Dual N-channel MOSFET

ELM34802AA-N

■General description

ELM34802AA-N uses advanced trench technology to provide excellent Rds(on), low gate charge and low gate resistance.

■Features

- Vds=30V
- Id=4.5A
- Rds(on) < 68mΩ (Vgs=10V)
- Rds(on) < 98mΩ (Vgs=5V)

■Maximum absolute ratings

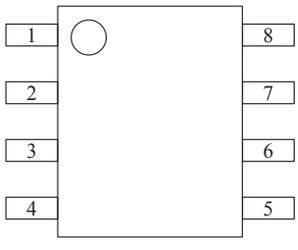
Parameter		Symbol	Limit	Unit	Note
Drain-source voltage		Vds	30	V	
Gate-source voltage		Vgs	±20	V	
Continuous drain current	Ta=25°C	Id	4.5	A	
	Ta=70°C		3.6		
Pulsed drain current		Idm	20	A	3
Power dissipation	Ta=25°C	Pd	2.0	W	
	Ta=70°C		1.3		
Junction and storage temperature range		Tj, Tstg	-55 to 150	°C	

■Thermal characteristics

Parameter		Symbol	Typ.	Max.	Unit	Note
Maximum junction-to-ambient	Steady-state	Rθja		62.5	°C/W	

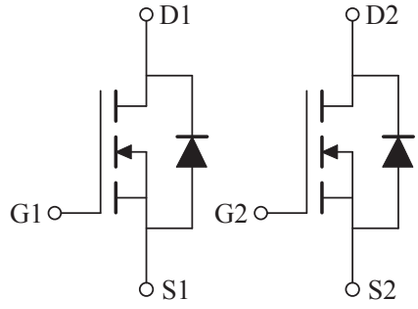
■Pin configuration

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



■Electrical characteristics

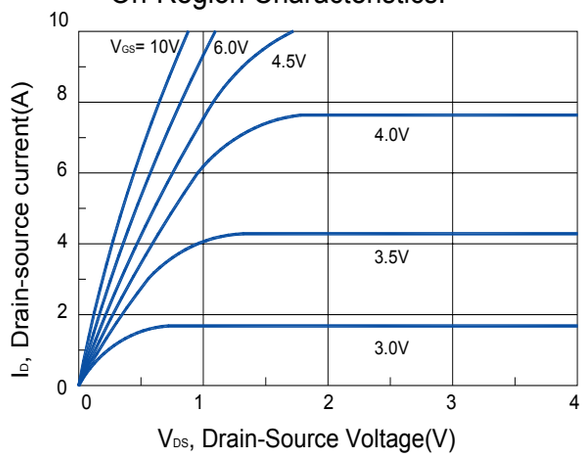
Ta=25°C

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	20			A	1
Static drain-source on-resistance	Rds(on)	Vgs=10V, Id=4.5A		55	68	mΩ	1
		Vgs=5V, Id=3.5A		75	98	mΩ	
Forward transconductance	Gfs	Vds=5V, Id=4.5A		4.5		S	1
Diode forward voltage	Vsd	If=1A, Vgs=0V			1.2	V	1
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=15V, f=1MHz		200	240	pF	
Output capacitance	Coss			40	55	pF	
Reverse transfer capacitance	Crss			20	30	pF	
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=10V, Vds=15V, Id=4.5A		6.5	8.5	nC	2
Gate-source charge	Qgs			1.2	1.8	nC	2
Gate-drain charge	Qgd			1.6	2.4	nC	2
Turn-on delay time	td(on)	Vgs=10V, Vds=15V, Id≈1A Rl=15Ω, Rgen=6Ω		7	11	ns	2
Turn-on rise time	tr			12	18	ns	2
Turn-off delay time	td(off)			12	18	ns	2
Turn-off fall time	tf			7	11	ns	2
Body diode reverse recovery time	trr	If=1A, dl/dt=100A/μs		40	80	ns	

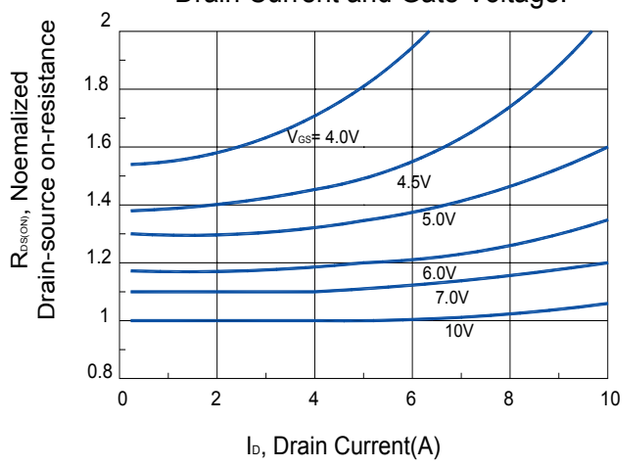
NOTE :
1. Pulsed width≤300μsec and Duty cycle≤2%.
2. Independent of operating temperature.
3. Pulsed width limited by maximum junction temperature.
4. Duty cycle ≤ 1%.

■Typical electrical and thermal characteristics

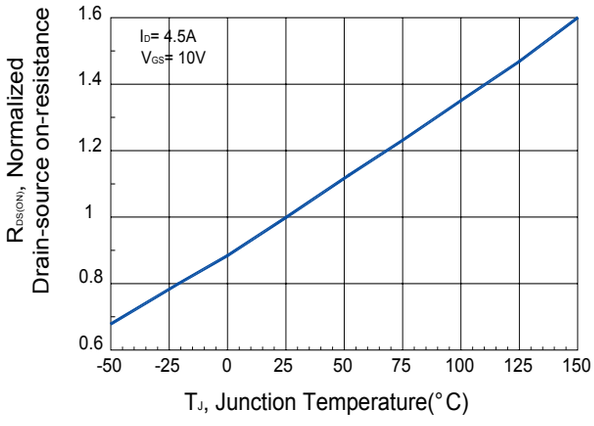
On-Region Characteristics.



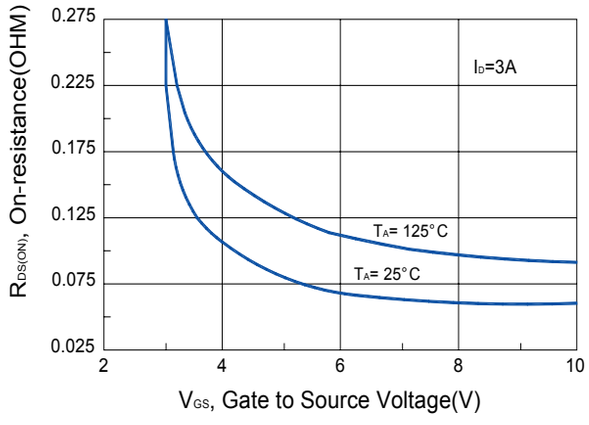
On-Resistance Variation with Drain Current and Gate Voltage.



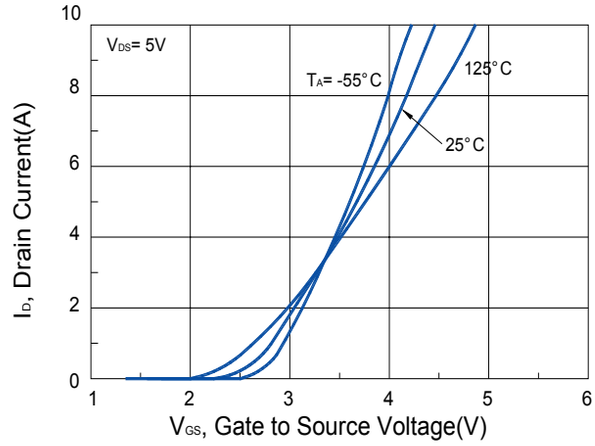
On-Resistance Variation with Temperature.



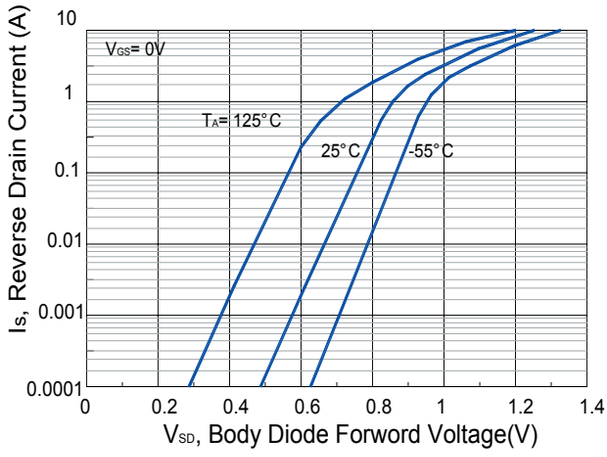
On-Resistance Variation with Gate-to-Source Voltage.



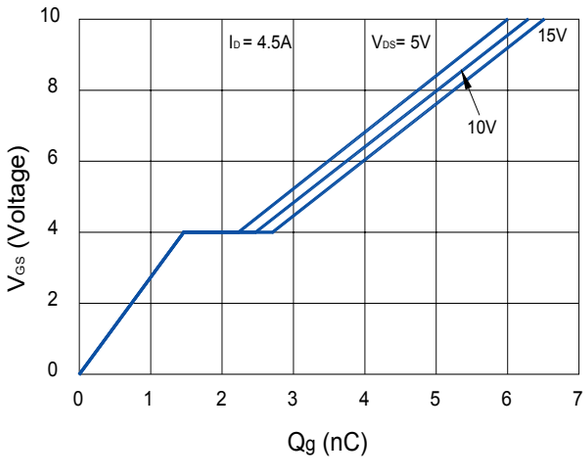
Transfer Characteristics.



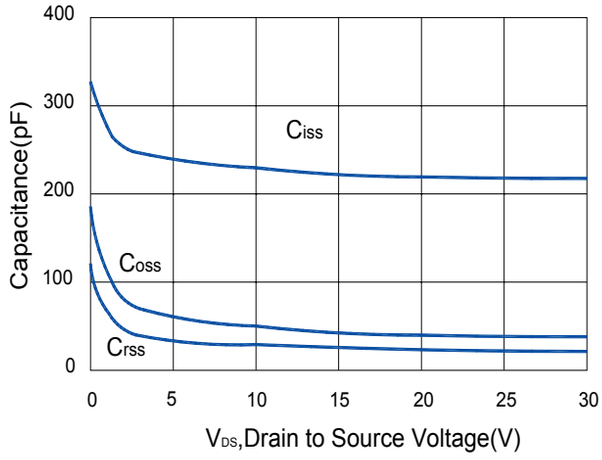
Body Diode Forword Voltage Variation with Source Current and Temperature.



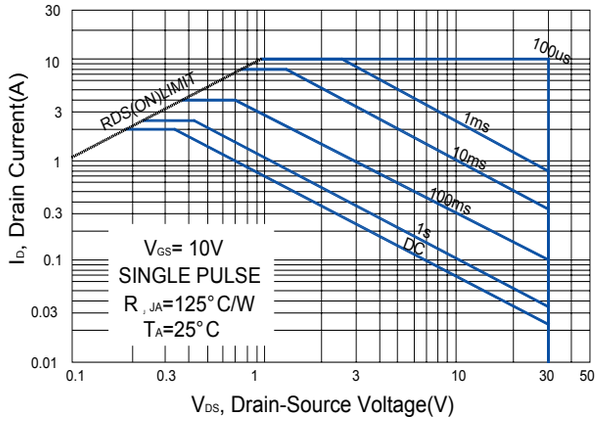
Gate-Charge Characteristics



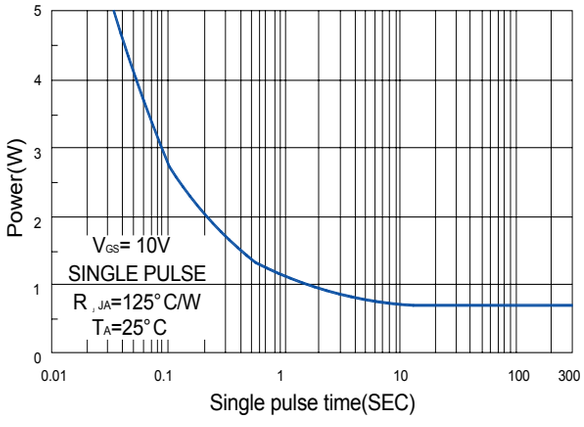
Capacitance Characteristics



Maximum Safe Operating Area.



Single Pulse Maximum Power Dissipation.



Transient Thermal Response Curve.