

Dual N-channel MOSFET

ELM34812AA-N

■ General description

ELM34812AA-N uses advanced trench technology to provide excellent $R_{ds(on)}$, low gate charge and low gate resistance.

■ Features

- $V_{ds}=20V$
- $I_d=7A$
- $R_{ds(on)} < 21m\Omega$ ($V_{gs}=4.5V$)
- $R_{ds(on)} < 35m\Omega$ ($V_{gs}=2.5V$)

■ Maximum absolute ratings

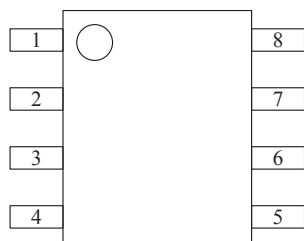
Parameter	Symbol	Limit	Unit	Note
Drain-source voltage	V_{ds}	20	V	
Gate-source voltage	V_{gs}	± 12	V	
Continuous drain current	I_d	$T_a=25^\circ C$	7	A
		$T_a=70^\circ C$	6	
Pulsed drain current	I_{dm}	38	A	3
Power dissipation	P_d	$T_a=25^\circ C$	2.0	W
		$T_a=70^\circ C$	1.3	
Junction and storage temperature range	T_j, T_{stg}	-55 to 150	$^\circ C$	

■ Thermal characteristics

Parameter		Symbol	Typ.	Max.	Unit	Note
Maximum junction-to-ambient	Steady-state	$R\theta_{ja}$		62.5	$^\circ C/W$	

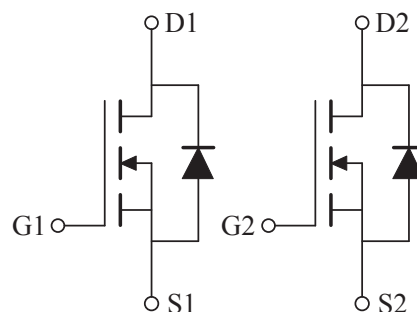
■ Pin configuration

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

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
STATIC PARAMETERS							
Drain-source breakdown voltage	BVdss	Id=250μA, Vgs=0V	20			V	
Zero gate voltage drain current	Idss	Vds=16V, Vgs=0V			1	μA	
		Vds=16V, Vgs=0V, Tj=55°C			10		
Gate-body leakage current	Igss	Vds=0V, Vgs=±12V			±100	nA	
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=250μA	0.5	0.8	1.2	V	
On state drain current	Id(on)	Vgs=4.5V, Vds=5V	15			A	1
Static drain-source on-resistance	Rds(on)	Vgs=4.5V, Id=7A		15	21	mΩ	1
		Vgs=2.5V, Id=6A		21	35	mΩ	
Forward transconductance	Gfs	Vds=5V, Id=7A		37		S	1
Diode forward voltage	Vsd	If=1A, Vgs=0V			1.2	V	1
Max.body-diode continuous current	Is				1.3	A	
Pulsed current	Ism				2.5	A	3
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=10V, f=1MHz		1082		pF	
Output capacitance	Coss			277		pF	
Reverse transfer capacitance	Crss			130		pF	
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=4.5V, Vds=10V, Id=7A		12	19	nC	2
Gate-source charge	Qgs			2		nC	2
Gate-drain charge	Qgd			3		nC	2
Turn-on delay time	td(on)	Vgs=4.5V, Vds=10V, Id≈1A Rgen=6Ω		8	16	ns	2
Turn-on rise time	tr			8	16	ns	2
Turn-off delay time	td(off)			24	38	ns	2
Turn-off fall time	tf			8	16	ns	2
Body diode reverse recovery time	trr	If=5A, dl/dt=100A/μs		15.5		ns	
Body diode reverse recovery charge	Qrr			7.9		nC	

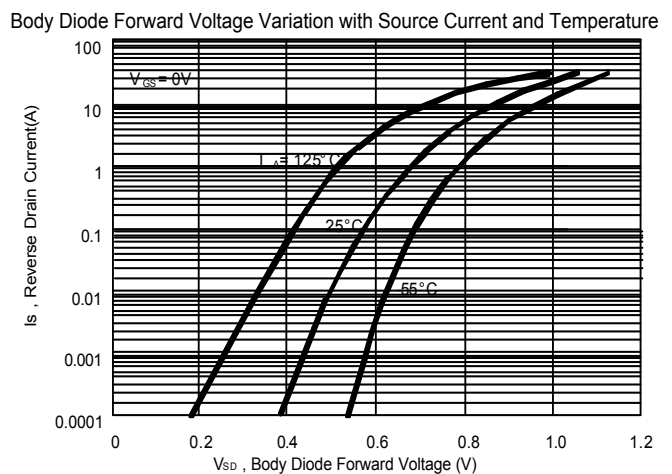
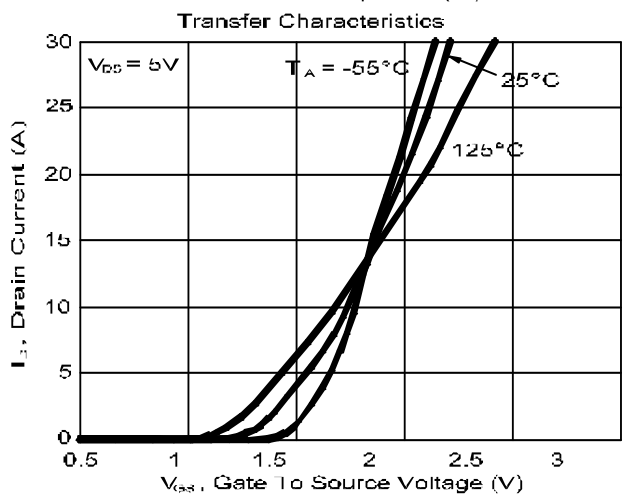
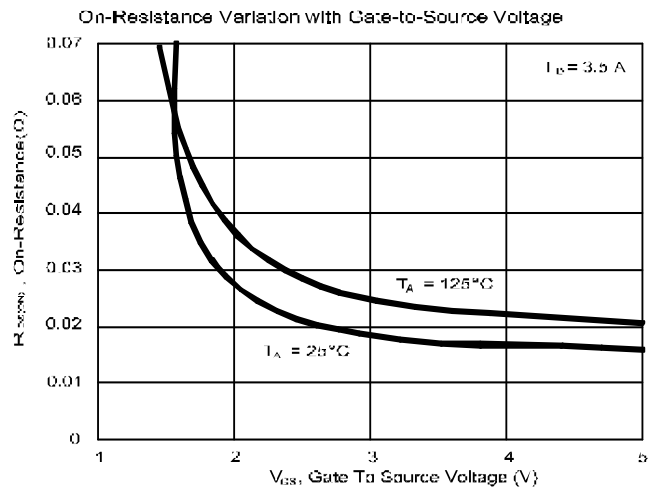
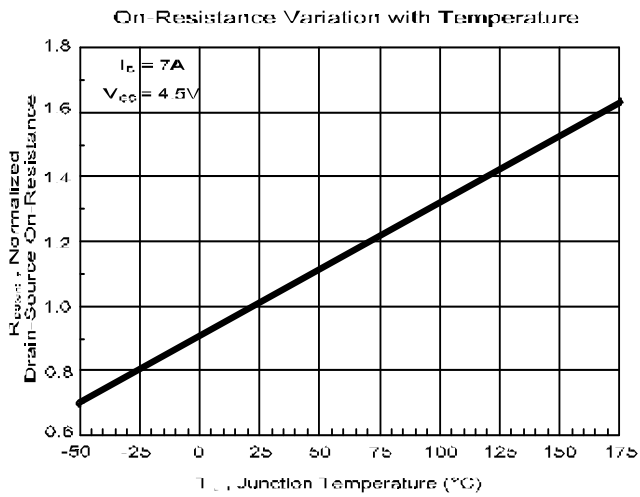
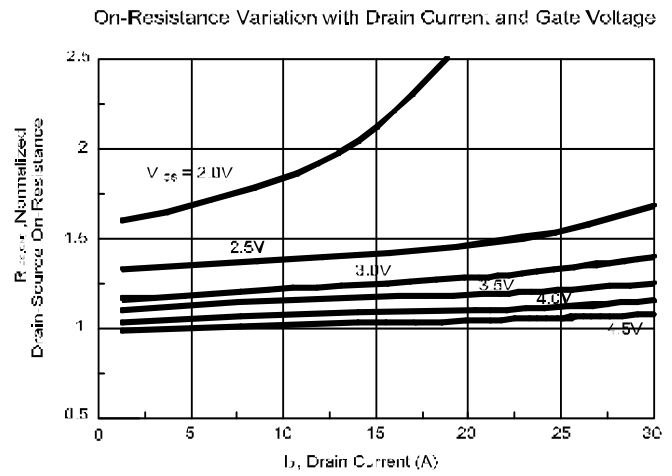
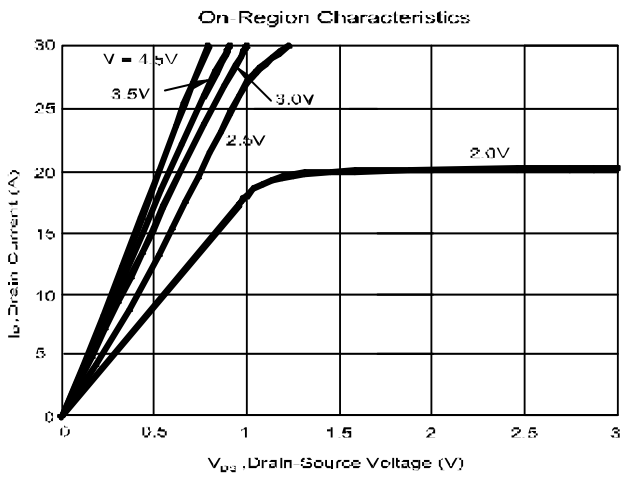
NOTE :

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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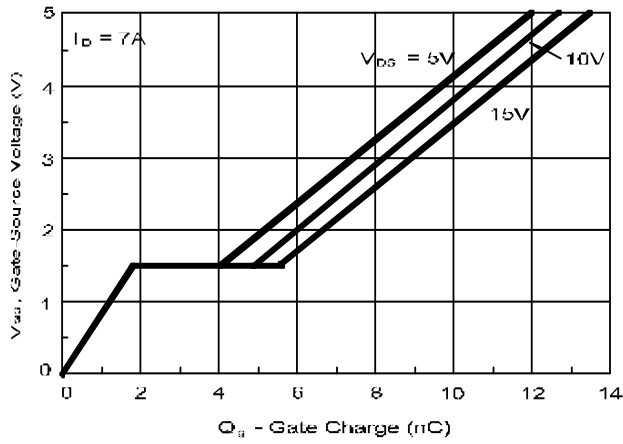
■ Typical electrical and thermal characteristics



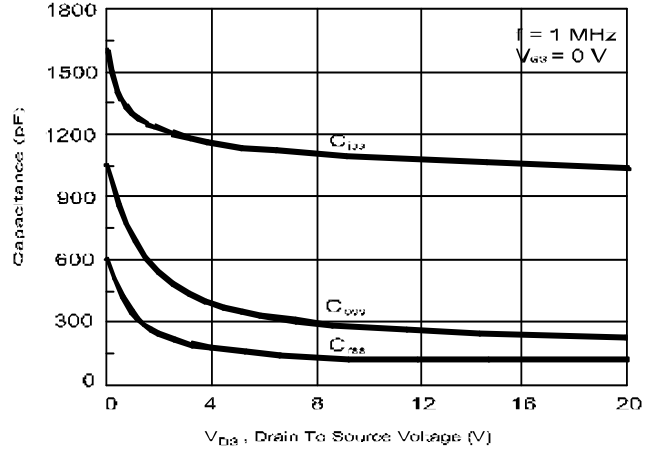
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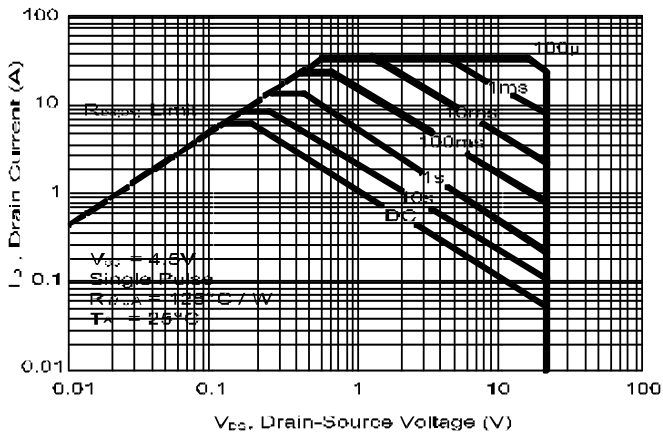
Gate Charge Characteristics



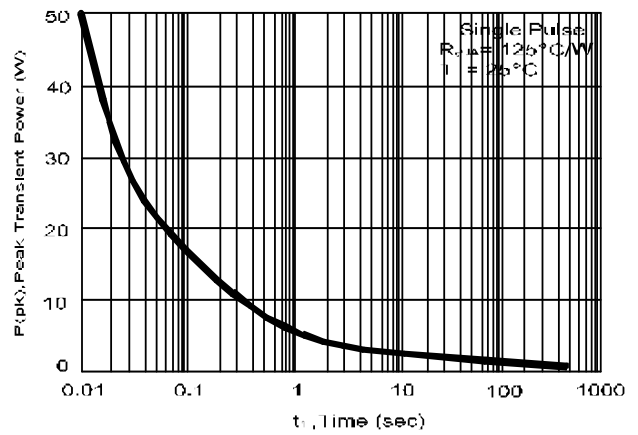
Capacitance Characteristics



Maximum Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

