

Dual N-channel MOSFET

ELM34814AA-N

■ General description

ELM34814AA-N uses advanced trench technology to provide excellent $R_{ds(on)}$, low gate charge and low gate resistance.

■ Features

- $V_{ds}=30V$
- $I_d=7A$
- $R_{ds(on)} < 23m\Omega$ ($V_{gs}=10V$)
- $R_{ds(on)} < 30m\Omega$ ($V_{gs}=4.5V$)

■ Maximum absolute ratings

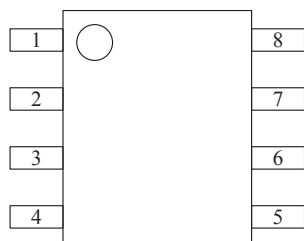
Parameter	Symbol	Limit	Unit	Note
Drain-source voltage	V_{ds}	± 30	V	
Gate-source voltage	V_{gs}	± 20	V	
Continuous drain current	I_d	$T_a=25^\circ C$	7	A
		$T_a=70^\circ C$	6	
Pulsed drain current	I_{dm}	40	A	3
Power dissipation	P_d	$T_a=25^\circ C$	2.0	W
		$T_a=70^\circ C$	1.3	
Junction and storage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

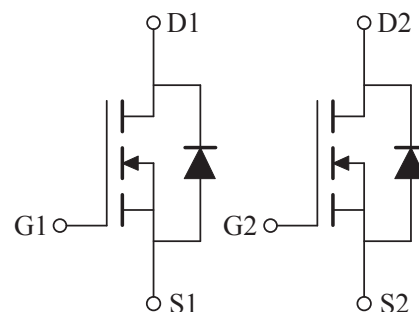
■ Pin configuration

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



Dual N-channel MOSFET

ELM34814AA-N

■Electrical characteristics

Ta=25°C

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
STATIC PARAMETERS							
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, Tj=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	25			A	1
Static drain-source on-resistance	Rds(on)	Vgs=10V, Id=7A		15	23	mΩ	1
		Vgs=4.5V, Id=6A		21	30	mΩ	
Forward transconductance	Gfs	Vds=15V, Id=5A		16		S	1
Diode forward voltage	Vsd	If=1A, Vgs=0V			1	V	1
Max.body-diode continuous current	Is				3	A	
Pulsed current	Ism				6	A	3
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=15V, f=1MHz		830		pF	
Output capacitance	Coss			185		pF	
Reverse transfer capacitance	Crss			80		pF	
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=5V, Vds=15V, Id=7A		9.0	13.0	nC	2
Gate-source charge	Qgs			2.8		nC	2
Gate-drain charge	Qgd			3.1		nC	2
Turn-on delay time	td(on)	Vgs=10V, Vds=15V, Id≈1A Rgen=6Ω		5.7		ns	2
Turn-on rise time	tr			10.0		ns	2
Turn-off delay time	td(off)			18.0		ns	2
Turn-off fall time	tf			5.0		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	

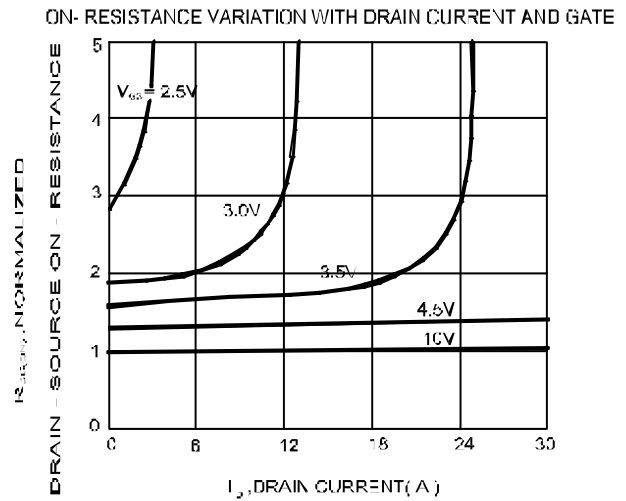
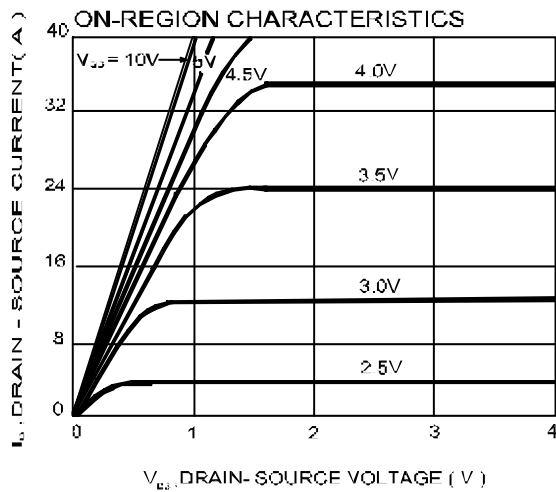
NOTE :

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%.

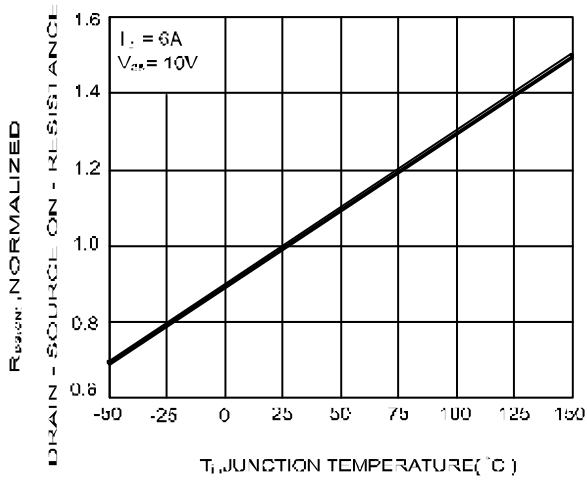
Dual N-channel MOSFET

ELM34814AA-N

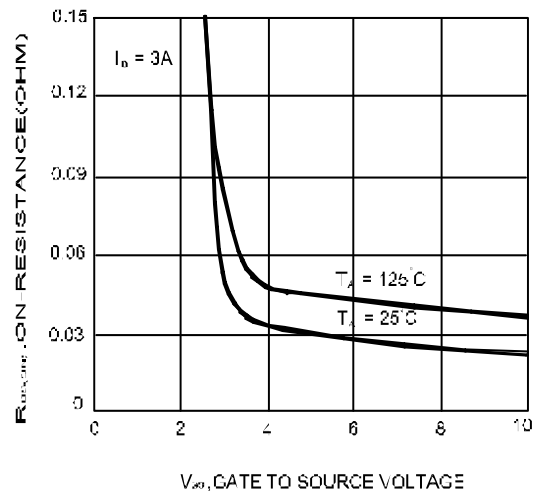
■ Typical electrical and thermal characteristics



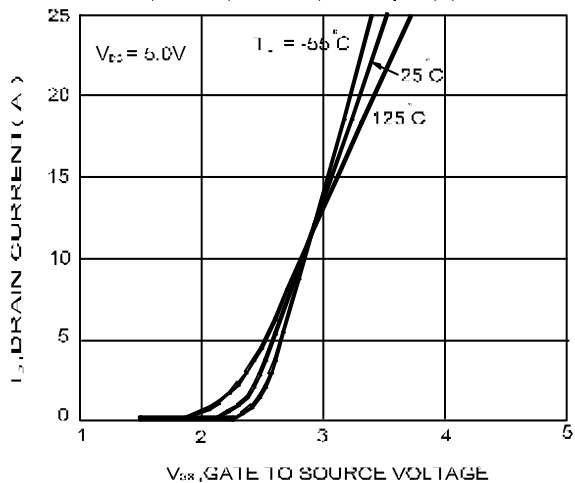
ON-RESISTANCE VARIATION WITH TEMPERATURE



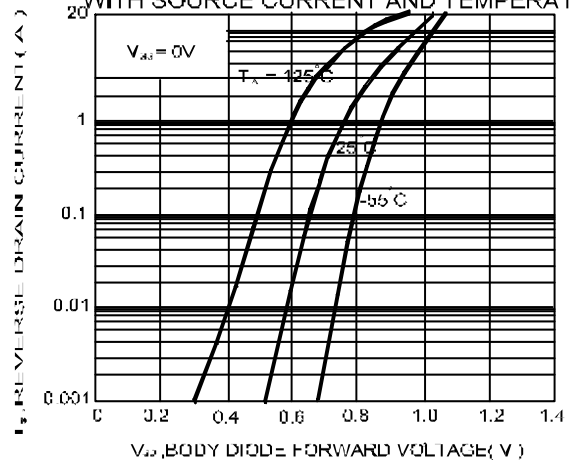
ON-RESISTANCE VARIATION WITH GATE-TO-SOURCE VOLTAGE



TRANSFER CHARACTERISTICS



BODY DIODE FORWARD VOLTAGE VARIATION WITH SOURCE CURRENT AND TEMPERATURE



Dual N-channel MOSFET

ELM34814AA-N

