Dual N-channel MOSFET

ELM36802EA-S

■General description

ELM36802EA-S uses advanced trench technology to provide excellent Rds(on), low gate charge and low gate resistance.

■Features

- Vds=30V
- Id=3.5A
- Rds(on) < 60mΩ (Vgs=10V)
- Rds(on) < 75mΩ (Vgs=4.5V)
- Rds(on) < 115mΩ (Vgs=2.5V)

■Maximum absolute ratings

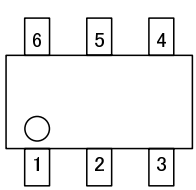
Parameter		Symbol	Limit	Unit	Note
Drain-source voltage		Vds	30	V	
Gate-source voltage		Vgs	±12	V	
Continuous drain current	Ta=25℃	Id	3.5	A	
	Ta=70℃		2.8		
Pulsed drain current		Idm	15	A	3
Power dissipation	Ta=25℃	Pd	1.15	W	
	Ta=70℃		0.73		
Junction and storage temperature range		Tj, Tstg	-55 to 150	℃	

■Thermal characteristics

Parameter		Symbol	Typ.	Max.	Unit	Note
Maximum junction-to-ambient	t≤10s	Rθja		110	℃/W	
Maximum junction-to-ambient	Steady-state			150	℃/W	
Maximum junction-to-lead	Steady-state	Rθjl		80	℃/W	

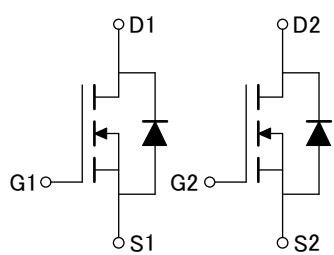
■Pin configuration

SOT-26 (TOP VIEW)



Pin No.	Pin name
1	GATE1
2	SOURCE2
3	GATE2
4	DRAIN2
5	SOURCE1
6	DRAIN1

■Circuit



■Electrical characteristics

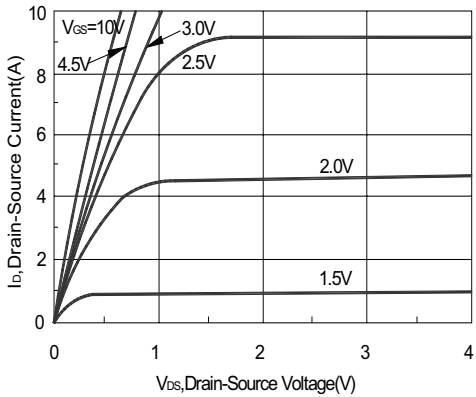
Ta=25℃

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℃			10		
Gate-body leakage current	Igss	Vds=0V, Vgs=±12V			±100	nA	
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=250μA	0.6	1.0	1.4	V	
On state drain current	Id(on)	Vgs=4.5V, Vds=5V	15			A	1
Static drain-source on-resistance	Rds(on)	Vgs=10V, Id=3.5A		55	60	mΩ	1
		Vgs=4.5V, Id=3A		65	75	mΩ	
		Vgs=2.5V, Id=2A		100	115	mΩ	
Forward transconductance	Gfs	Vds=5V, Id=3.5A		4.5		S	1
Diode forward voltage	Vsd	If=0.8A, Vgs=0V			1.2	V	1
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=15V, f=1MHz		390		pF	
Output capacitance	Coss			55		pF	
Reverse transfer capacitance	Crss			40		pF	
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=4.5V, Vds=15V Id=3.5A		5.0		nC	2
Gate-source charge	Qgs			0.8		nC	2
Gate-drain charge	Qgd			1.7		nC	2
Turn-on delay time	td(on)	Vgs=10V, Vds=15V, Id ≅ 1A Rgen=6Ω		7		ns	2
Turn-on rise time	tr			4		ns	2
Turn-off delay time	td(off)			36		ns	2
Turn-off fall time	tf			14		ns	2
Body diode reverse recovery time	trr	If=0.8A, dI/dt=100A/μs		40	80	ns	

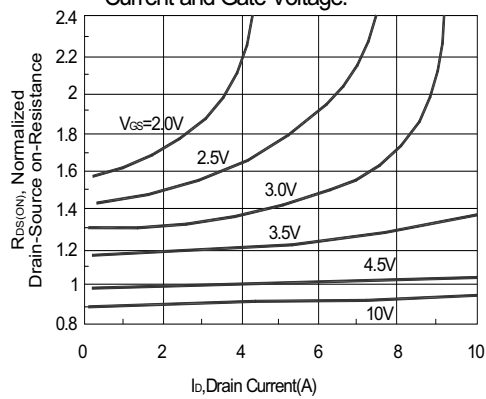
NOTE :
1. Pulsed width≤300μsec and Duty cycle≤2%.
2. Independent of operating temperature.
3. Pulsed width limited by maximum junction temperature.
4. Duty cycle ≤ 1%.

■Typical electrical and thermal characteristics

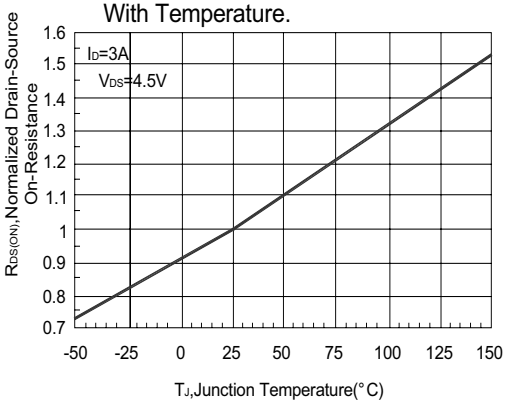
On-Region Characteristics.



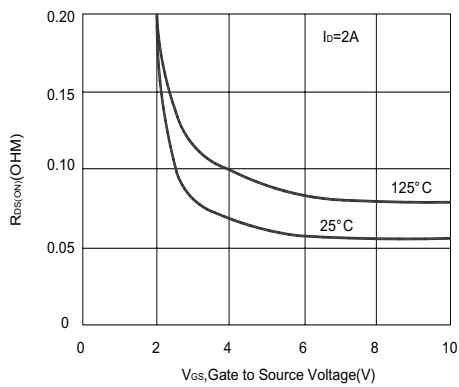
On-Resistance Variation With Drain Current and Gate Voltage.



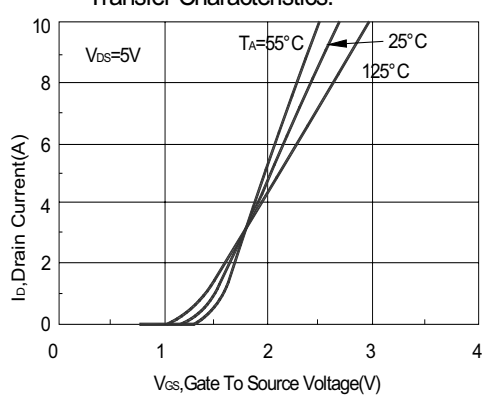
On-Resistance Variation With Temperature.



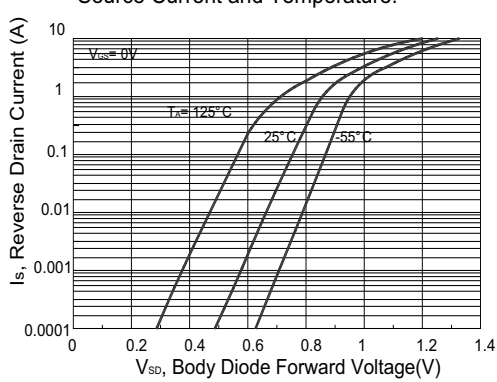
On-Resistance Variation vs. Gate-Source Voltage.



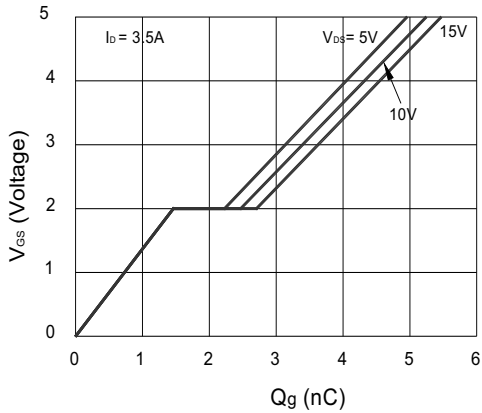
Transfer Characteristics.



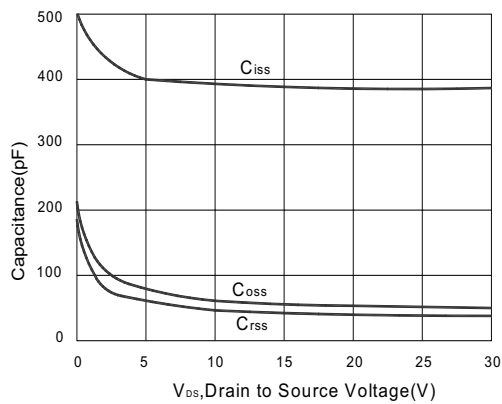
Body Diode Forword Voltage Variation with Source Current and Temperature.



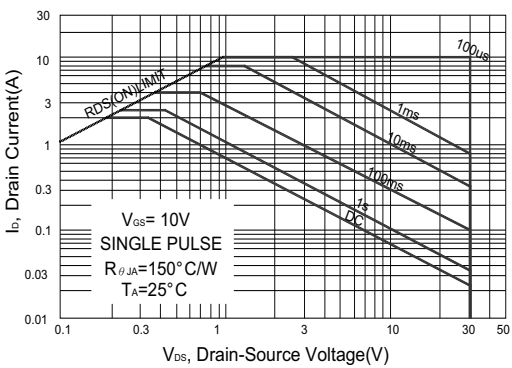
Gate-Charge Characteristics



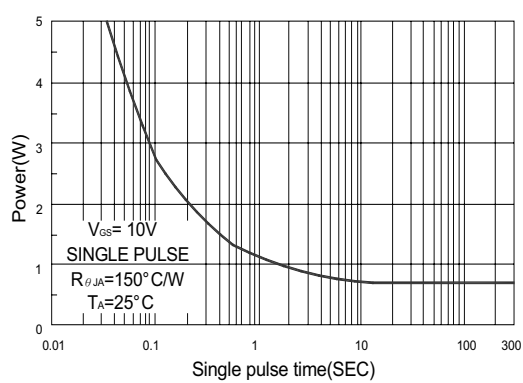
Capacitance Characteristics



Maximum Safe Operating Area.



Single Pulse Maximum Power Dissipation.



Transient Thermal Response Curve.