

# Dual P-channel MOSFET

ELM549481WA-N

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

## ■ General description

ELM549481WA-N uses advanced trench technology to provide excellent  $R_{ds(on)}$  and low gate charge.

## ■ Features

- $V_{ds} = -60V$
- $I_d = -4.0A$
- $R_{ds(on)} = 100m\Omega$  ( $V_{gs} = -10V$ )
- $R_{ds(on)} = 112m\Omega$  ( $V_{gs} = -4.5V$ )

## ■ Maximum absolute ratings

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

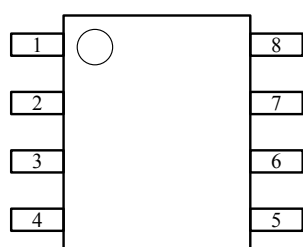
Parameter	Symbol	Limit	Unit
Drain-source voltage	$V_{ds}$	-60	V
Gate-source voltage	$V_{gs}$	$\pm 20$	V
Continuous drain current ( $T_j = 150^\circ C$ )	$I_d$	$T_a = 25^\circ C$	-4.0
		$T_a = 70^\circ C$	-3.0
Pulsed drain current	$I_{dm}$	-20	A
Power dissipation	$P_d$	$T_c = 25^\circ C$	2.8
		$T_c = 70^\circ C$	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	$^\circ C/W$

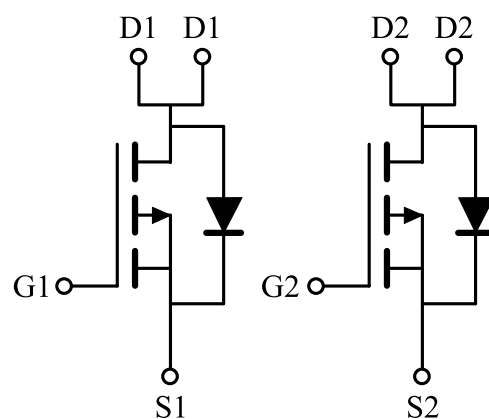
## ■ Pin configuration

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.

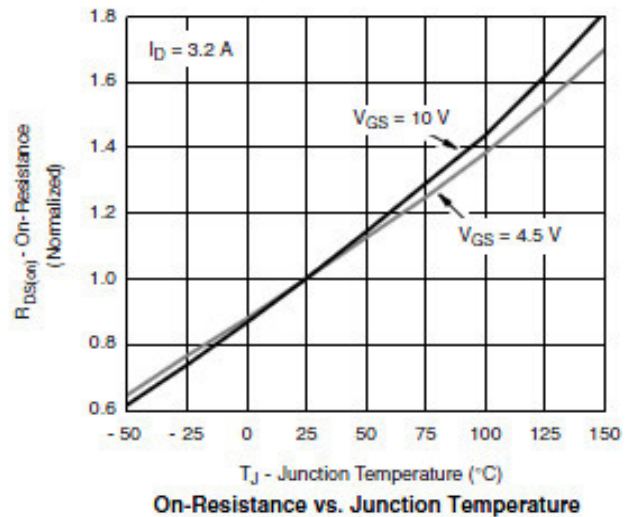
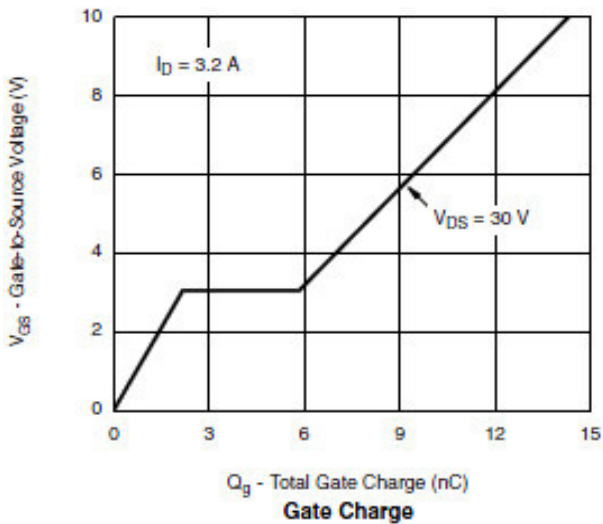
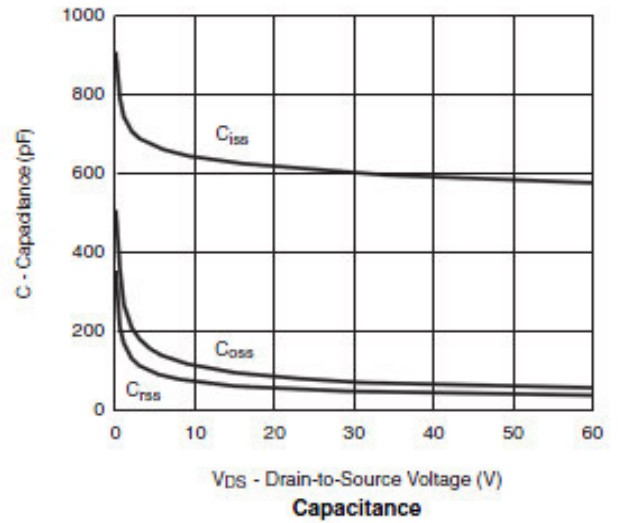
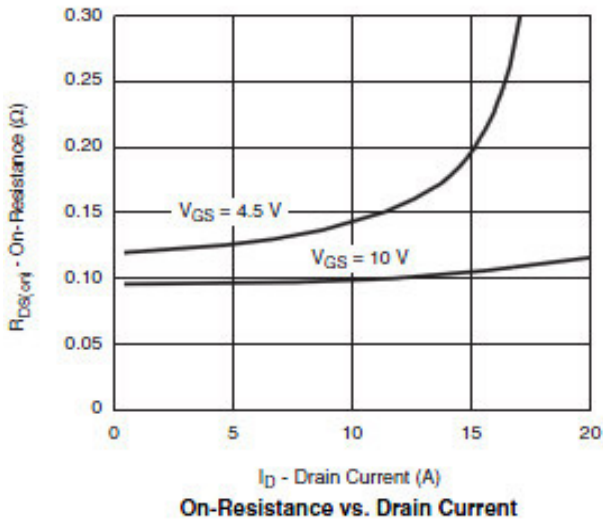
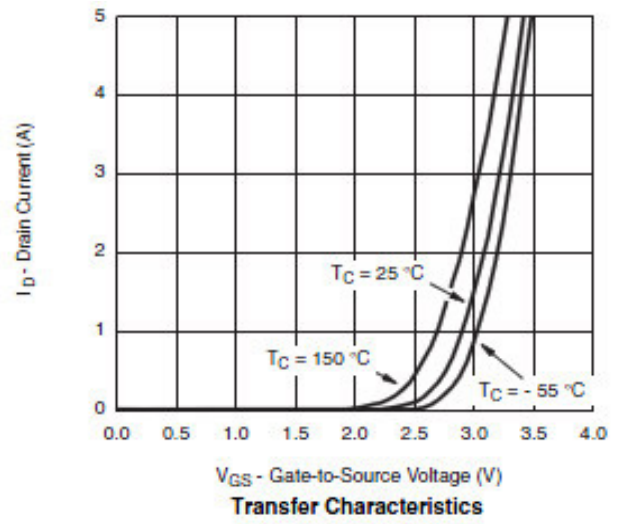
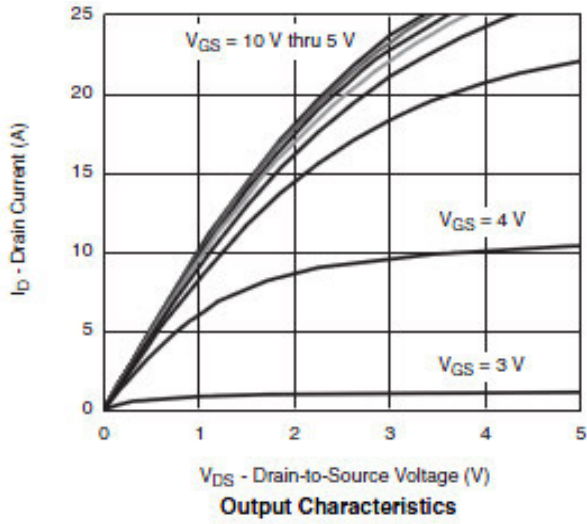
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
<b>STATIC PARAMETERS</b>						
Drain-source breakdown voltage	BVdss	Id=-250μA, Vgs=0V	-60			V
Zero gate voltage drain current	Idss	Vds=-48V, Vgs=0V Ta=85°C			-1	μA
					-20	
Gate-body leakage current	Igss	Vds=0V, Vgs=±20V			±100	nA
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=-250μA	-0.8		-2.5	V
On state drain current	Id(on)	Vgs=-10V, Vds≥-5V	-20			A
Static drain-source on-resistance	Rds(on)	Vgs=-10V, Id=-4.0A		92	100	mΩ
		Vgs=-4.5V, Id=-3.0A		100	112	
Forward transconductance	Gfs	Vds=-15V, Id=-3.2A		12		S
Diode forward voltage	Vsd	Is=-2.0A, Vgs=0V		-0.8	-1.2	V
Max. body-diode continuous current	Is				-1.7	A
<b>DYNAMIC PARAMETERS</b>						
Input capacitance	Ciss	Vgs=0V, Vds=-30V, f=1MHz		900		pF
Output capacitance	Coss			90		pF
Reverse transfer capacitance	Crss			40		pF
<b>SWITCHING PARAMETERS</b>						
Total gate charge	Qg	Vgs=-10V, Vds=-30V Id≐-4.0A		12.0	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=-30V Id≐-3.0A, RL=7.5Ω Rgen=3Ω		10	20	ns
Turn-on rise time	tr			6	10	ns
Turn-off delay time	td(off)			30	45	ns
Turn-off fall time	tf			12	25	ns

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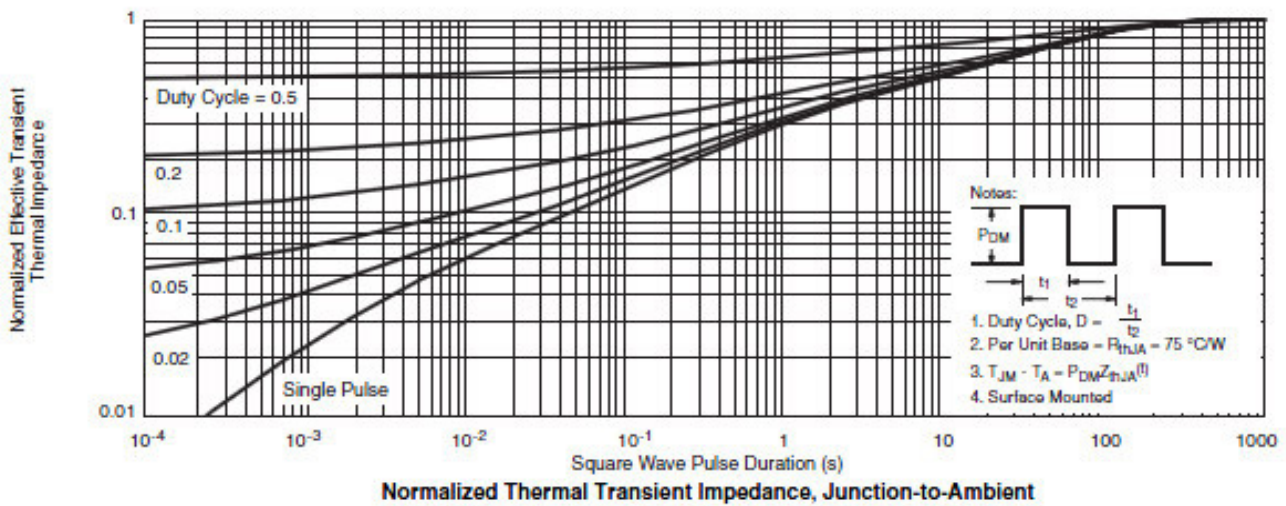
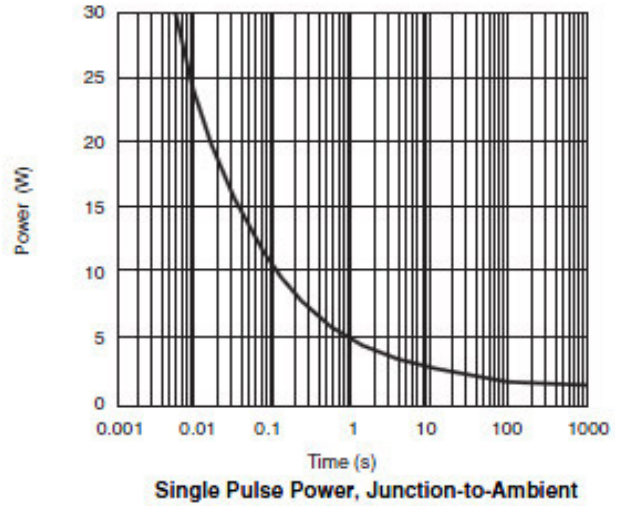
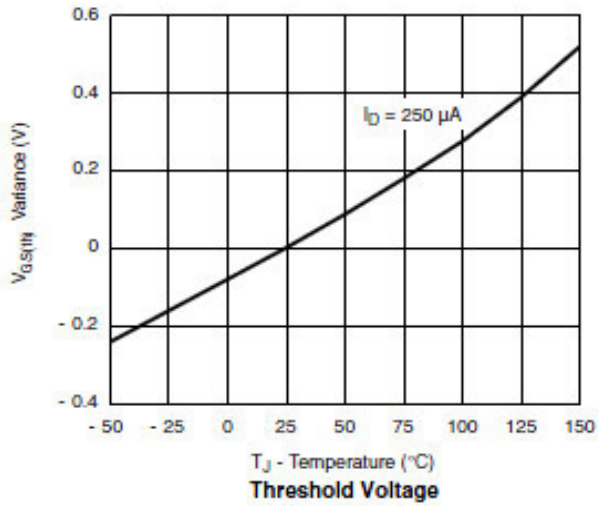
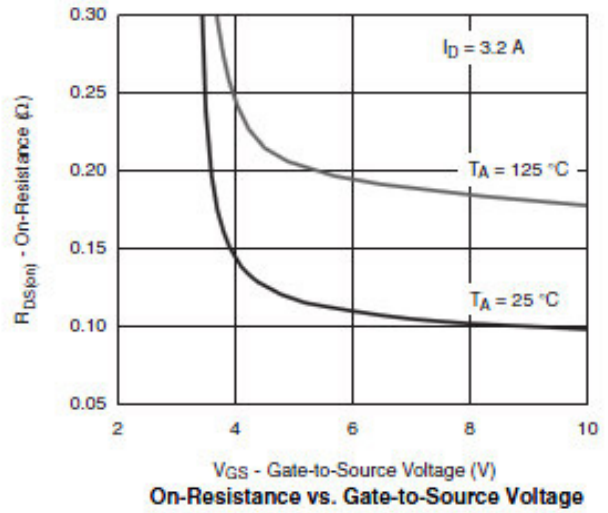
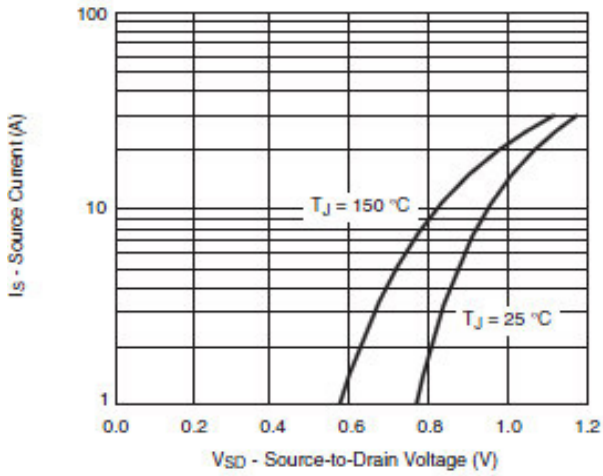
## Typical electrical and thermal characteristics



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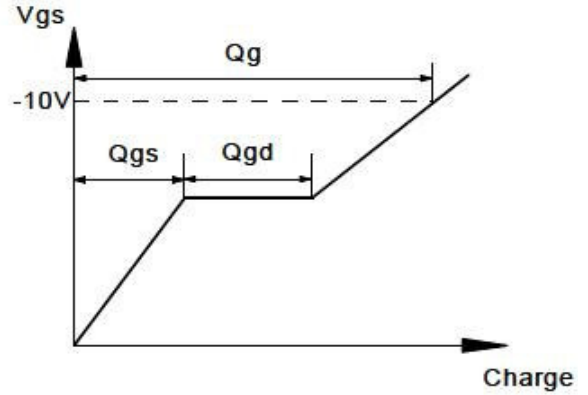
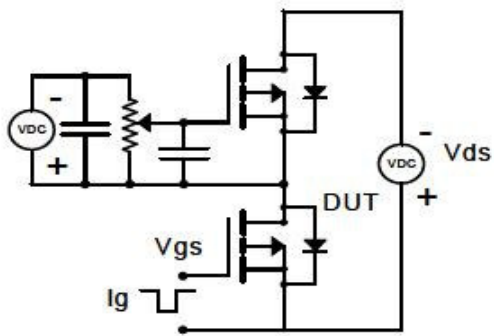
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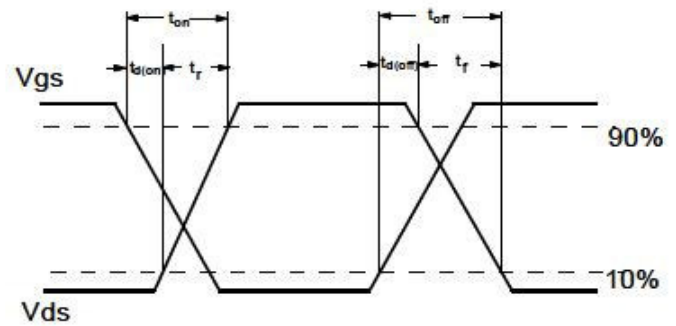
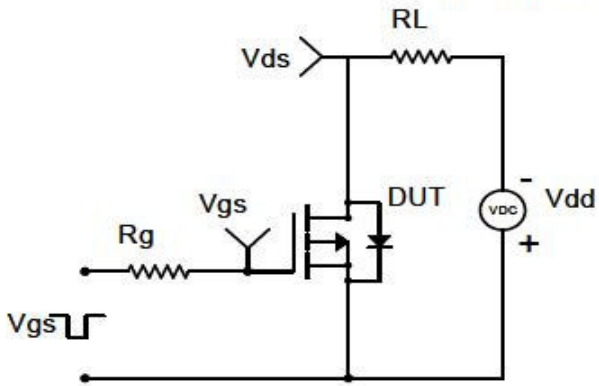
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## ■ Test circuit & waveform

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

