

Dual N-channel MOSFET

ELM34810AA-N

General description

ELM34810AA-N uses advanced trench technology to provide excellent $R_{ds(on)}$, low gate charge and low gate resistance.

Features

- $V_{ds}=30V$
- $I_d=7A$
- $R_{ds(on)} < 21m\Omega$ ($V_{gs}=10V$)
- $R_{ds(on)} < 35m\Omega$ ($V_{gs}=4.5V$)

Maximum absolute ratings

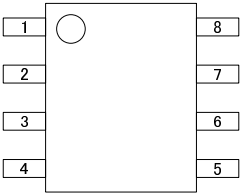
Parameter		Symbol	Limit	Unit	Note
Drain-source voltage		V_{ds}	30	V	
Gate-source voltage		V_{gs}	± 20	V	
Continuous drain current	$T_a=25^{\circ}C$	I_d	7	A	
	$T_a=70^{\circ}C$		6		
Pulsed drain current		I_{dm}	40	A	3
Power dissipation	$T_a=25^{\circ}C$	P_d	2.0	W	
	$T_a=70^{\circ}C$		1.3		
Junction and 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	$^{\circ}C/W$	

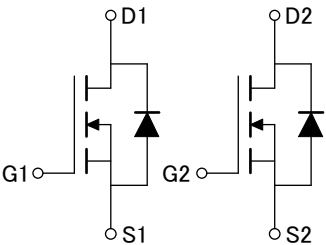
Pin configuration

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=250 μ A, Vgs=0V	30			V	
Zero gate voltage drain current	Idss	Vds=24V, Vgs=0V			1	μ A	
		Vds=20V, Vgs=0V, Tj=55°C			10		
Gate-body leakage current	Igss	Vds=0V, Vgs= $\pm$ 20V			$\pm$ 100	nA	
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=250 μ A	1.0	1.5	3.0	V	
On state drain current	Id(on)	Vgs=10V, Vds=5V	25			A	1
Static drain-source on-resistance	Rds(on)	Vgs=10V, Id=7A		15	21	m Ω	1
		Vgs=4.5V, Id=6A		21	35	m Ω	
Forward transconductance	Gfs	Vds=15V, Id=5A		24		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=15V, f=1MHz		1650		pF	
Output capacitance	Coss			365		pF	
Reverse transfer capacitance	Crss			170		pF	
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=5V, Vds=15V, Id=7A		18.0	25.0	nC	2
Gate-source charge	Qgs			5.5		nC	2
Gate-drain charge	Qgd			6.7		nC	2
Turn-on delay time	td(on)	Vgs=10V, Vds=15V, Id $\cong$ 1A Rgen=6 Ω		11	20	ns	2
Turn-on rise time	tr			9	18	ns	2
Turn-off delay time	td(off)			25	40	ns	2
Turn-off fall time	tf			11	20	ns	2
Body diode reverse recovery time	trr	If=5A, dl/dt=100A/ μ s		15.5		ns	
Body diode reverse recovery charge	Qrr			7.9		nC	

NOTE :

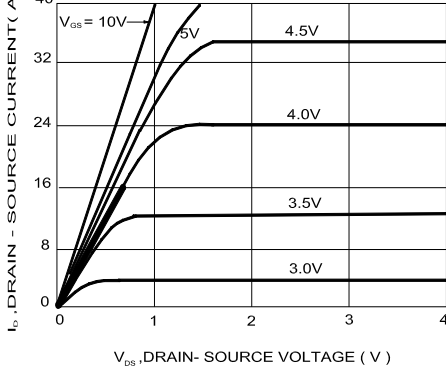
1. Pulsed width $\leq$ 300 μ sec and Duty cycle $\leq$ 2%.
2. Independent of operating temperature.
3. Pulsed width limited by maximum junction temperature.
4. Duty cycle $\leq$ 1%.

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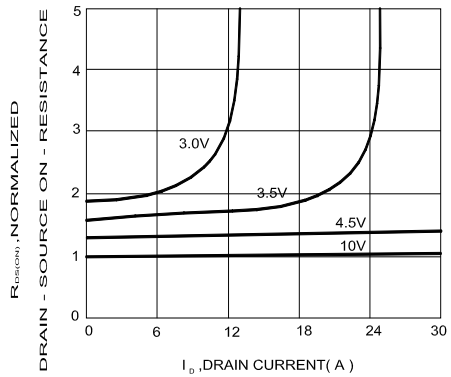
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Typical electrical and thermal characteristics

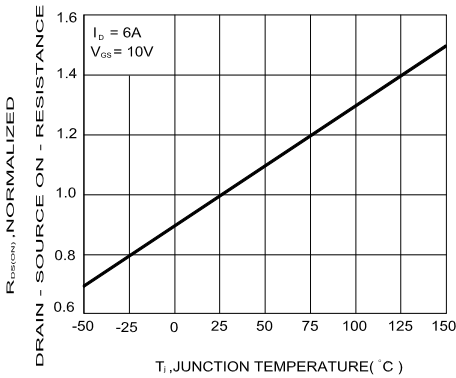
ON-REGION CHARACTERISTICS



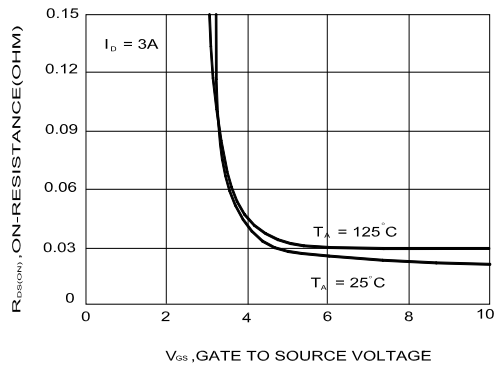
ON- RESISTANCE VARIATION WITH DRAIN CURRENT AND GATE



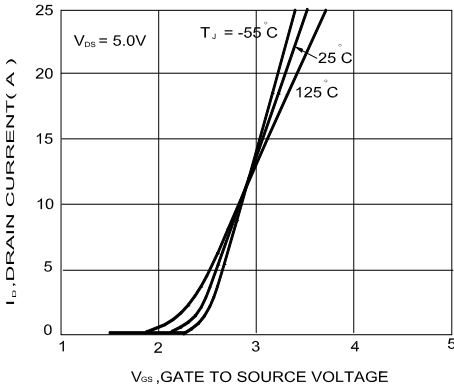
ON- RESISTANCE VARIATION WITH TEMPERATURE



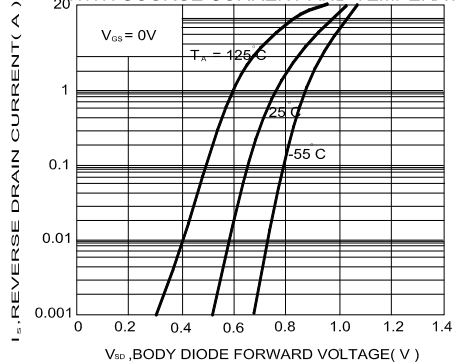
ON-RESISTANCE VARIATION WITH GATE-TO-SOURCE VOLTAGE



TRANSFER CHARACTERISTICS



BODY DIODE FORWARD VOLTAGE VARIATION WITH SOURCE CURRENT AND TEMPERATURE



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