

Single N-channel MOSFET

ELM34406AA-N

General description

ELM34406AA-N uses advanced trench technology to provide excellent $R_{ds(on)}$, low gate charge and low gate resistance.

Features

- $V_{ds}=40V$
- $I_d=7.5A$
- $R_{ds(on)} < 28m\Omega$ ($V_{gs}=10V$)
- $R_{ds(on)} < 42m\Omega$ ($V_{gs}=4.5V$)

Maximum absolute ratings

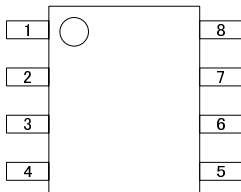
Parameter	Symbol	Limit	Unit	Note
Drain-source voltage	V_{ds}	40	V	
Gate-source voltage	V_{gs}	± 20	V	
Continuous drain current	I_d	7.5	A	
		6.5		
Pulsed drain current	I_{dm}	20	A	3
Power dissipation	P_d	2.5	W	
		1.3		
Junction and storage temperature range	T_j, T_{stg}	-55 to 150	$^{\circ}C$	

Thermal characteristics

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

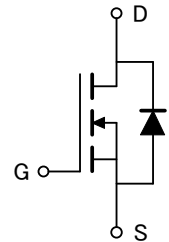
Pin configuration

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

T_a=25°C

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
STATIC PARAMETERS							
Drain-source breakdown voltage	BV _{dss}	I _d =250 μA, V _{gs} =0V	40			V	
Zero gate voltage drain current	I _{dss}	V _{ds} =32V, V _{gs} =0V			1	μA	
		V _{ds} =30V, V _{gs} =0V, T _j =125°C			10		
Gate-body leakage current	I _{gss}	V _{ds} =0V, V _{gs} =±20V			±250	nA	
Gate threshold voltage	V _{gs(th)}	V _{ds} =V _{gs} , I _d =250 μA	1.0	1.5	2.5	V	
On state drain current	I _{d(on)}	V _{gs} =10V, V _{ds} =10V	20			A	1
Static drain-source on-resistance	R _{ds(on)}	V _{gs} =10V, I _d =7.5A		21	28	mΩ	1
		V _{gs} =4.5V, I _d =6.5A		30	42	mΩ	
Forward transconductance	G _{fs}	V _{ds} =10V, I _d =7.5A		19		S	1
Diode forward voltage	V _{sd}	I _f =I _s , V _{gs} =0V			1	V	1
Max. body-diode continuous current	I _s				1.3	A	
Pulsed body-diode current	I _{sm}				2.6	A	3
DYNAMIC PARAMETERS							
Input capacitance	C _{iss}	V _{gs} =0V, V _{ds} =10V, f=1MHz		790		pF	
Output capacitance	C _{oss}			175		pF	
Reverse transfer capacitance	C _{rss}			65		pF	
SWITCHING PARAMETERS							
Total gate charge	Q _g	V _{gs} =10V, V _{ds} =20V, I _d =7.5A		16.0		nC	2
Gate-source charge	Q _{gs}			2.5		nC	2
Gate-drain charge	Q _{gd}			2.1		nC	2
Turn-on delay time	t _{d(on)}	V _{gs} =10V, V _{ds} =20V, I _d ≈ 1A R _{gen} =6 Ω		2.2	4.4	ns	2
Turn-on rise time	t _r			7.5	15.0	ns	2
Turn-off delay time	t _{d(off)}			11.8	21.3	ns	2
Turn-off fall time	t _f			3.7	7.4	ns	2
Body diode reverse recovery time	t _{rr}	I _f =5A, dI/dt=100A/μs		15.5		ns	
Body diode reverse recovery charge	Q _{rr}	I _f =5A, dI/dt=100A/μs		7.9		nC	

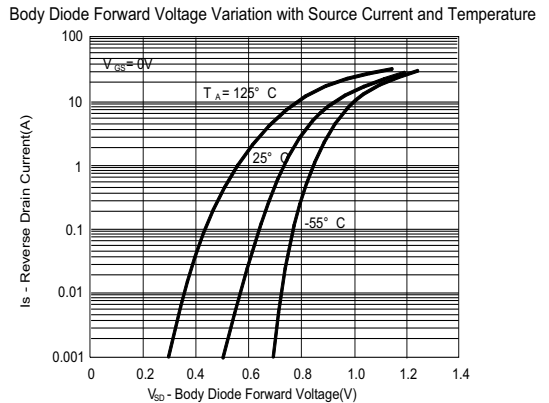
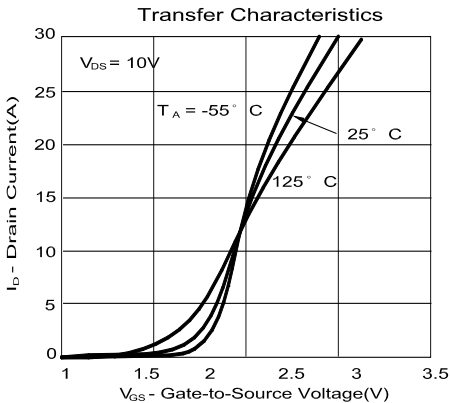
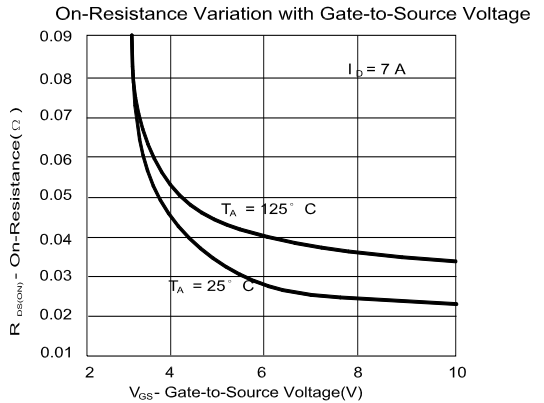
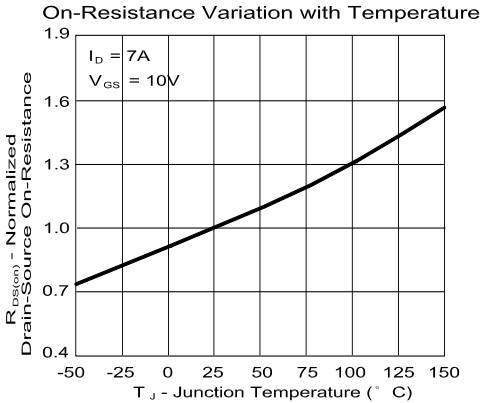
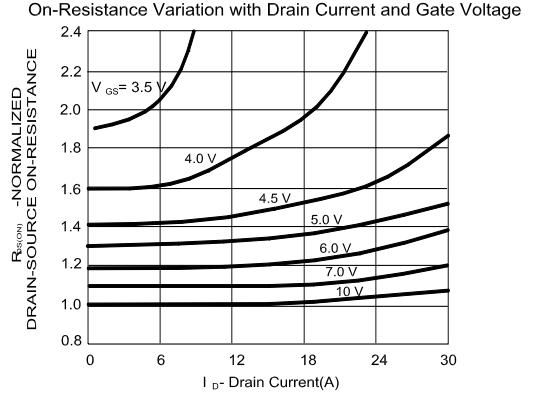
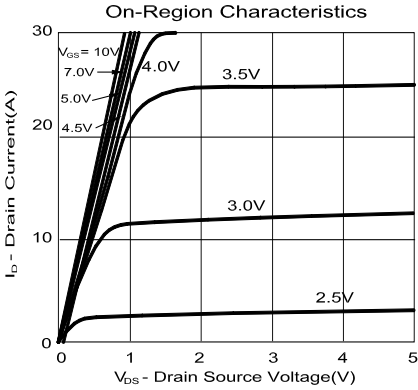
NOTE :

1. Pulsed width ≤ 300 μsec 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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