

Single P-channel MOSFET

ELM52325AA-S

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

■General description

ELM52325AA-S uses advanced trench technology to provide excellent $R_{ds(on)}$, low gate charge and low gate threshold voltage.

■Features

- $V_{ds} = -100V$
- $I_d = -1.0A$
- $R_{ds(on)} = 750m\Omega$ ($V_{gs} = -10V$)
- $R_{ds(on)} = 800m\Omega$ ($V_{gs} = -4.5V$)

■Maximum absolute ratings

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

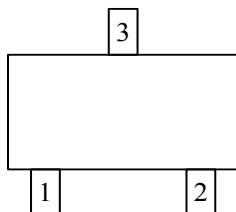
Parameter		Symbol	Limit	Unit
Drain-source voltage		V_{ds}	-100	V
Gate-source voltage		V_{gs}	± 20	V
Continuous drain current($T_j = 150^\circ C$)	$T_a = 25^\circ C$	I_d	-1.0	A
	$T_a = 70^\circ C$		-0.5	
Pulsed drain current		I_{dm}	-4.0	A
Power dissipation	$T_c = 25^\circ C$	P_d	1.25	W
	$T_c = 70^\circ C$		0.80	
Operating junction temperature		T_j	150	$^\circ C$
Junction and 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	$^\circ C/W$

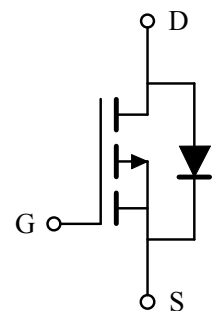
■Pin configuration

SOT-23(TOP VIEW)



Pin No.	Pin name
1	GATE
2	SOURCE
3	DRAIN

■Circuit



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■Electrical characteristics

Ta=25°C. Unless otherwise noted.

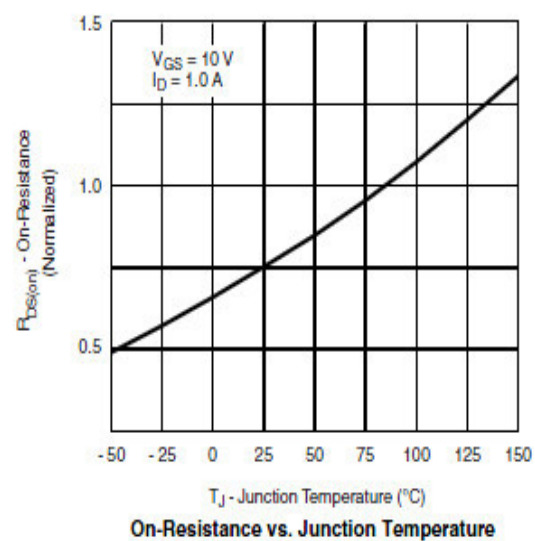
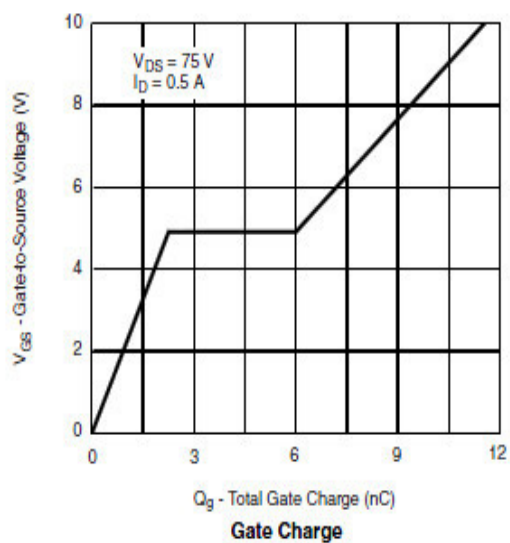
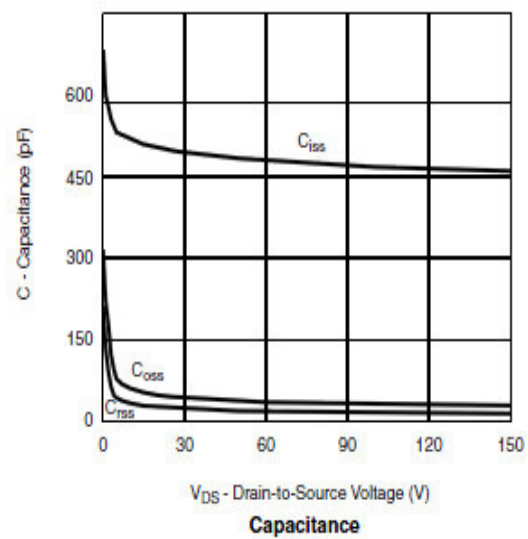
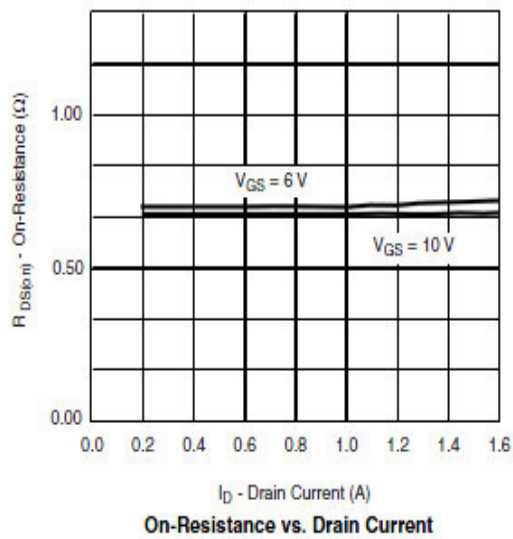
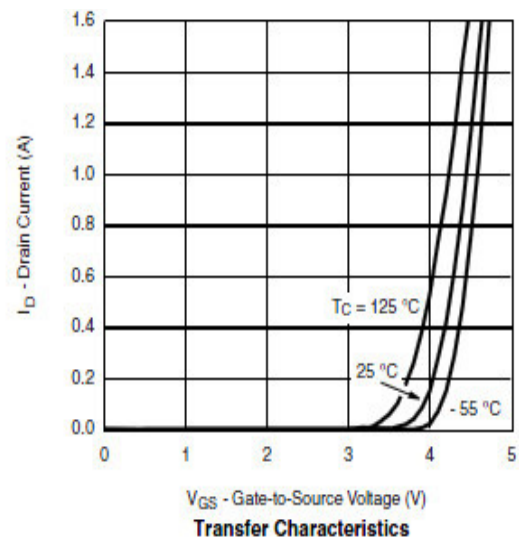
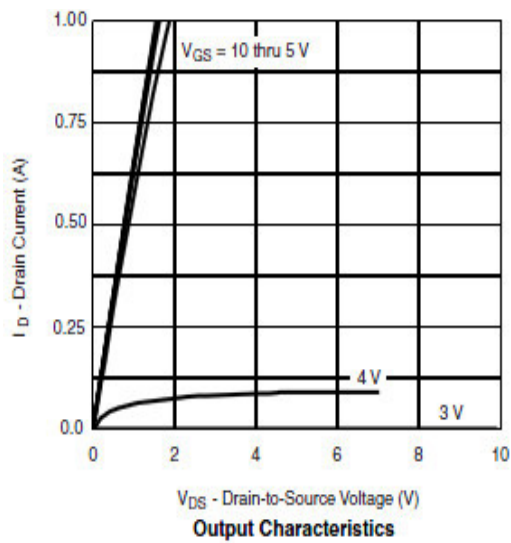
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	BVdss	Vgs=0V, Id=-250μA	-100			V
Zero gate voltage drain current	Idss	Vds=-80V, Vgs=0V			-1	μA
		Vds=-80V, Vgs=0V, Ta=85°C			-30	
Gate-body leakage current	Igss	Vds=0V, Vgs=±12V			±100	nA
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=-250μA	-1.0		-2.5	V
On state drain current	Id(on)	Vgs=-10V, Vds≥-15V	-1.6			A
Static drain-source on-resistance	Rds(on)	Vgs=-10V, Id=-1.0A		650	750	mΩ
		Vgs=-4.5V, Id=-0.5A		700	800	
Forward transconductance	Gfs	Vds=-15V, Id=-0.5A		2.8		S
Diode forward voltage	Vsd	Is=-0.5A, Vgs=0V		-0.75	-1.30	V
Max. body-diode continuous current	Is				-1	A
DYNAMIC PARAMETERS						
Input capacitance	Ciss	Vgs=0V, Vds=-25V, f=1MHz		450	650	pF
Output capacitance	Coss			50		pF
Reverse transfer capacitance	Crss			30		pF
SWITCHING PARAMETERS						
Total gate charge	Qg	Vgs=-10V, Vds=-75V Id≡-0.5A		9.0	20.0	nC
Gate-source charge	Qgs			2.5		nC
Gate-drain charge	Qgd			3.5		nC
Turn-on delay time	td(on)	Vgs=-10V, Vds=-75V RL=75Ω, Id≡-1.0A Rgen=6.0Ω		10	20	ns
Turn-on rise time	tr			15	30	ns
Turn-off delay time	td(off)			20	40	ns
Turn-off fall time	tf			15	30	ns

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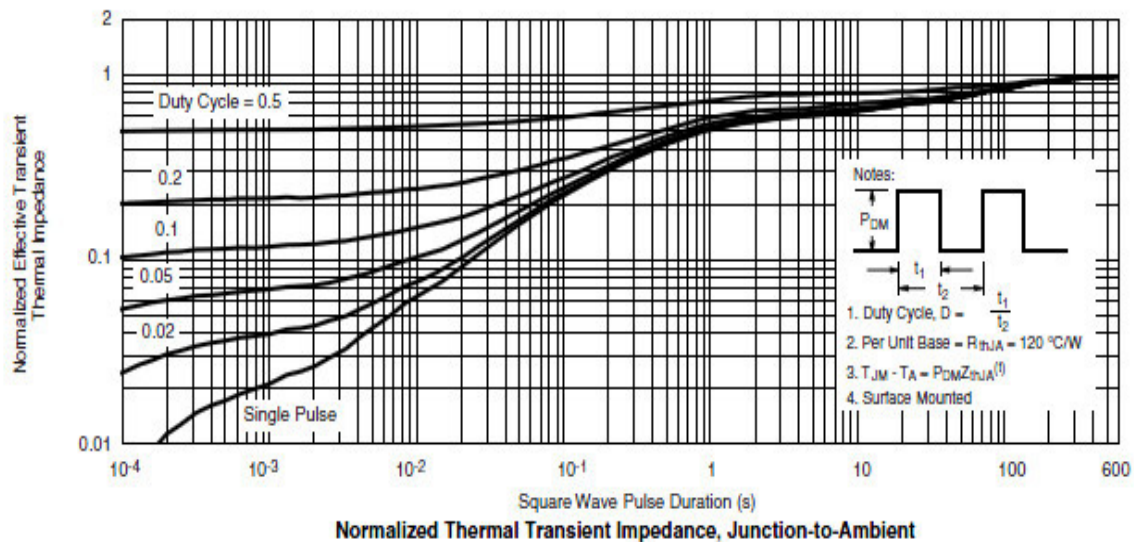
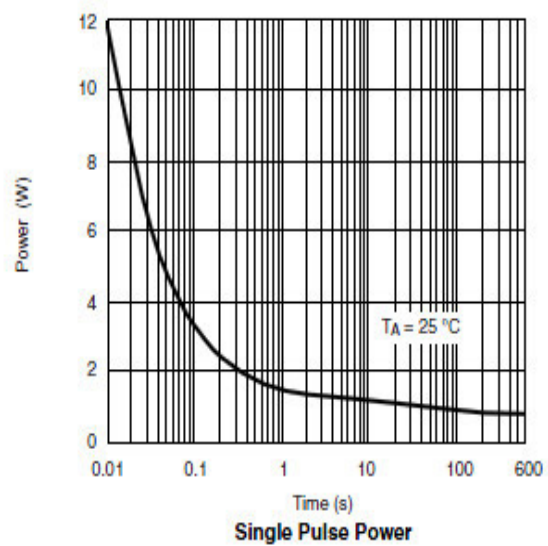
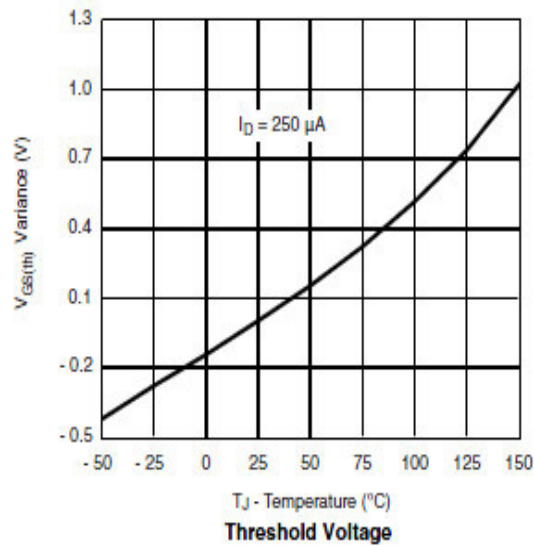
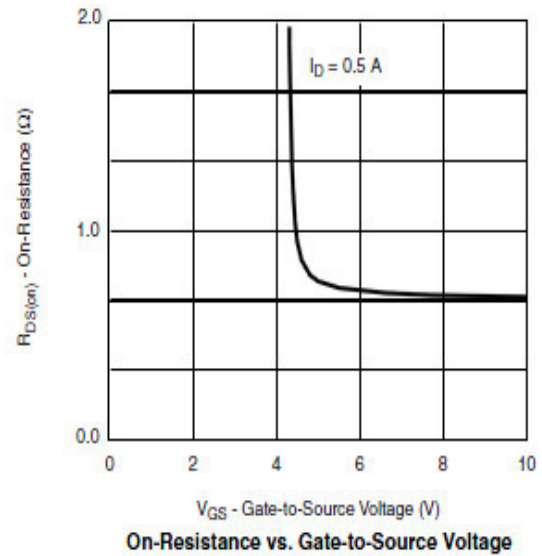
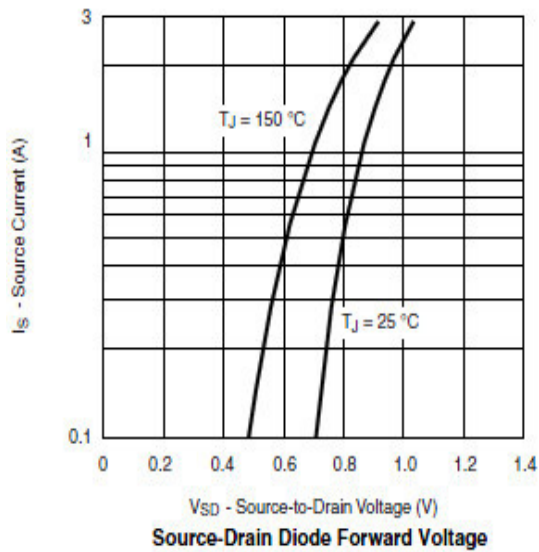
■ Typical electrical and thermal characteristics



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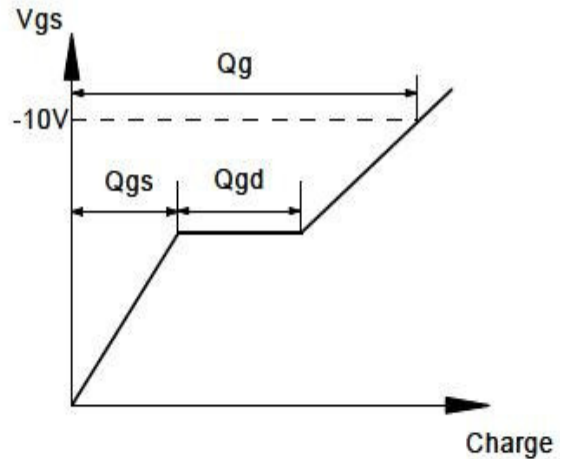
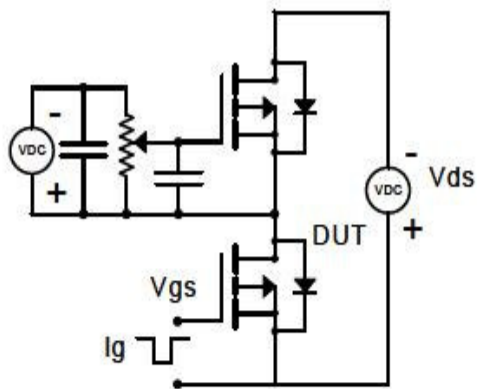
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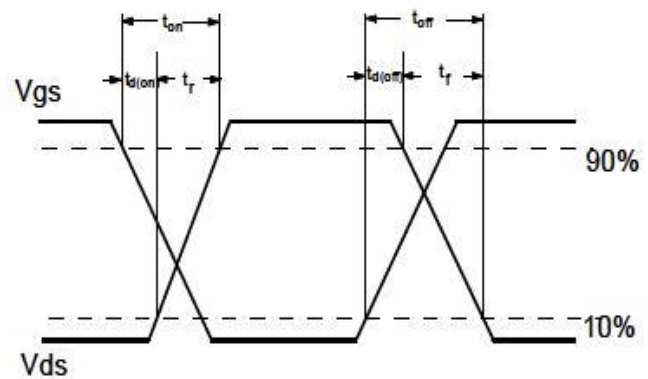
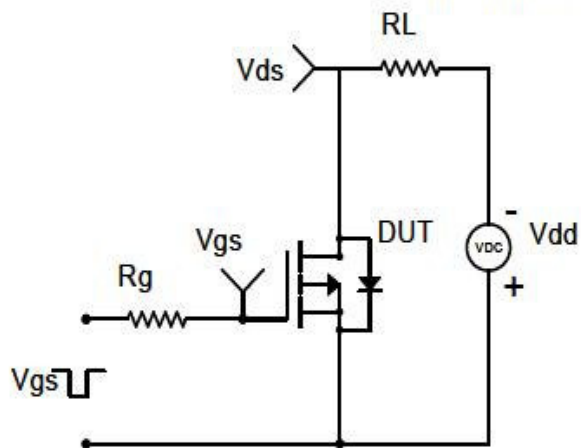
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■ Test circuit and waveform

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

