

# Dual N-channel MOSFET

## ELM34802AA-N

### ■ General description

ELM34802AA-N uses advanced trench technology to provide excellent  $R_{ds(on)}$ , low gate charge and low gate resistance.

### ■ Features

- $V_{ds}=30V$
- $I_d=4.5A$
- $R_{ds(on)} < 68m\Omega$  ( $V_{gs}=10V$ )
- $R_{ds(on)} < 98m\Omega$  ( $V_{gs}=5V$ )

### ■ Maximum absolute ratings

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

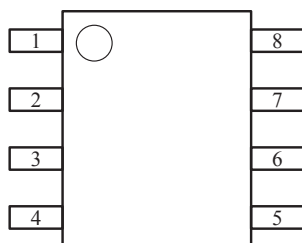
Parameter	Symbol	Limit	Unit	Note
Drain-source voltage	$V_{ds}$	30	V	
Gate-source voltage	$V_{gs}$	$\pm 20$	V	
Continuous drain current	$I_d$	$T_a=25^\circ C$	4.5	A
		$T_a=70^\circ C$	3.6	
Pulsed drain current	$I_{dm}$	20	A	3
Power dissipation	$P_d$	$T_c=25^\circ C$	2.0	W
		$T_c=70^\circ C$	1.3	
Junction 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	$R_{\theta ja}$		62.5	$^\circ C/W$	

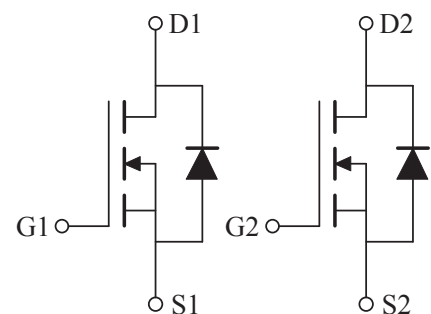
### ■ Pin configuration

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	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	3.0	V	
On state drain current	Id(on)	Vgs=10V, Vds=5V	20			A	1
Static drain-source on-resistance	Rds(on)	Vgs=10V, Id=4.5A		55	68	mΩ	1
		Vgs=5V, Id=3.5A		75	98		
Forward transconductance	Gfs	Vds=5V, Id=4.5A		4.5		S	1
Diode forward voltage	Vsd	If=1A, Vgs=0V			1.2	V	1
<b>DYNAMIC PARAMETERS</b>							
Input capacitance	Ciss	Vgs=0V, Vds=15V, f=1MHz		200	240	pF	
Output capacitance	Coss			40	55	pF	
Reverse transfer capacitance	Crss			20	30	pF	
<b>SWITCHING PARAMETERS</b>							
Total gate charge	Qg	Vgs=10V, Vds=15V, Id=4.5A		6.5	8.5	nC	2
Gate-source charge	Qgs			1.2	1.8	nC	2
Gate-drain charge	Qgd			1.6	2.4	nC	2
Turn-on delay time	td(on)	Vgs=10V, Vds=15V, Id=1A RL=15Ω, Rgen=6Ω		7	11	ns	2
Turn-on rise time	tr			12	18	ns	2
Turn-off delay time	td(off)			12	18	ns	2
Turn-off fall time	tf			7	11	ns	2
Body diode reverse recovery time	trr	If=1A, dIf/dt=100A/μs		40	80	ns	

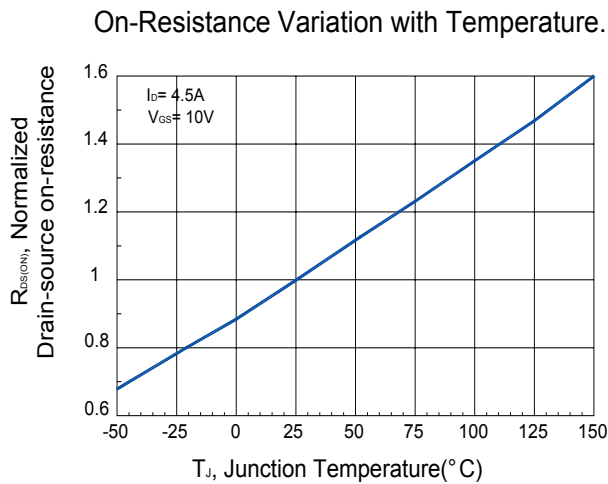
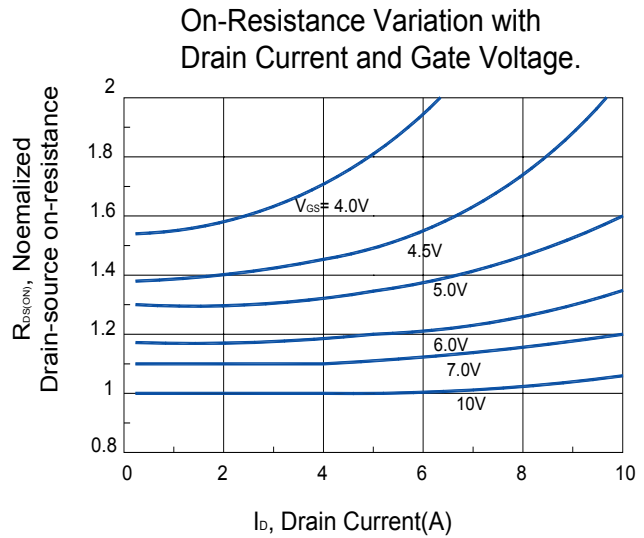
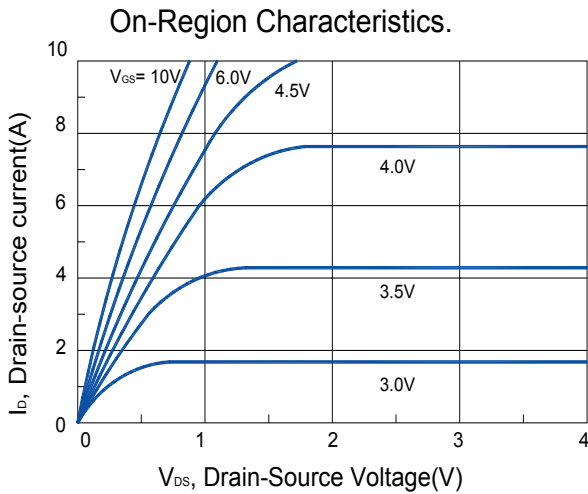
NOTE :

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%.

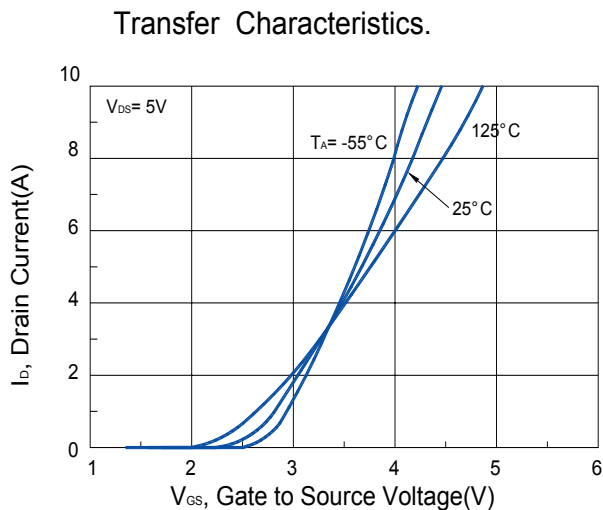
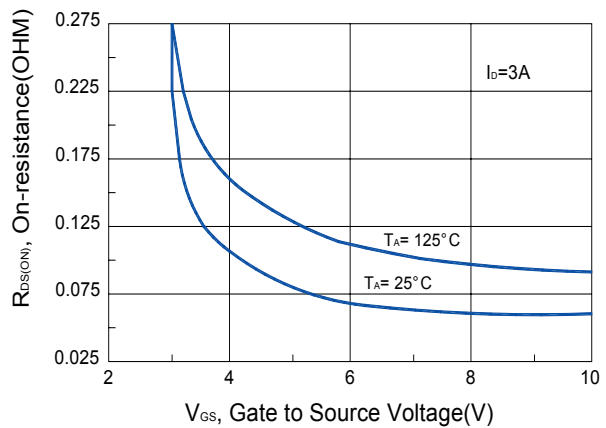
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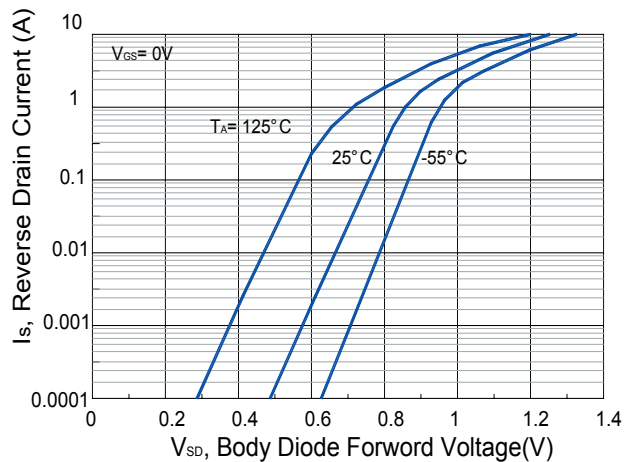
### ■ Typical electrical and thermal characteristics



On-Resistance Variation with Gate-to-Source Voltage.



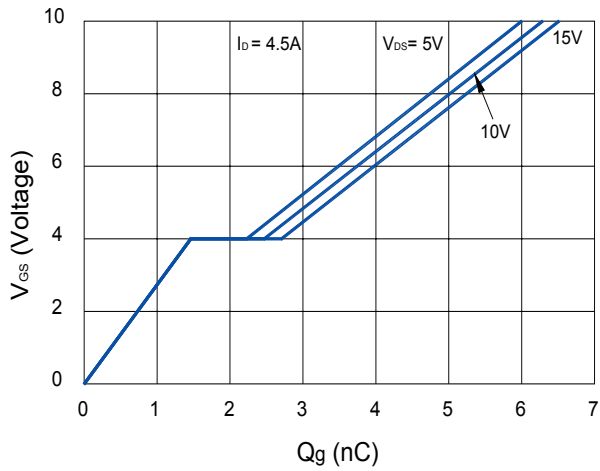
Body Diode Forward Voltage Variation with Source Current and Temperature.



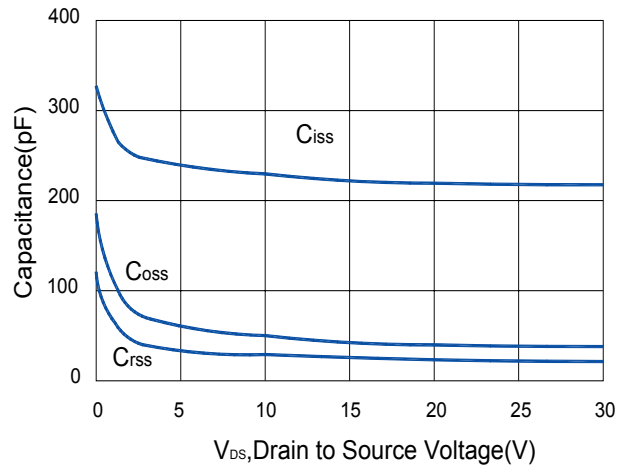
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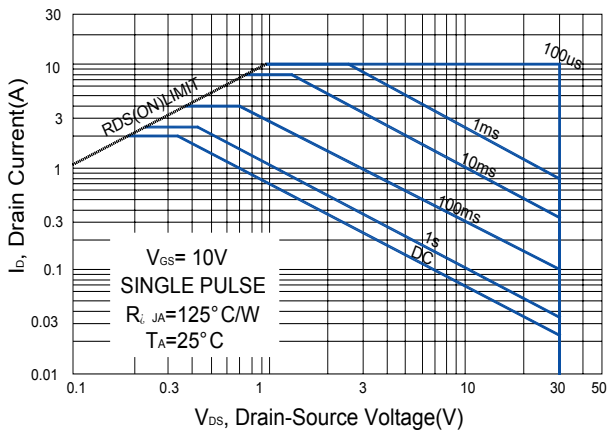
Gate-Charge Characteristics



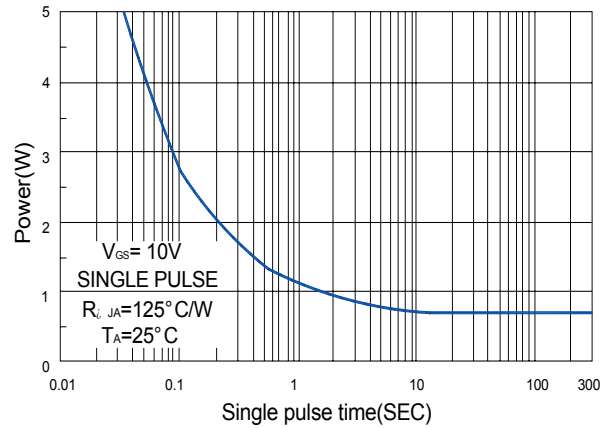
Capacitance Characteristics



Maximum Safe Operating Area.



Single Pulse Maximum Power Dissipation.



Transient Thermal Response Curve.

