

# Single N-channel MOSFET

## ELM34408AA-N

### ■ General description

ELM34408AA-N uses advanced trench technology to provide excellent  $R_{ds(on)}$ , low gate charge and low gate resistance.

### ■ Features

- $V_{ds}=30V$
- $I_d=8A$
- $R_{ds(on)} < 18m\Omega$  ( $V_{gs}=10V$ )
- $R_{ds(on)} < 30m\Omega$  ( $V_{gs}=4.5V$ )

### ■ Maximum absolute ratings

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

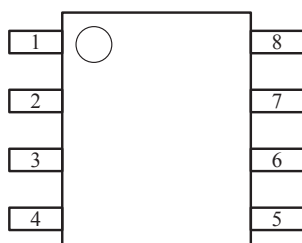
Parameter	Symbol	Limit	Unit	Note
Drain-source voltage	$V_{ds}$	30	V	
Gate-source voltage	$V_{gs}$	$\pm 20$	V	
Continuous drain current	$I_d$	$T_a=25^\circ C$	8	A
		$T_a=70^\circ C$	6	
Pulsed drain current	$I_{dm}$	32	A	3
Power dissipation	$P_d$	$T_c=25^\circ C$	2.5	W
		$T_c=70^\circ C$	1.6	
Junction and storage temperature range	$T_j, T_{stg}$	-55 to 150	$^\circ C$	

### ■ Thermal characteristics

Parameter	Symbol	Typ.	Max.	Unit	Note
Maximum junction-to-ambient	$R\theta_{ja}$		50	$^\circ C/W$	

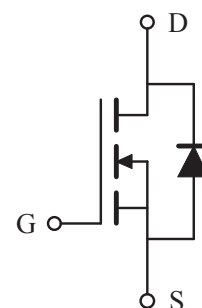
### ■ Pin configuration

SOP-8(TOP VIEW)



Pin No.	Pin name
1	SOURCE
2	SOURCE
3	SOURCE
4	GATE
5	DRAIN
6	DRAIN
7	DRAIN
8	DRAIN

### ■ Circuit



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### ■ Electrical characteristics

Ta=25°C. Unless otherwise noted.

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
<b>STATIC PARAMETERS</b>							
Drain-source breakdown voltage	BVdss	Id=250μA, Vgs=0V	30			V	
Zero gate voltage drain current	Idss	Vds=24V, Vgs=0V			1	μA	
		Vds=20V, Vgs=0V, Ta=55°C			10		
Gate-body leakage current	Igss	Vds=0V, Vgs=±20V			±100	nA	
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=250μA	1.0	1.5	2.5	V	
On state drain current	Id(on)	Vgs=10V, Vds=5V	8			A	1
Static drain-source on-resistance	Rds(on)	Vgs=10V, Id=8A		15	18	mΩ	1
		Vgs=4.5V, Id=7A		22	30	mΩ	
Forward transconductance	Gfs	Vds=15V, Id=8A		16		S	1
Diode forward voltage	Vsd	If=1A, Vgs=0V			1.1	V	1
Max. body-diode continuous current	Is				2.3	A	
Pulsed body-diode current	Ism				4.6	A	3
<b>DYNAMIC PARAMETERS</b>							
Input capacitance	Ciss	Vgs=0V, Vds=15V, f=1MHz		1200		pF	
Output capacitance	Coss			220		pF	
Reverse transfer capacitance	Crss			100		pF	
<b>SWITCHING PARAMETERS</b>							
Total gate charge	Qg	Vgs=4.5V, Vds=15V, Id=2A		15.0	20.0	nC	2
Gate-source charge	Qgs			5.8		nC	2
Gate-drain charge	Qgd			3.8		nC	2
Turn-on delay time	td(on)	Vgs=10V, Vds=15V, Id=1A Rgen=0.2Ω		11	18	ns	2
Turn-on rise time	tr			17	26	ns	2
Turn-off delay time	td(off)			37	54	ns	2
Turn-off fall time	tf			20	30	ns	2
Body diode reverse recovery time	trr	If=2.3A, dIf/dt=100A/μs		50	80	ns	

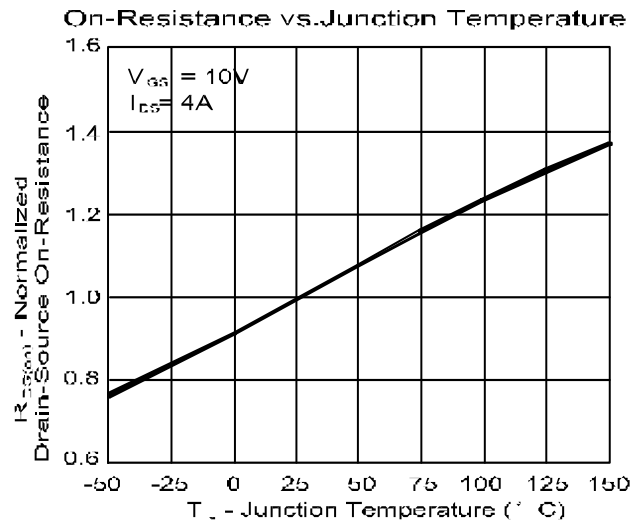
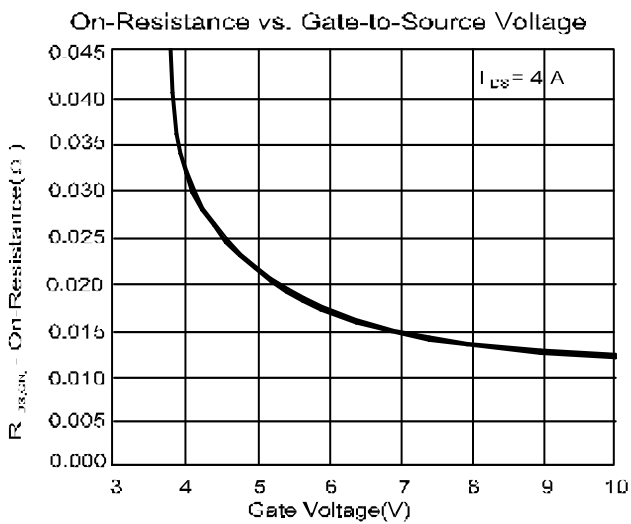
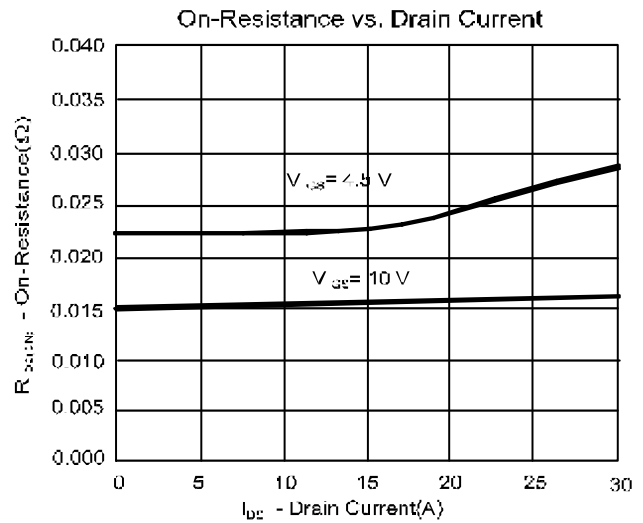
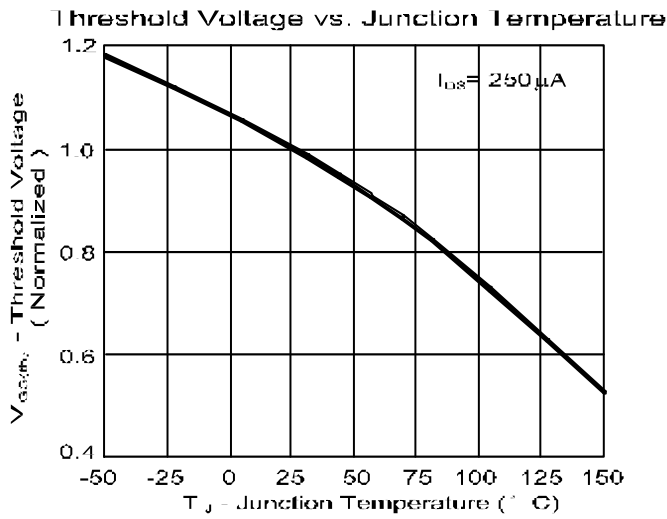
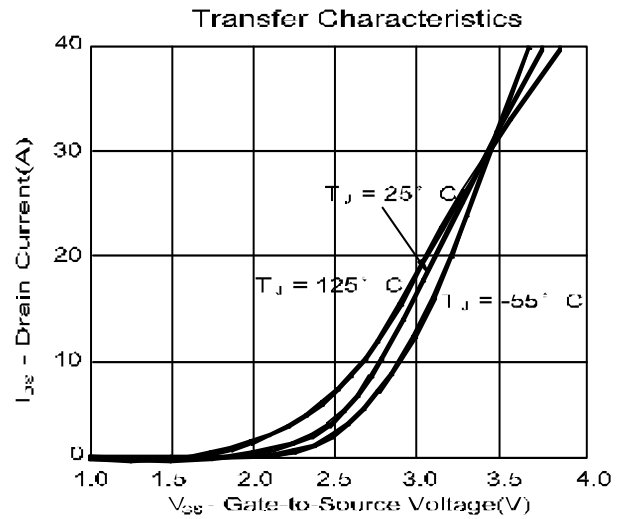
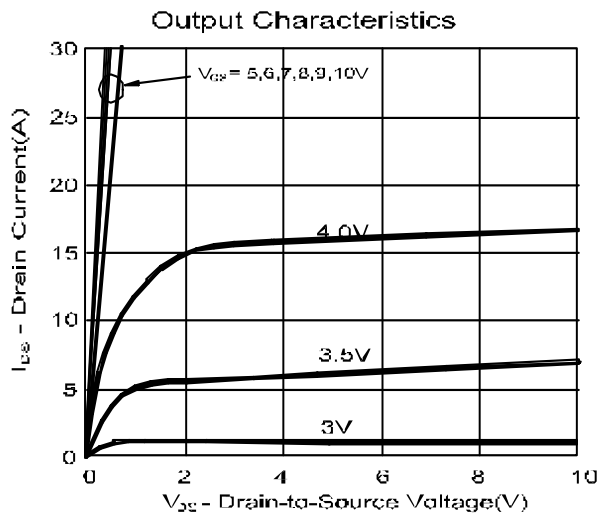
NOTE :

1. Pulsed width ≤ 300μsec and Duty cycle ≤ 2%;
2. Independent of operating temperature;
3. Pulsed width limited by maximum junction temperature.
4. Duty cycle ≤ 1%.

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## ■ Typical electrical and thermal characteristics



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