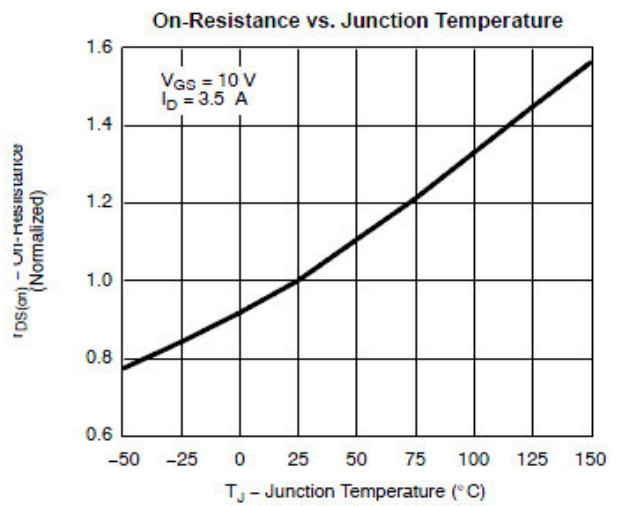
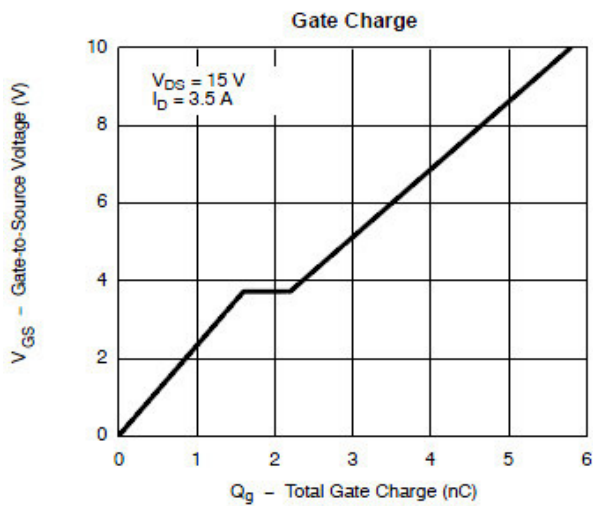
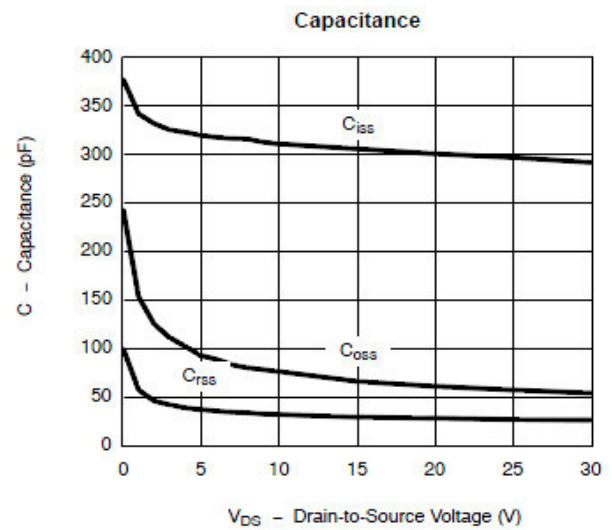
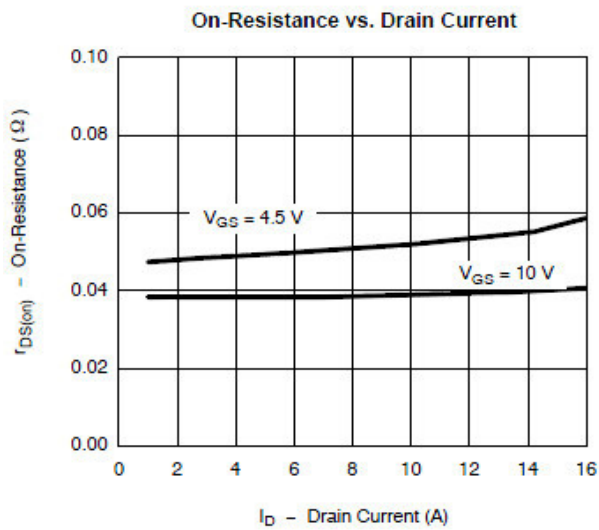
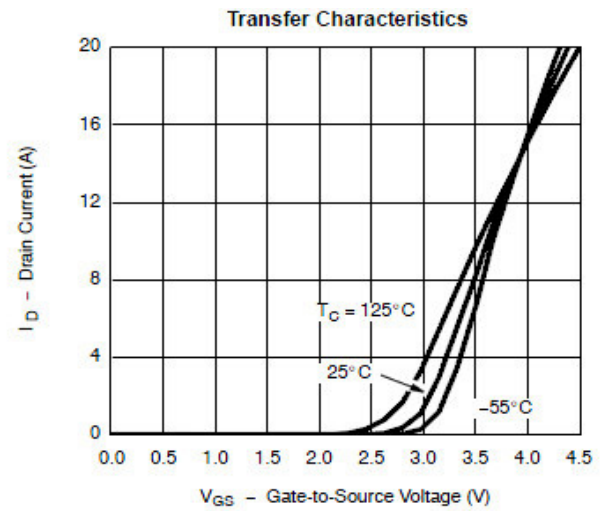
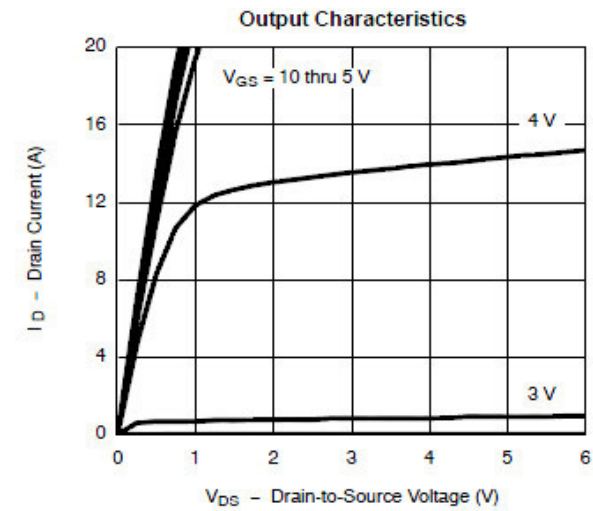
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	BVdss	Id=250μA, Vgs=0V	30			V
Zero gate voltage drain current	Idss	Vds=24V Vgs=0V			1	μA
		Ta=85°C			30	
Gate-body leakage current	Igss	Vds=0V, Vgs=±20V			±100	nA
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=250μA	1.0		2.0	V
On state drain current	Id(on)	Vgs=10V, Vds≥4.5V	10			A
Static drain-source on-resistance	Rds(on)	Vgs=10V, Id=4.0A		20	28	mΩ
		Vgs=4.5V, Id=2.8A		24	32	
Forward transconductance	Gfs	Vds=4.5V, Id=2.5A		8		S
Diode forward voltage	Vsd	Is=1.6A, Vgs=0V		0.8	1.2	V
Max. body-diode continuous current	Is				1.7	A
DYNAMIC PARAMETERS						
Input capacitance	Ciss	Vgs=0V, Vds=15V, f=1MHz		320		pF
Output capacitance	Coss			70		pF
Reverse transfer capacitance	Crss			30		pF
SWITCHING PARAMETERS						
Total gate charge	Qg	Vgs=10V, Vds=15V Id≐2.6A		3.0	4.5	nC
Gate-source charge	Qgs			1.6		nC
Gate-drain charge	Qgd			0.6		nC
Turn-on delay time	td(on)	Vgs=10V, Vds=15V, Id≐1.0A RL=15Ω, Rgen=6Ω		8	12	ns
Turn-on rise time	tr			12	18	ns
Turn-off delay time	td(off)			15	30	ns
Turn-off fall time	tf			8	15	ns

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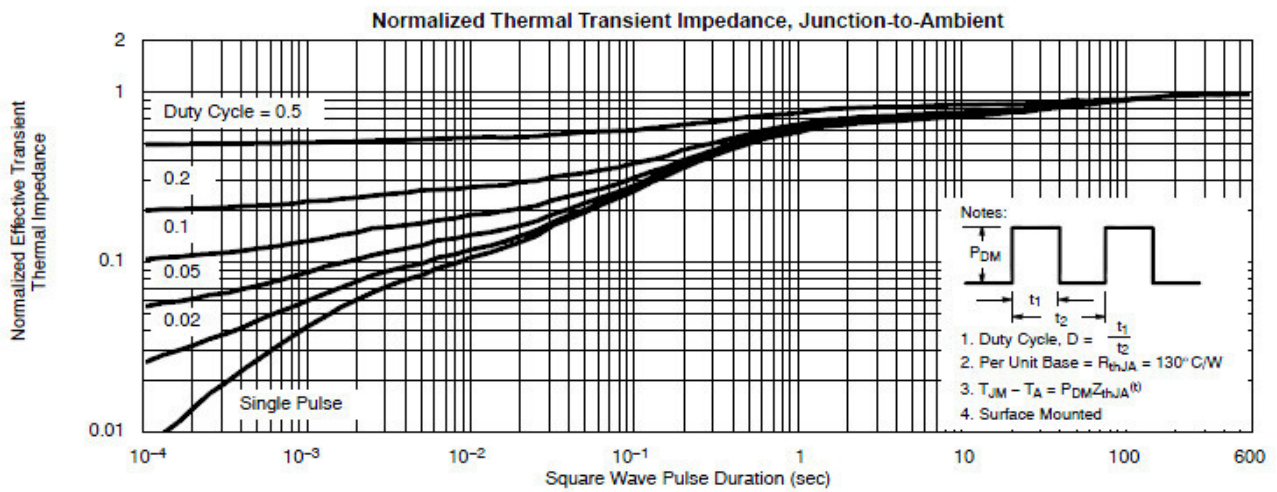
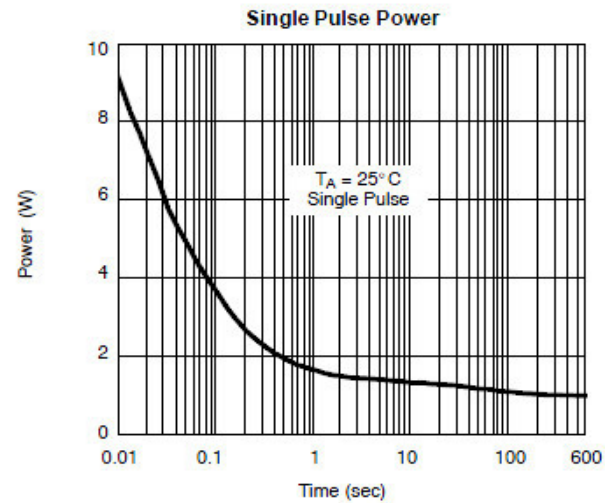
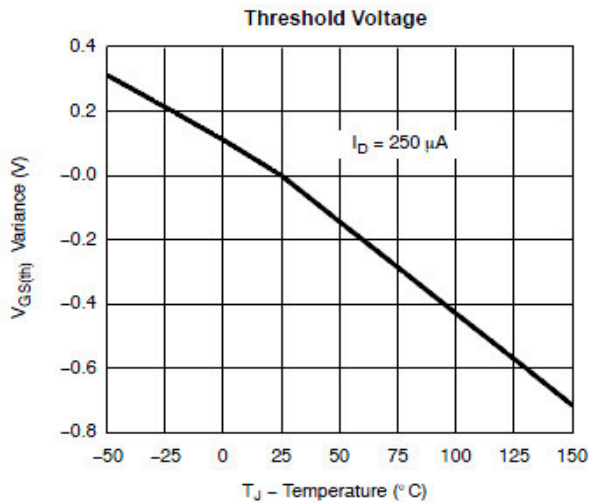
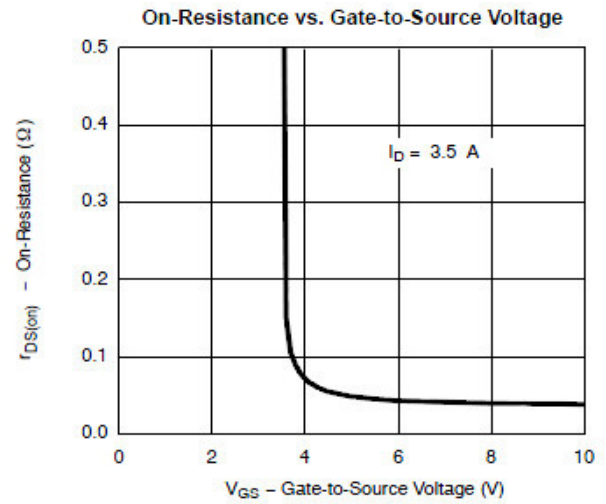
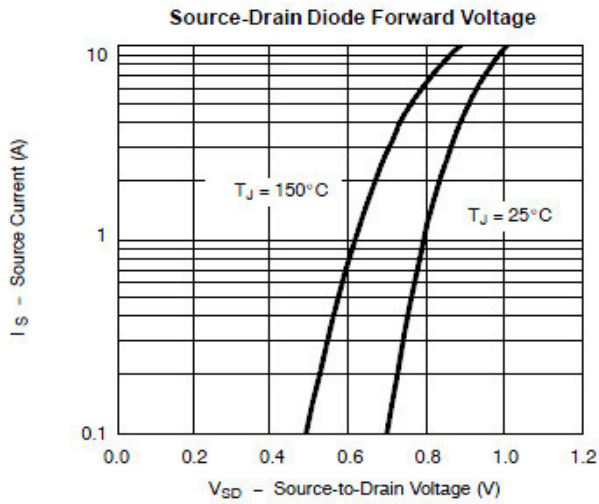
■ Typical electrical and thermal characteristics



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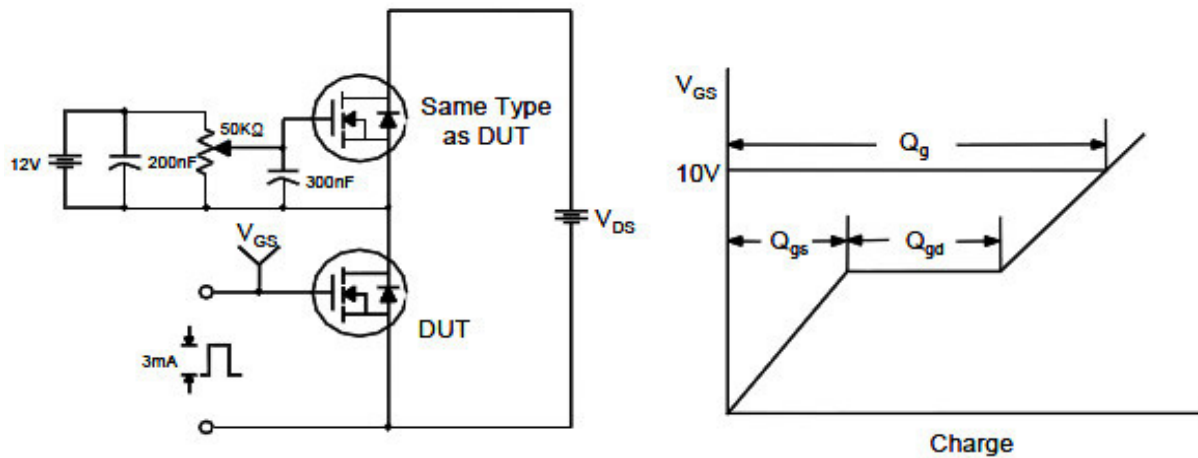
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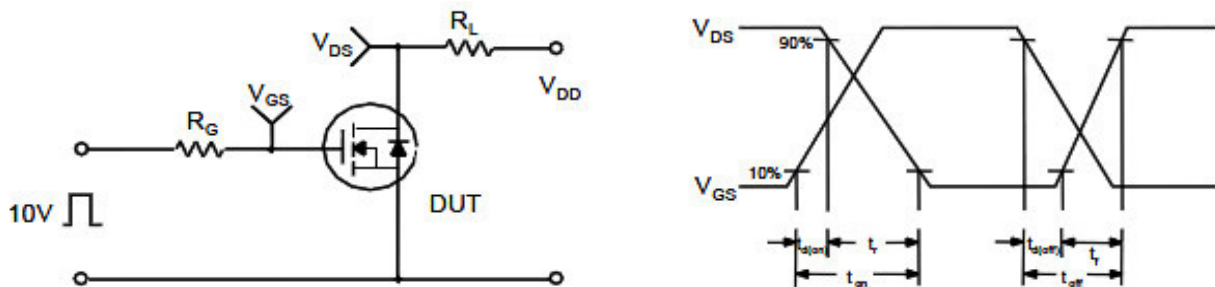
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■ Test circuit and waveform

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms

