

Dual N-channel MOSFET

ELM51932A-S

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

■General description

ELM51932A-S uses advanced trench technology to provide excellent $R_{ds(on)}$, low gate charge and operation with gate voltages as low as 1.8V.

■Features

- $V_{ds}=30V$
- $I_d=1.8A$
- $R_{ds(on)} = 430m\Omega$ ($V_{gs}=4.5V$)
- $R_{ds(on)} = 580m\Omega$ ($V_{gs}=2.5V$)
- $R_{ds(on)} = 860m\Omega$ ($V_{gs}=1.8V$)

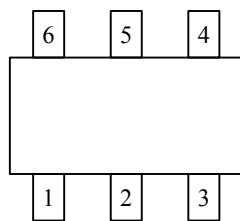
■Maximum absolute ratings

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

Parameter	Symbol	Limit	Unit
Drain-source voltage	V_{ds}	30	V
Gate-source voltage	V_{gs}	± 12	V
Continuous drain current($T_j=150^{\circ}C$)	I_d	1.8	A
		1.0	
Pulsed drain current	I_{dm}	6.0	A
Power dissipation	P_d	0.3	W
		0.2	
Operating junction temperature	T_j	- 55 to 150	$^{\circ}C$
Storage temperature range	T_{stg}	- 55 to 150	$^{\circ}C$

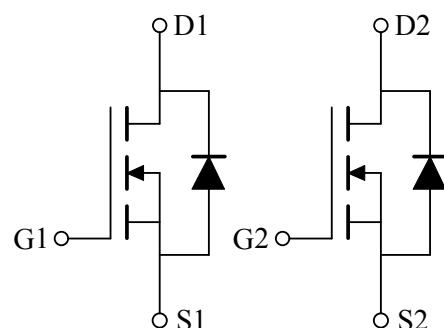
■Pin configuration

SC-70-6(TOP VIEW)



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

■Circuit



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■ Electrical characteristics

Ta=25°C. Unless otherwise noted.

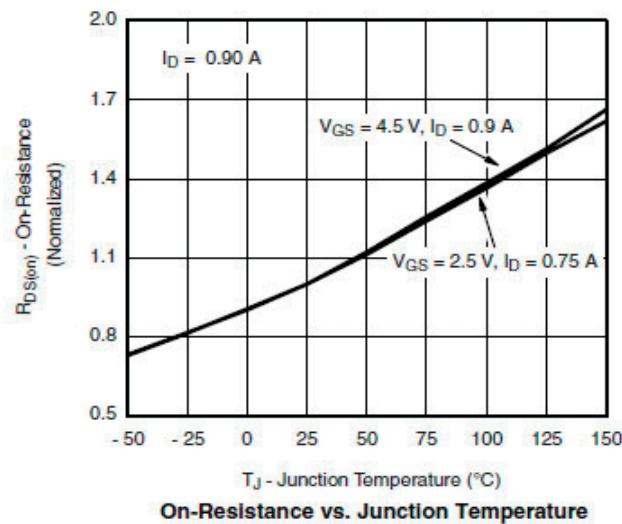
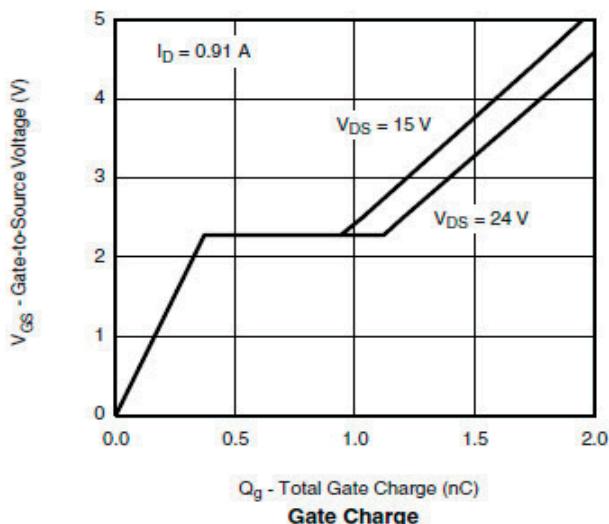
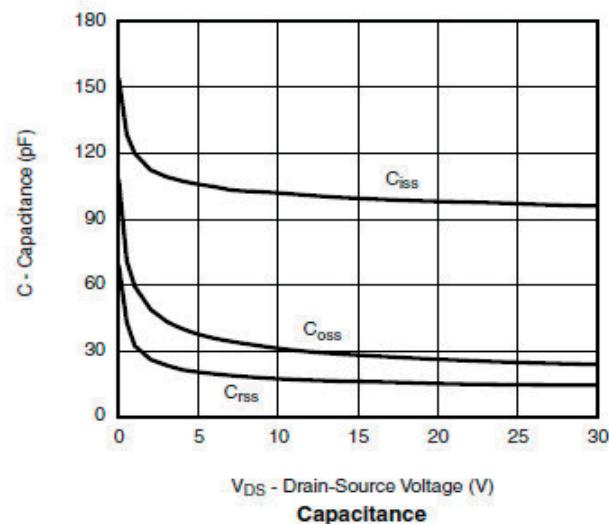
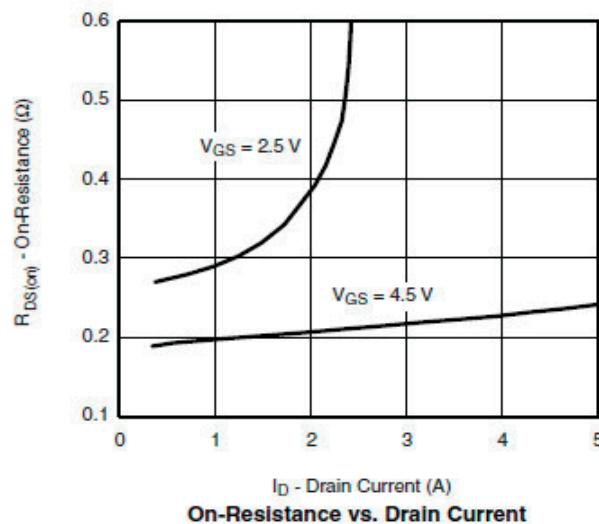
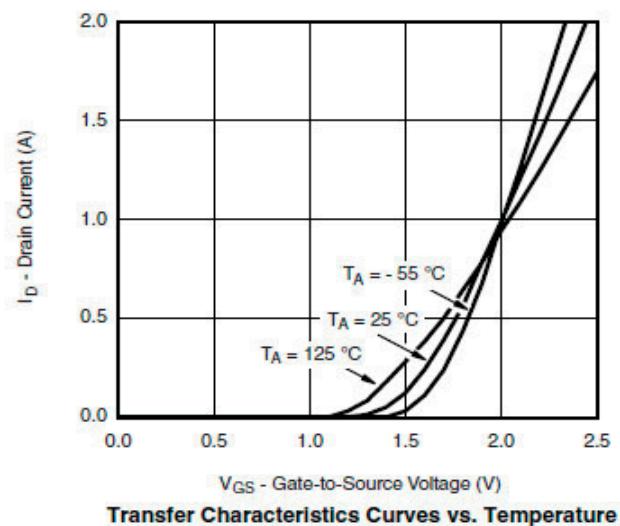
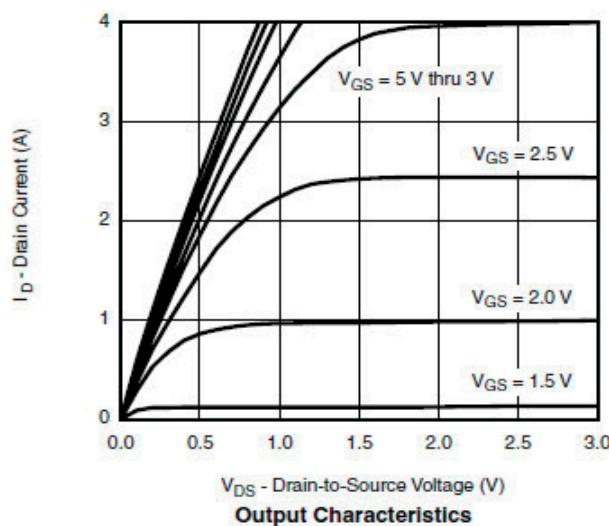
Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
STATIC PARAMETERS							
Drain-source breakdown voltage	BVdss	Id=250μA, Vgs=0V		30			V
Zero gate voltage drain current	Idss	Vds=24V, Vgs=0V			1		μA
			Ta=85°C			5	
Gate-source leakage current	Igss	Vds=0V, Vgs=±12V			±100		nA
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=250μA		0.5		1.0	V
On state drain current	Id(on)	Vgs=4.5V, Vds≥5V		1.8			A
Static drain-source on-resistance	Rds(on)	Vgs=4.5V, Id=1.5A			380	430	mΩ
		Vgs=2.5V, Id=1.2A			480	580	
		Vgs=1.8V, Id=0.6A			700	860	
Forward transconductance	Gfs	Vds=10V, Id=1.0A			1		S
Diode forward voltage	Vsd	Is=1.0A, Vgs=0V			0.65	1.20	V
Max. body-diode continuous current	Is					1.0	A
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=15V, f=1MHz			85		pF
Output capacitance	Coss				25		pF
Reverse transfer capacitance	Crss				15		pF
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=4.5V, Vds=15V, Id=1.2A			1.4	1.8	nC
Gate-source charge	Qgs				0.3		nC
Gate-drain charge	Qgd				0.6		nC
Turn-on delay time	td(on)	Vgs=4.5V, Vds=15V RL=20Ω, Id=1.2A Rgen=1.0Ω			15	25	ns
Turn-on rise time	tr				25	45	ns
Turn-off delay time	td(off)				15	25	ns
Turn-off fall time	tf				10	20	ns

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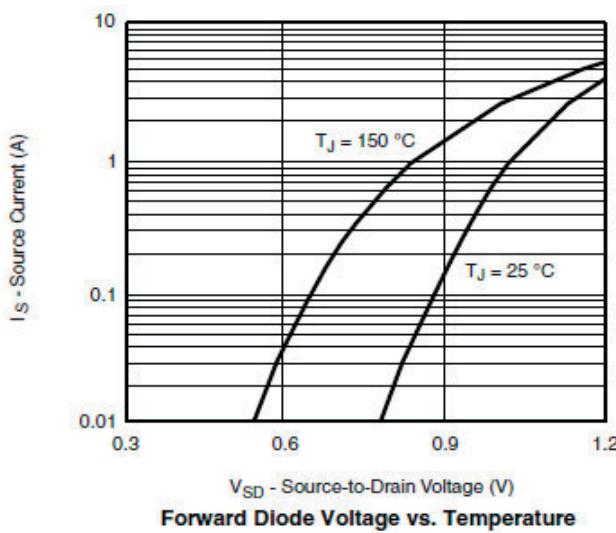
■ Typical electrical and thermal characteristics



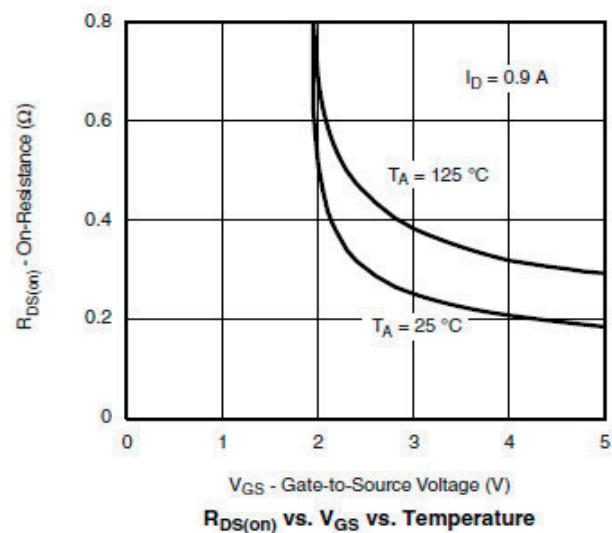
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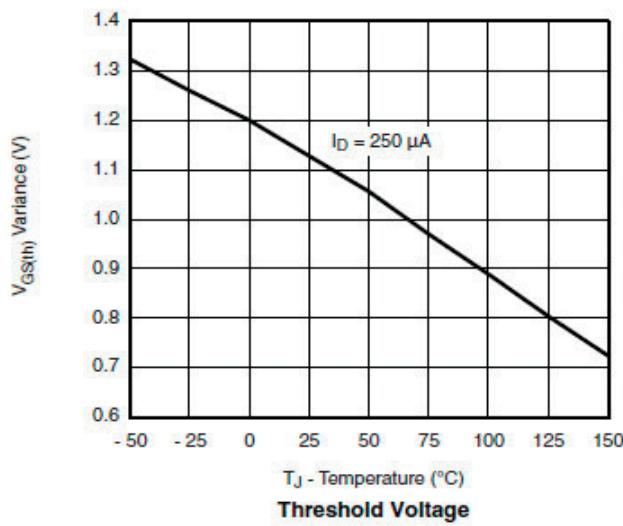
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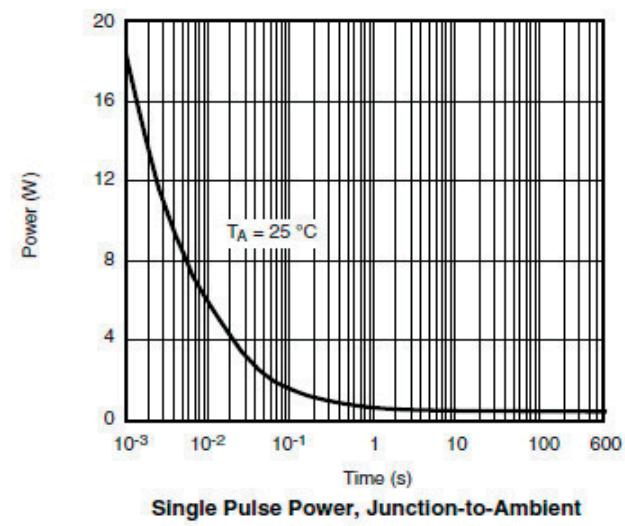
Forward Diode Voltage vs. Temperature



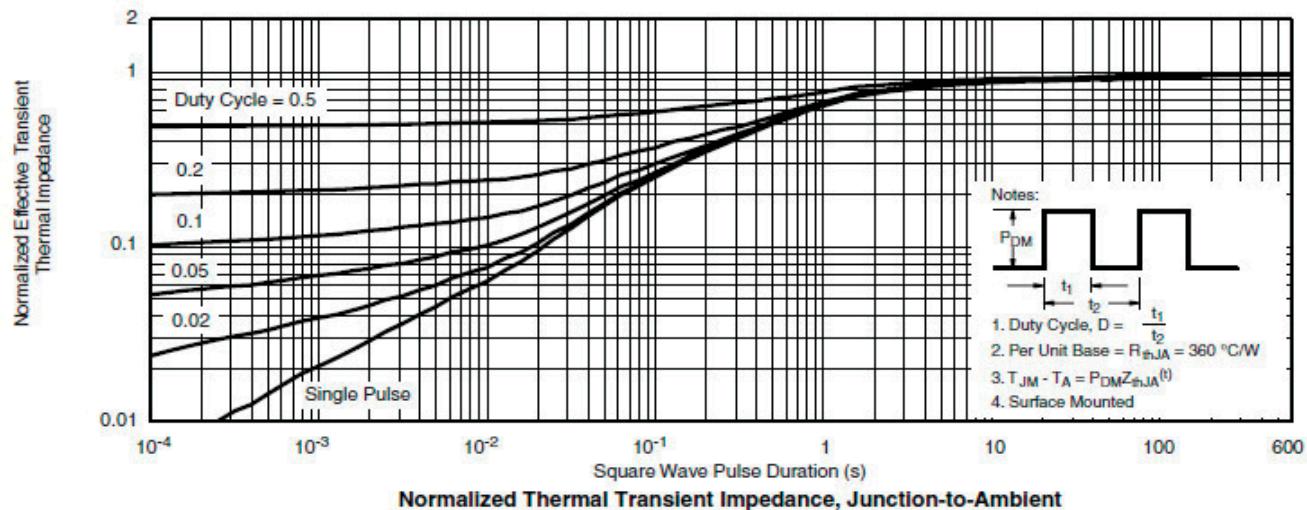
$R_{DS(on)}$ vs. V_{GS} vs. Temperature



Threshold Voltage



Single Pulse Power, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Ambient

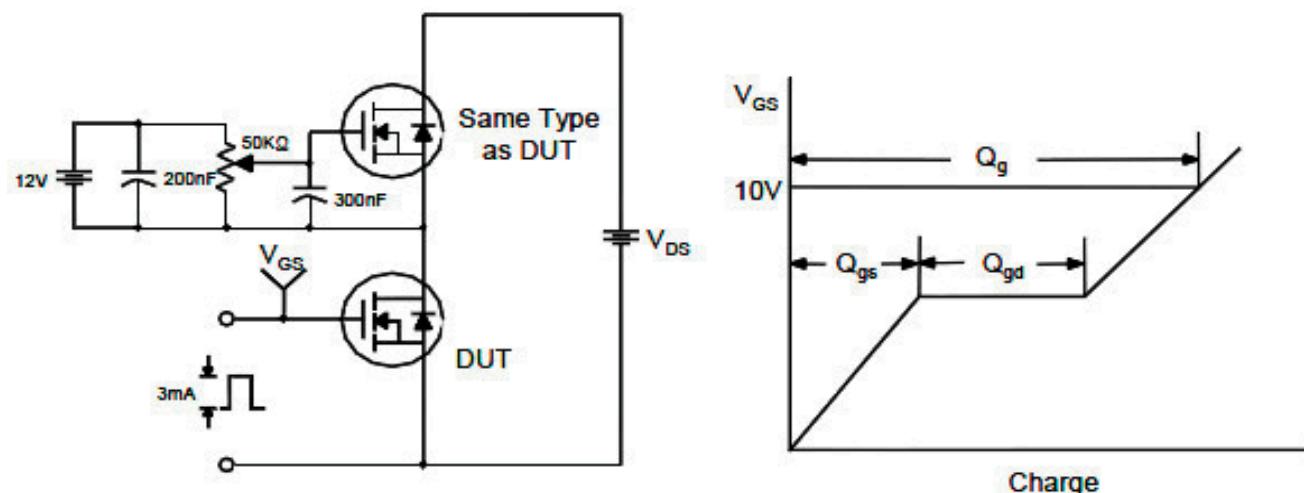
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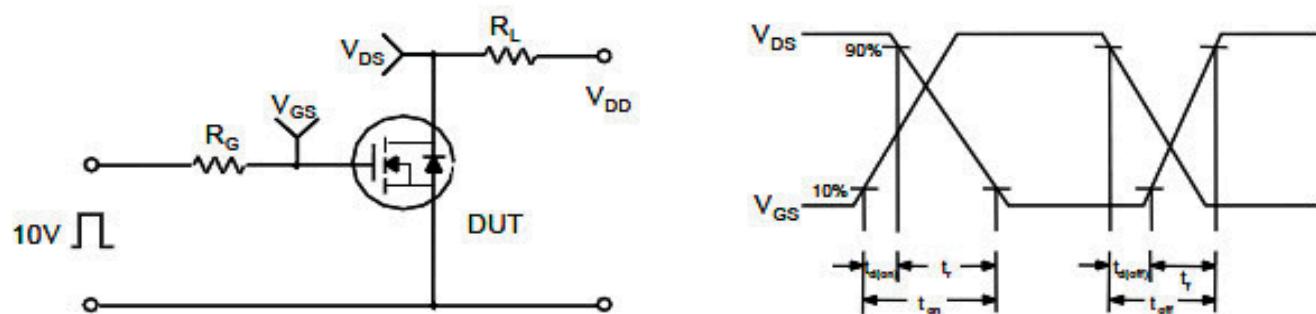
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■ Test circuit and waveform

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms

