

Single N-channel MOSFET

ELM34400AA-N

■ General description

ELM34400AA-N uses advanced trench technology to provide excellent $R_{ds(on)}$, low gate charge and low gate resistance.

■ Features

- $V_{ds}=30V$
- $I_d=10A$
- $R_{ds(on)} < 12.5m\Omega$ ($V_{gs}=10V$)
- $R_{ds(on)} < 20m\Omega$ ($V_{gs}=4.5V$)

■ Maximum absolute ratings

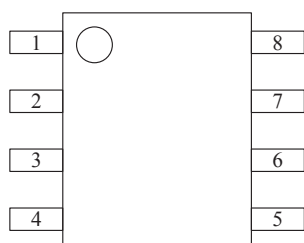
Parameter	Symbol	Limit	Unit	Note
Drain-source voltage	V_{ds}	30	V	
Gate-source voltage	V_{gs}	± 20	V	
Continuous drain current	I_d	Ta=25°C	10	A
		Ta=70°C	8	
Pulsed drain current	I_{dm}	50	A	3
Power dissipation	P_d	Ta=25°C	2.5	W
		Ta=70°C	1.6	
Junction and storage temperature range	T_j, T_{stg}	-55 to 150	°C	

■ Thermal characteristics

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

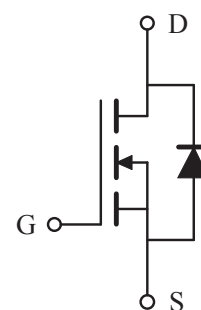
■ Pin configuration

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

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	2.5	V	
On state drain current	Id(on)	Vgs=10V, Vds=5V	20			A	1
Static drain-source on-resistance	Rds(on)	Vgs=10V, Id=10A		9.5	12.5	mΩ	1
		Vgs=4.5V, Id=5A		13.0	20.0	mΩ	
Forward transconductance	Gfs	Vds=15V, Id=10A		38		S	1
Diode forward voltage	Vsd	If=1A, Vgs=0V			1.1	V	1
Max. body-diode continuous current	Is				2.3	A	
Pulsed body-diode current	Ism				4.6	A	3
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=15V, f=1MHz		3100		pF	
Output capacitance	Coss			600		pF	
Reverse transfer capacitance	Crss			275		pF	
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=10V, Vds=15V, Id=10A		43.0	60.0	nC	2
Gate-source charge	Qgs			9.0		nC	2
Gate-drain charge	Qgd			7.0		nC	2
Turn-on delay time	td(on)	Vgs=10V, Vds=15V, Id≈1A Rl=25Ω, Rgen=6Ω		15	30	ns	2
Turn-on rise time	tr			9	20	ns	2
Turn-off delay time	td(off)			70	100	ns	2
Turn-off fall time	tf			20	80	ns	2
Body diode reverse recovery time	trr	If=2.3A, dl/dt=100A/μs		50	80	ns	

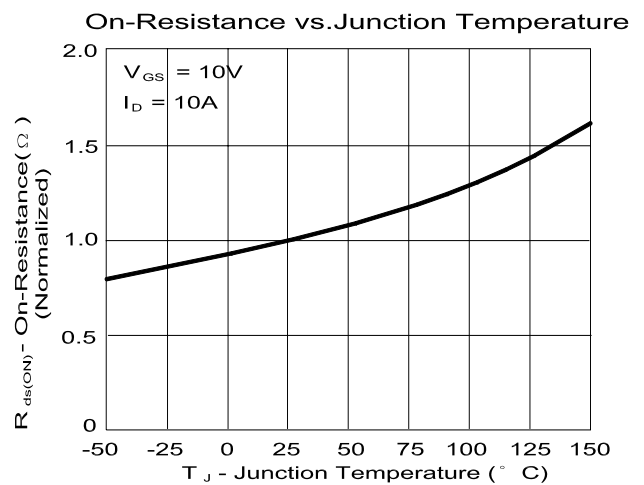
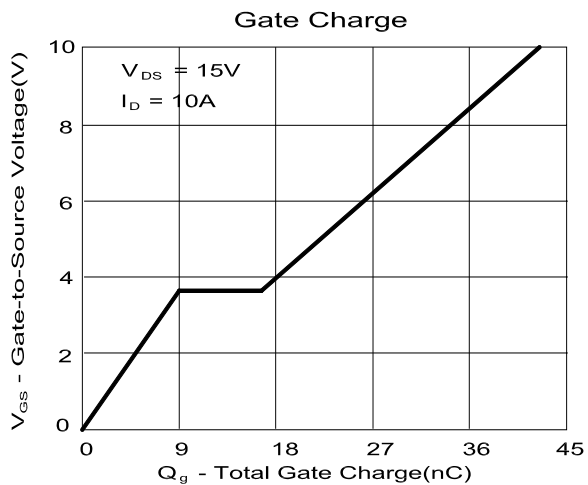
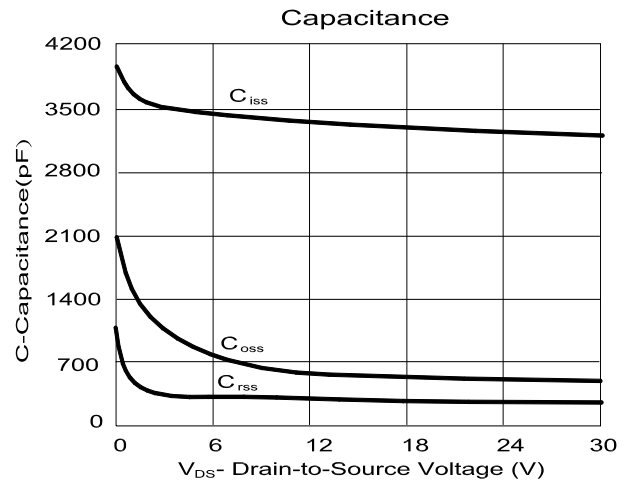
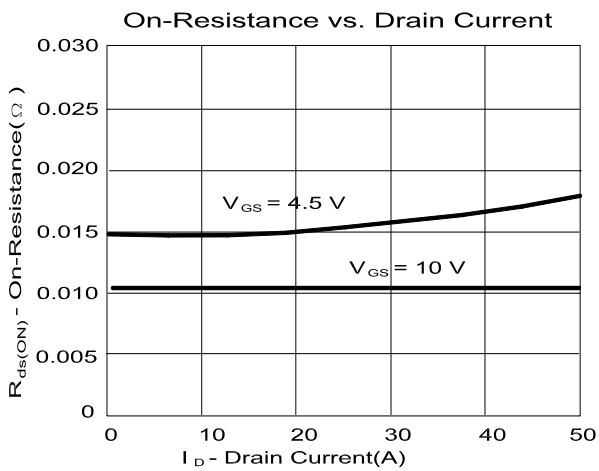
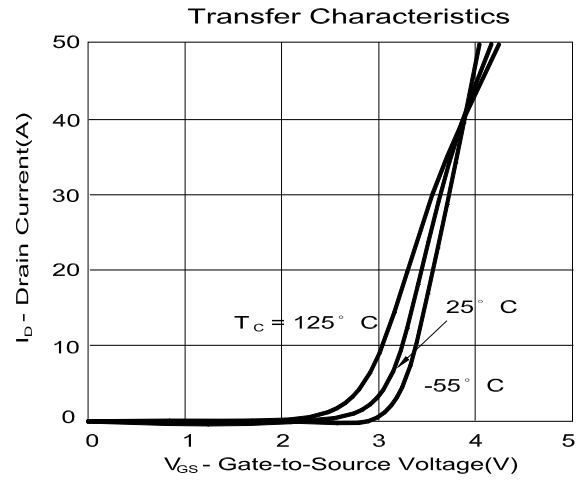
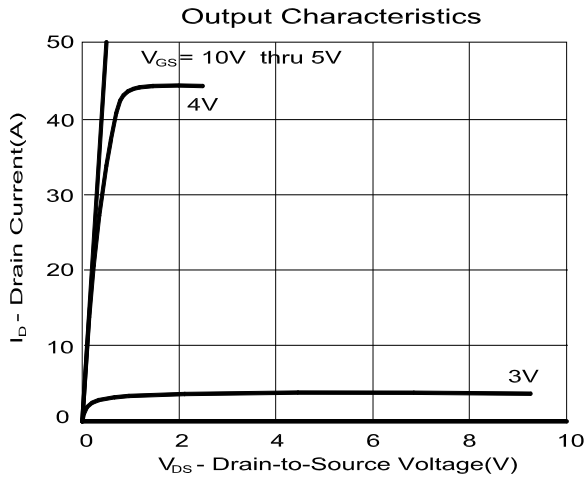
NOTE :

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



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