

Dual P-channel MOSFET

ELM54535WA-N

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

■General description

ELM54535WA-N uses advanced trench technology to provide excellent $R_{ds(on)}$ and low gate charge.

■Features

- $V_{ds}=-40V$
- $I_d=-6.2A$
- $R_{ds(on)}=35m\Omega$ ($V_{gs}=-10V$)
- $R_{ds(on)}=50m\Omega$ ($V_{gs}=-4.5V$)

■Maximum absolute ratings

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

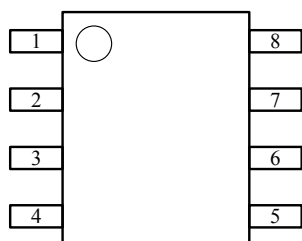
Parameter		Symbol	Limit	Unit
Drain-source voltage		V_{ds}	-40	V
Gate-source voltage		V_{gs}	± 20	V
Continuous drain current($T_j=150^{\circ}C$)	$T_a=25^{\circ}C$	I_d	-6.2	A
	$T_a=70^{\circ}C$		-5.2	
Pulsed drain current		I_{dm}	-20	A
Power dissipation	$T_c=25^{\circ}C$	P_d	2.8	W
	$T_c=70^{\circ}C$		1.8	
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	$^{\circ}C/W$

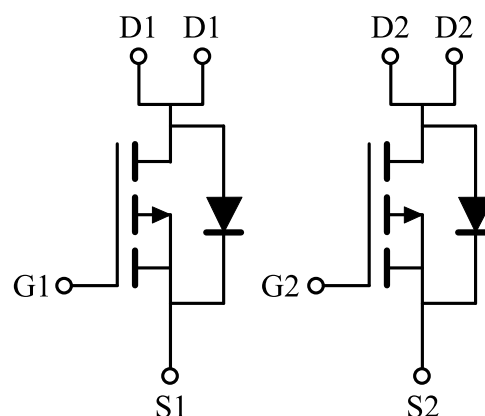
■Pin configuration

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.

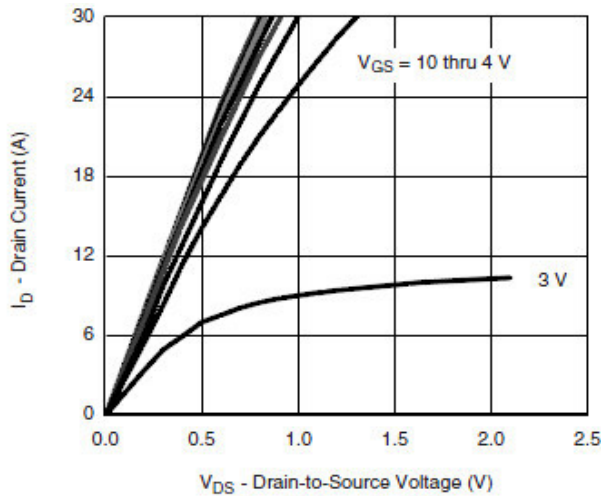
Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
STATIC PARAMETERS							
Drain-source breakdown voltage	BVdss	Id=-250μA, Vgs=0V		-40			V
Zero gate voltage drain current	Idss	Vds=-40V, Vgs=0V				-1	μA
			Ta=85°C			-20	
Gate-body leakage current	Igss	Vds=0V, Vgs=±20V				±100	nA
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=-250μA		-1.0		-3.0	V
On state drain current	Id(on)	Vgs=-10V, Vds≥-5V		-20			A
Static drain-source on-resistance	Rds(on)	Vgs=-10V, Id=-6.2A			30	35	mΩ
		Vgs=-4.5V, Id=-5.2A			40	50	
Forward transconductance	Gfs	Vds=-15V, Id=-5.0A			20		S
Diode forward voltage	Vsd	Is=-2.0A, Vgs=0V			-0.8	-1.2	V
Max. body-diode continuous current	Is					-1.7	A
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=-20V, f=1MHz			1100		pF
Output capacitance	Coss				145		pF
Reverse transfer capacitance	Crss				115		pF
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=-4.5V, Vds=-20V Id≐-5.0A			13.0	20.0	nC
Gate-source charge	Qgs				4.5		nC
Gate-drain charge	Qgd				6.5		nC
Turn-on delay time	td(on)	Vgs=-4.5V, Vds=-20V Id≐-5.0A, RL=4Ω Rgen=1Ω			40	80	ns
Turn-on rise time	tr				55	100	ns
Turn-off delay time	td(off)				30	60	ns
Turn-off fall time	tf				12	20	ns

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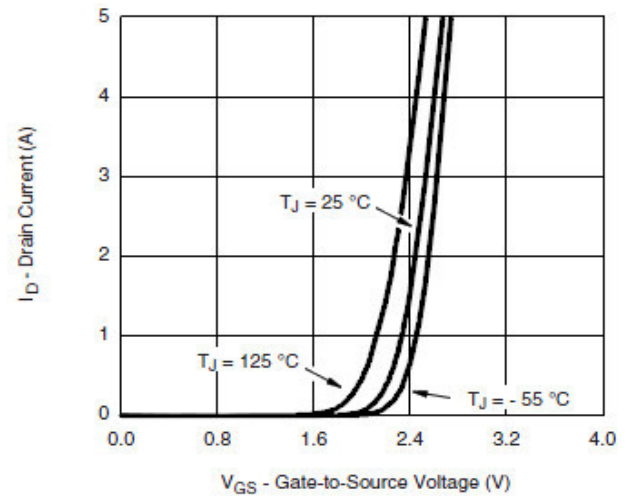
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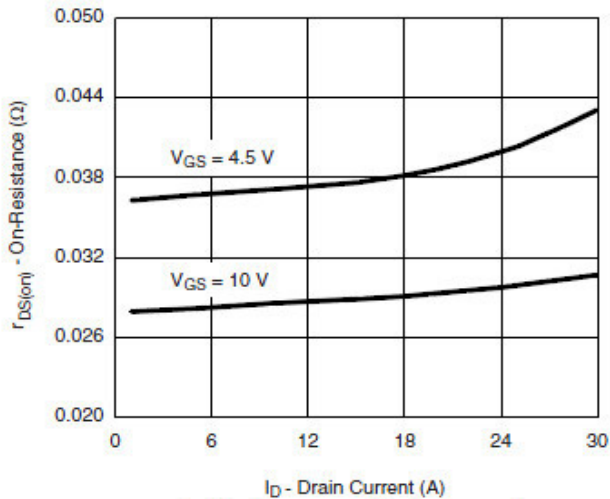
■ Typical electrical and thermal characteristics



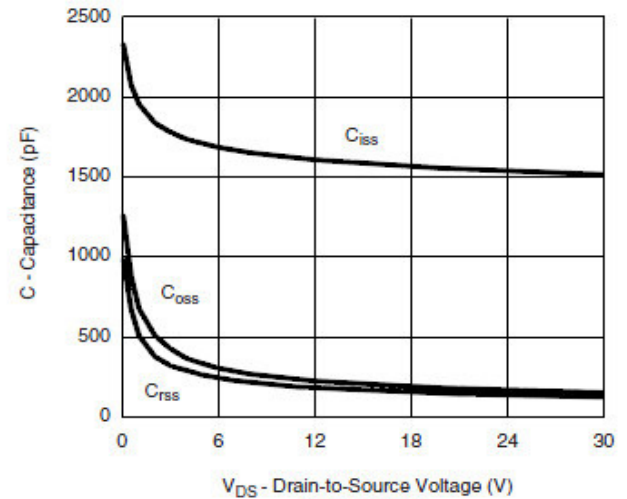
Output Characteristics



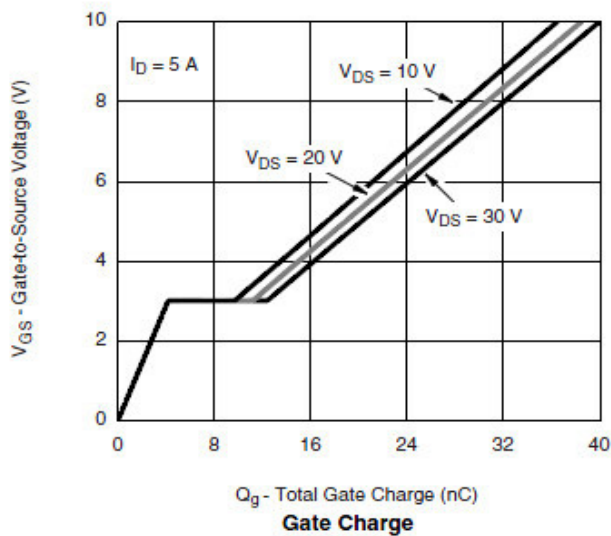
Transfer Characteristics



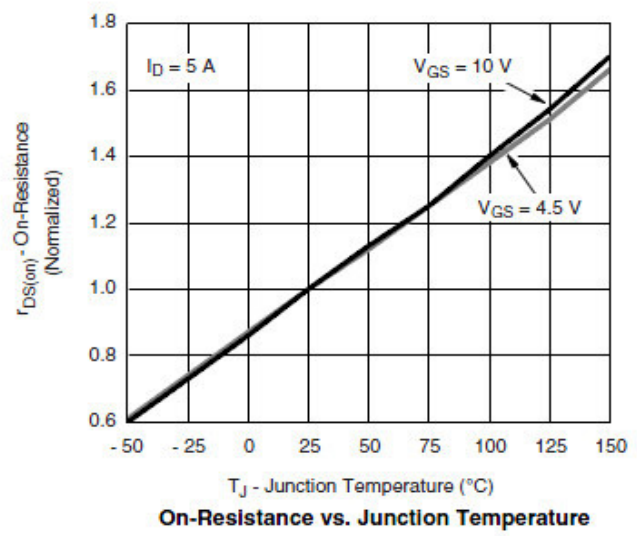
On-Resistance vs. Drain Current



Capacitance



Gate Charge

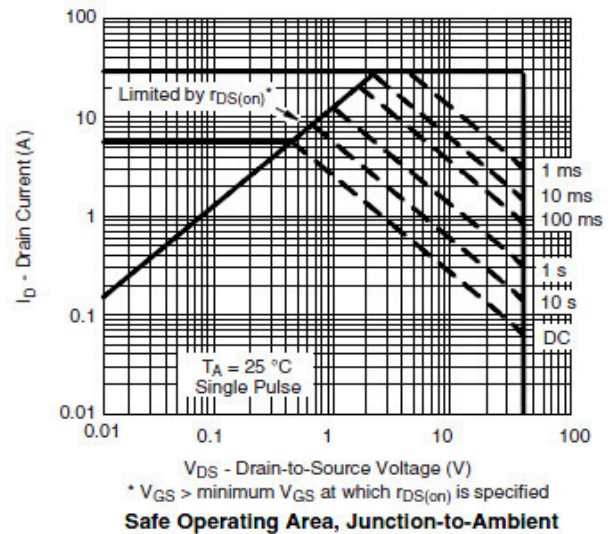
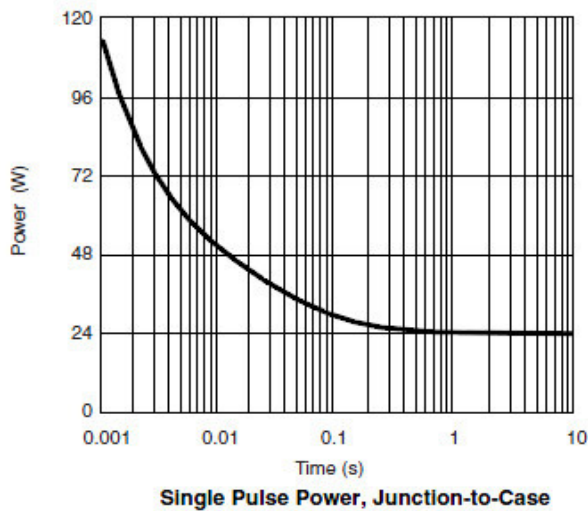
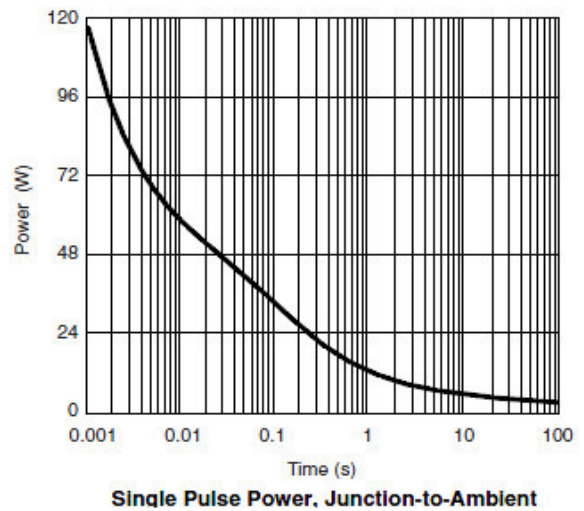
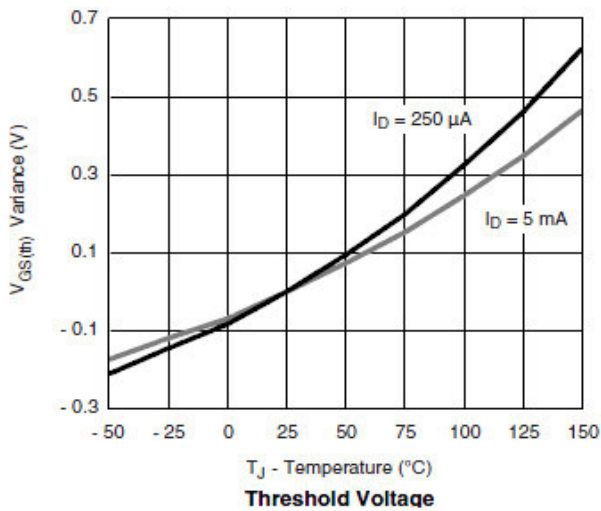
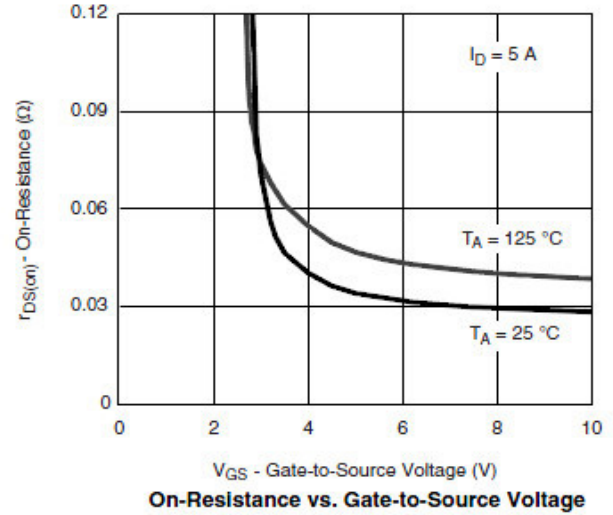
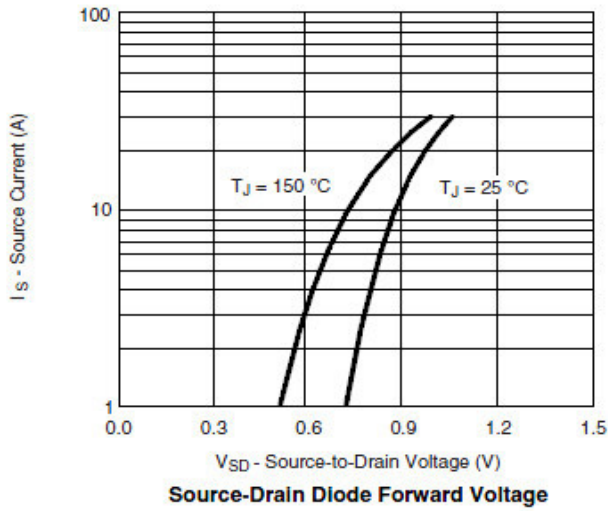


On-Resistance vs. Junction Temperature

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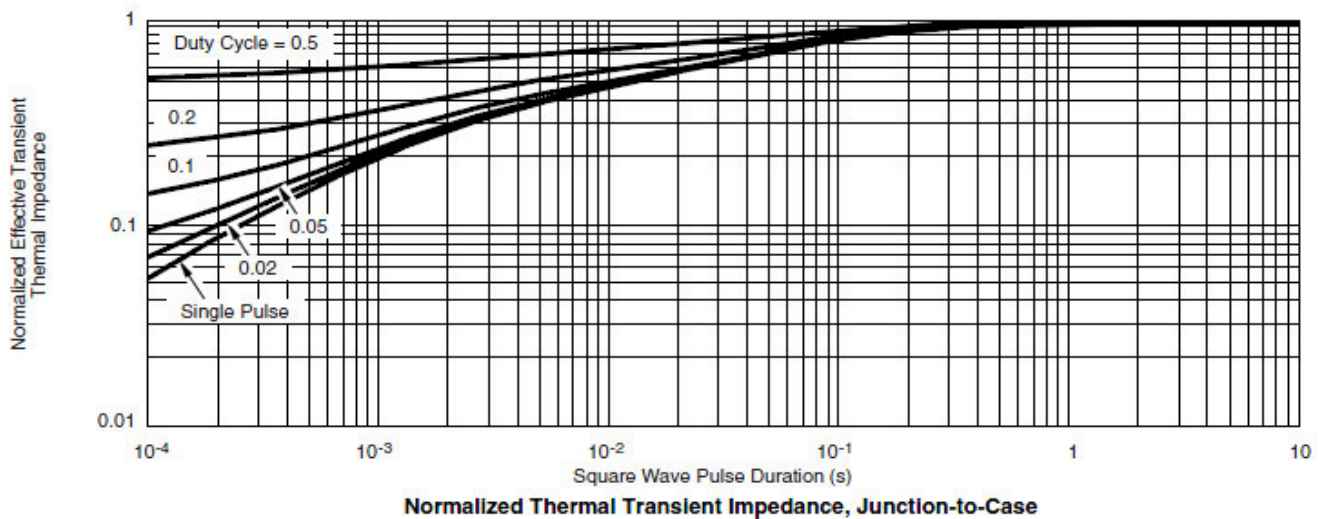
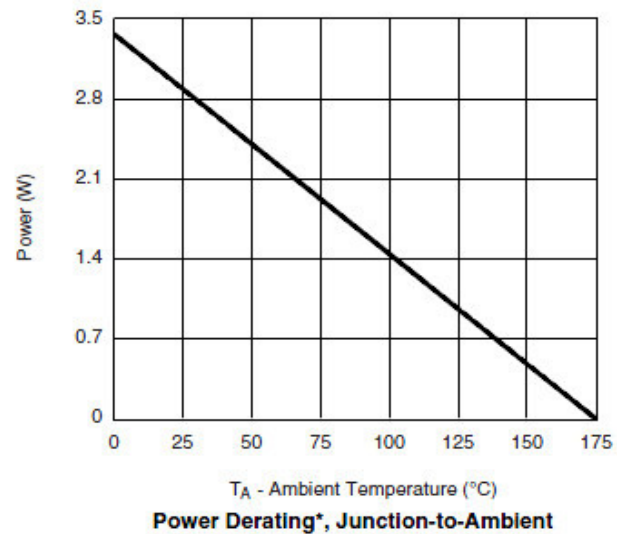
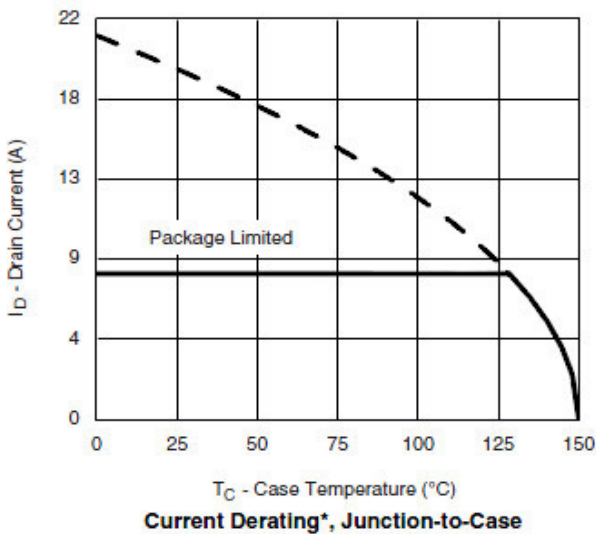
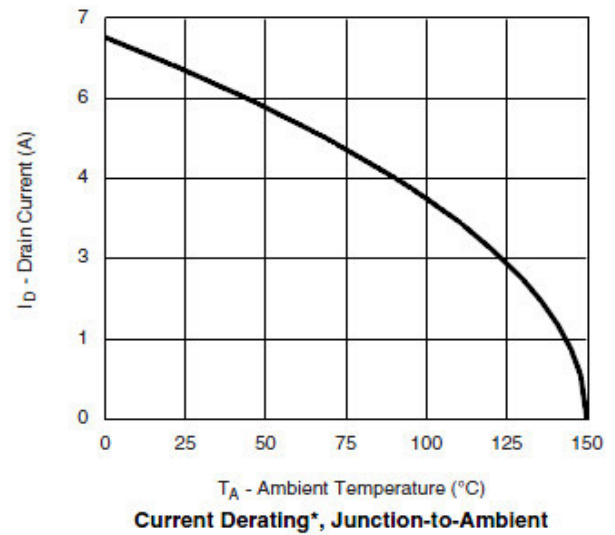
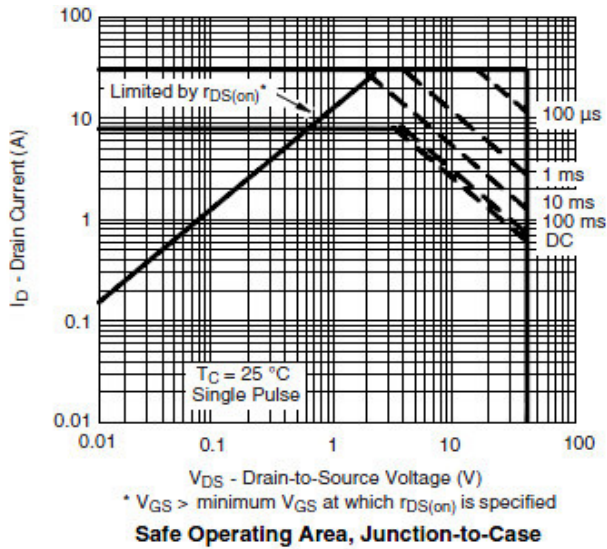
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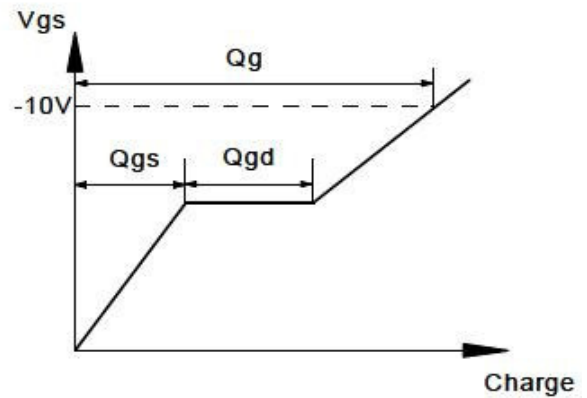
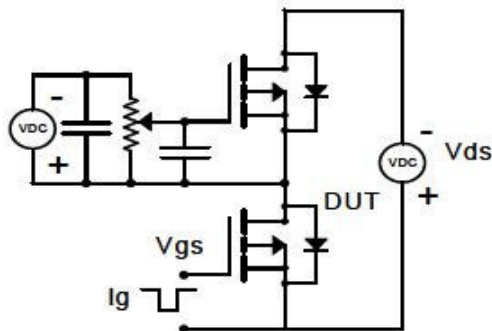
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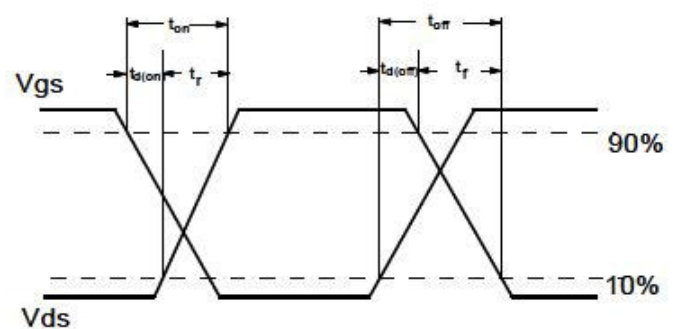
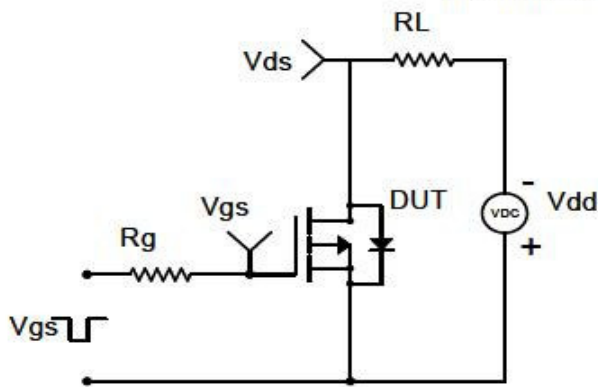
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■ Test circuit & waveform

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

