Dual P-channel MOSFET
ELM51933A-S

■General description

ELM51933A-S uses advanced trench technology to provide excellent Rds(on), low gate charge and low gate threshold voltage.

■Features

- Vds=-30V
- Id=-0.55A
- Rds(on) = 900mΩ (Vgs=-10V)
- Rds(on) = 1000mΩ (Vgs=-4.5V)
- Rds(on) = 1800mΩ (Vgs=-2.5V)

■Maximum absolute ratings

Ta=25°C. Unless otherwise noted.

Parameter		Symbol	Limit	Unit
Drain-source voltage		Vds	-30	V
Gate-source voltage		Vgs	±12	V
Continuous drain current(Tj=150°C)	Ta=25°C	Id	-0.55	A
	Ta=70°C		-0.15	
Pulsed drain current		Idm	-1.0	A
Power dissipation	Tc=25°C	Pd	0.3	W
	Tc=70°C		0.2	
Junction and storage temperature range		Tj, Tstg	-55 to 150	°C

■Pin configuration

SC-70-6(TOP VIEW)
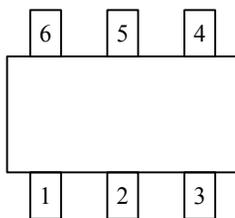
Pin No.	Pin name
1	SOURCE1
2	GATE1
3	DRAIN2
4	SOURCE2
5	GATE2
6	DRAIN1

■Circuit
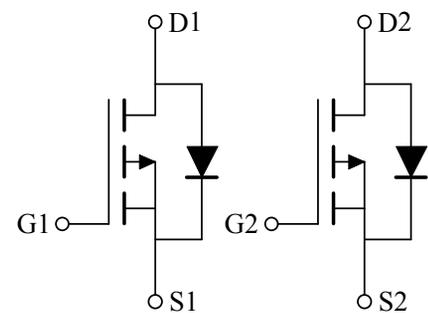
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■Electrical characteristics

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-body leakage current	Igss	Vds=0V, Vgs=±12V				±100	nA
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=-250μA		-0.7		-1.5	V
On state drain current	Id(on)	Vgs=-4.5V, Vds≥-5V		-0.5			A
Static drain-source on-resistance	Rds(on)	Vgs=-10V, Id=-0.55A			650	900	mΩ
		Vgs=-4.5V, Id=-0.35A			800	1000	
		Vgs=-2.5V, Id=-0.15A			1200	1800	
Forward transconductance	Gfs	Vds=-15V, Id=-0.5A			1		S
Diode forward voltage	Vsd	Is=-0.15A, Vgs=0V			-0.65	-1.30	V
Max. body-diode continuous current	Is					-0.3	A
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=-15V, f=1MHz			34		pF
Output capacitance	Coss				12		pF
Reverse transfer capacitance	Crss				8		pF
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=-4.5V, Vds=-15V Id=-0.15A			0.8	1.3	nC
Gate-source charge	Qgs				0.4		nC
Gate-drain charge	Qgd				0.4		nC
Turn-on delay time	td(on)	Vgs=-4.5V, Vds=-15V RL=38Ω, Id=-0.15A Rgen=1.0Ω			35	50	ns
Turn-on rise time	tr				20	30	ns
Turn-off delay time	td(off)				10	20	ns
Turn-off fall time	tf				10	20	ns

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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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Source-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-Foot**

Rev.1.0
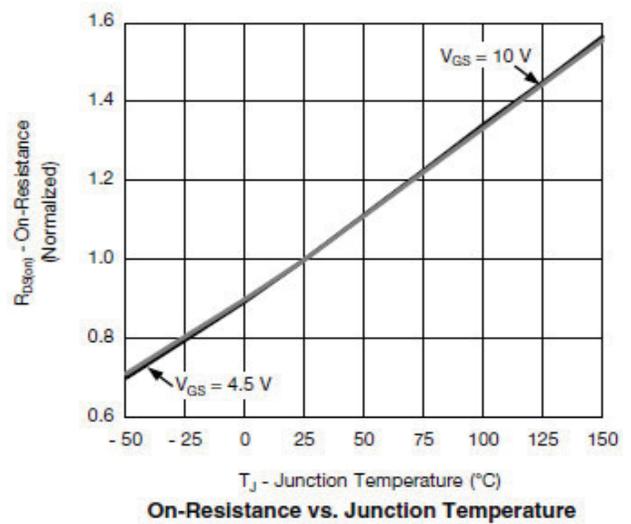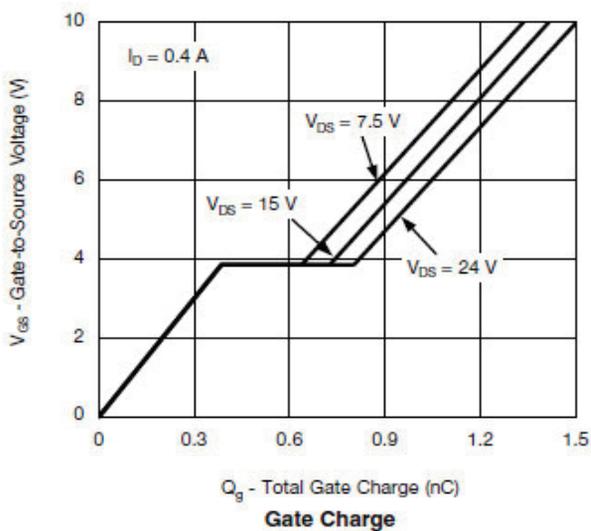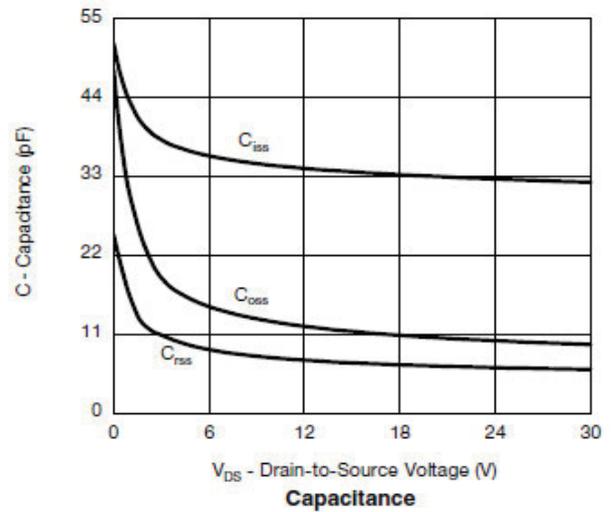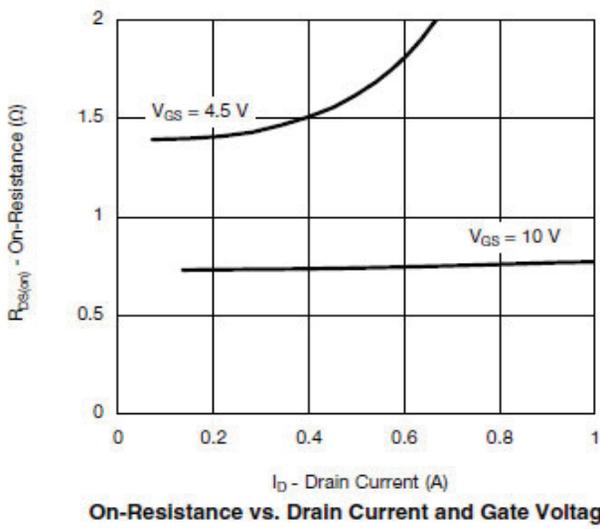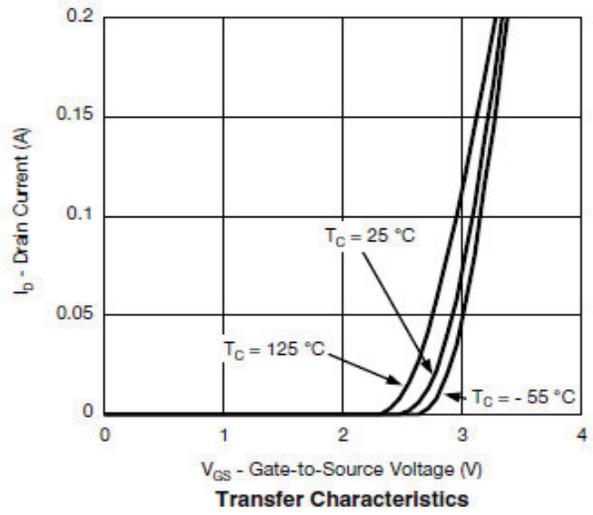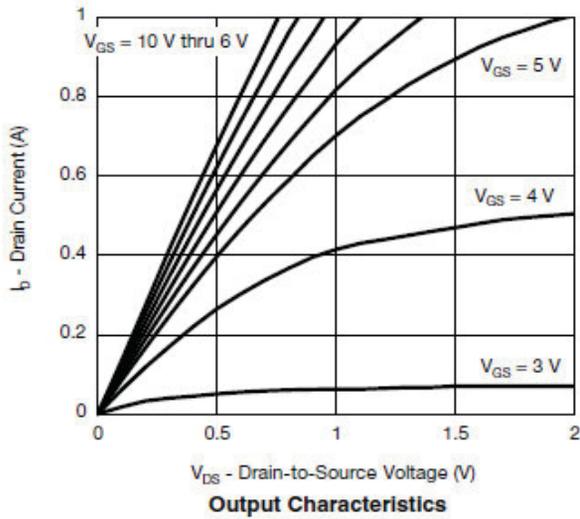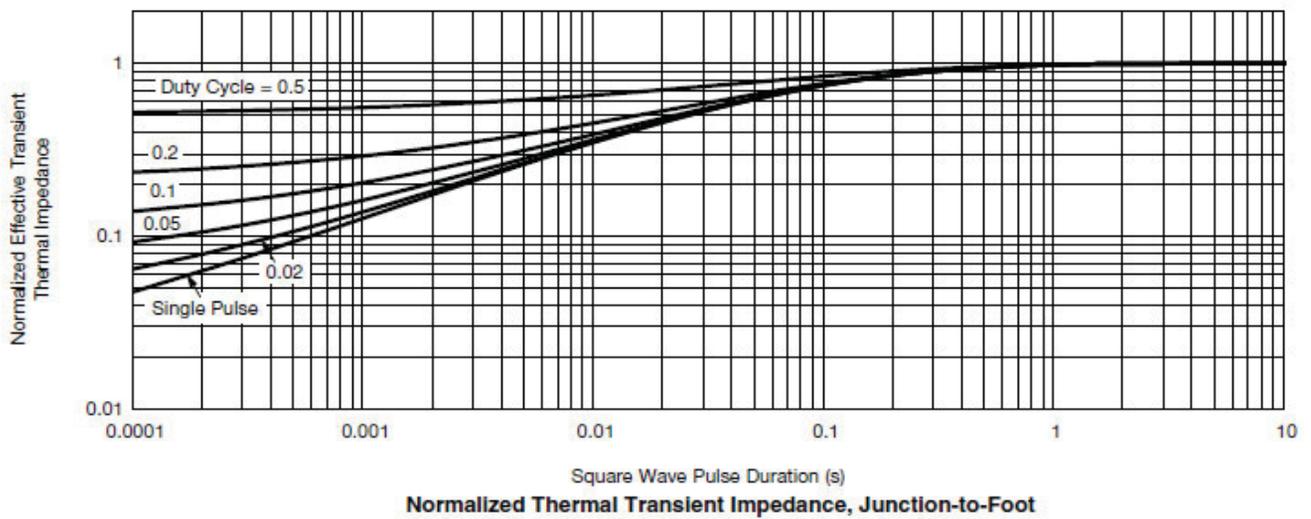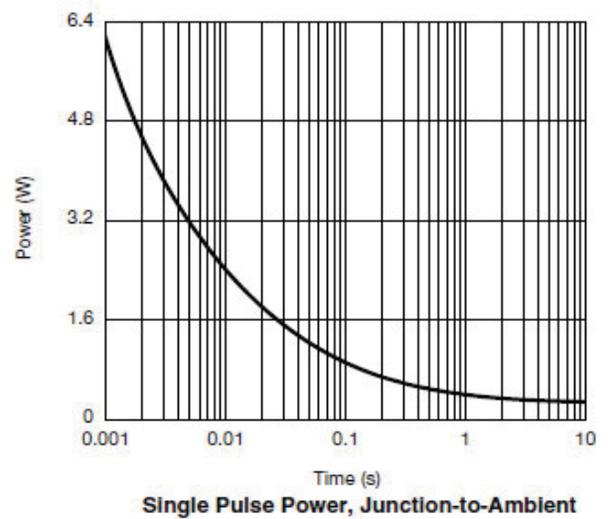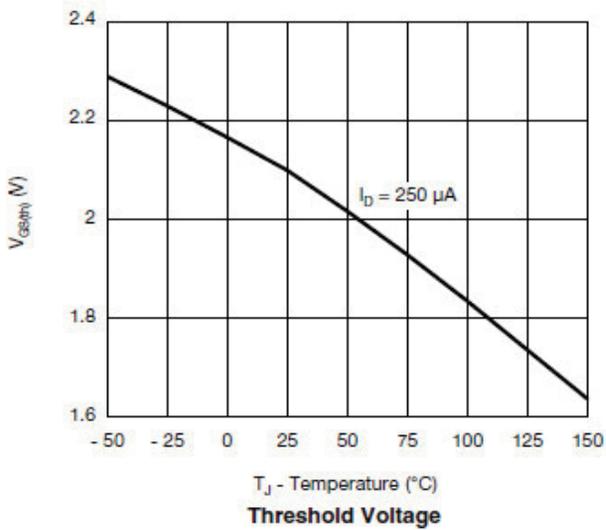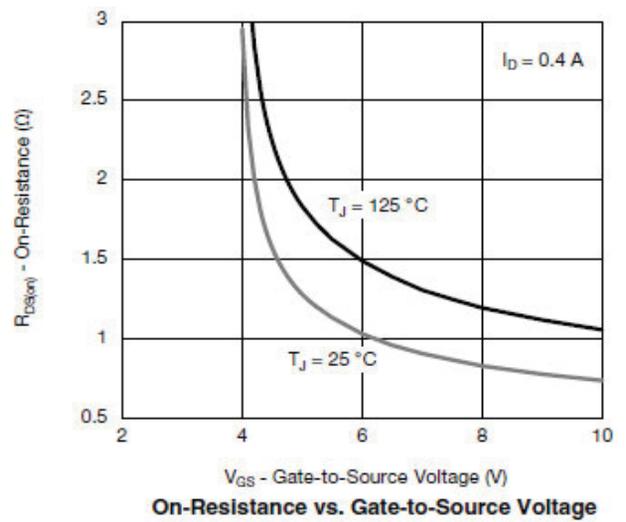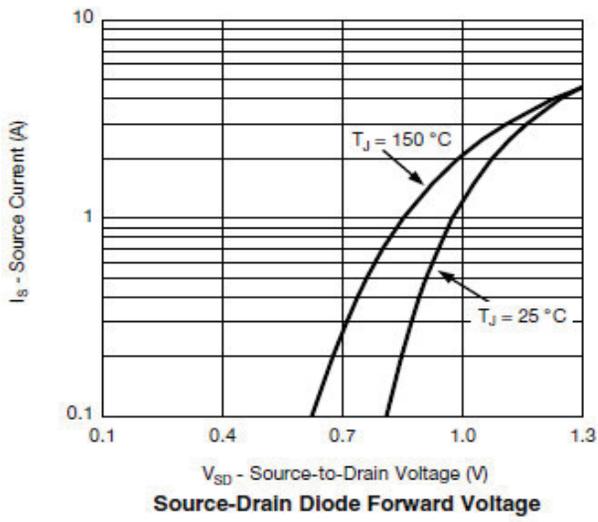
■Test circuit & waveform

Gate Charge Test Circuit & Waveform
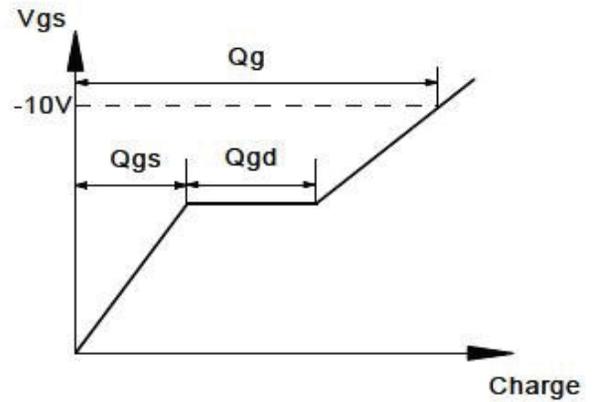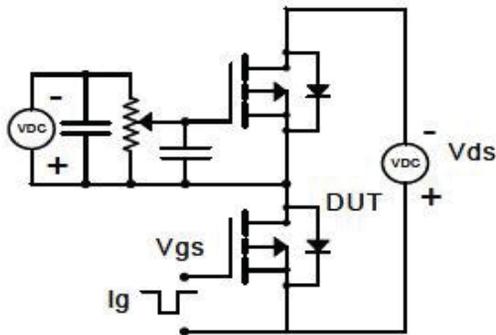
Resistive Switching Test Circuit & Waveforms
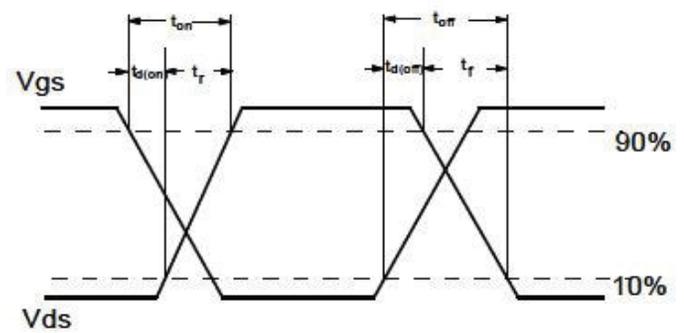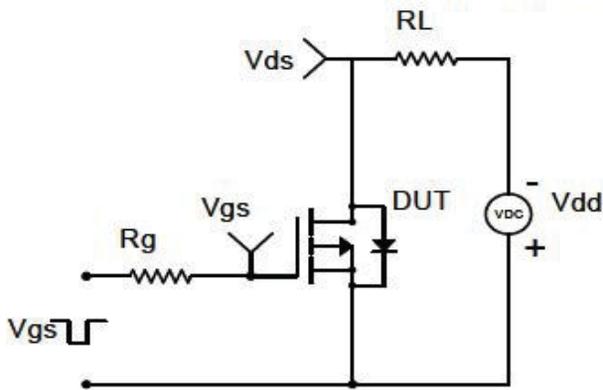
Diode Recovery Test Circuit & Waveforms

$$Q_{rr} = \int Idt$$