

# Single N-channel MOSFET

## ELM322806A-S

### ■ General description

ELM322806A-S uses advanced trench technology to provide excellent  $R_{ds(on)}$ , low gate charge and low gate resistance.

### ■ Features

- $V_{ds}=60V$
- $I_d=30A$
- $R_{ds(on)} < 28m\Omega$  ( $V_{gs}=10V$ )
- $R_{ds(on)} < 38m\Omega$  ( $V_{gs}=4.5V$ )

### ■ Maximum absolute ratings

$T_a=25^\circ C$ . Unless otherwise noted.

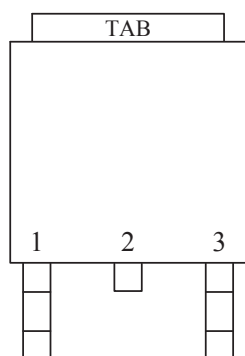
Parameter	Symbol	Limit	Unit	Note
Drain-source voltage	$V_{ds}$	60	V	
Gate-source voltage	$V_{gs}$	$\pm 20$	V	
Continuous drain current	$I_d$	$T_a=25^\circ C$	30	A
		$T_a=100^\circ C$	19	
Pulsed drain current	$I_{dm}$	100	A	3
Avalanche current	$I_{as}$	30	A	
Avalanche energy	$E_{as}$	43	mJ	
Power dissipation	$P_d$	$T_c=25^\circ C$	50	W
		$T_c=100^\circ C$	20	
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-case	$R_{\theta jc}$		2.5	$^\circ C/W$	
Maximum junction-to-ambient	$R_{\theta ja}$		40.0	$^\circ C/W$	

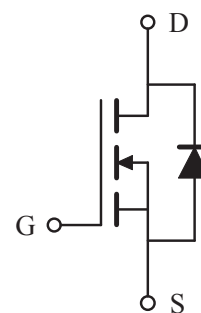
### ■ Pin configuration

TO-252-3(TOP VIEW)



Pin No.	Pin name
1	GATE
2	DRAIN
3	SOURCE

### ■ Circuit



# Single N-channel MOSFET

## ELM322806A-S

### ■ Electrical characteristics

Ta=25°C. Unless otherwise noted.

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
<b>STATIC PARAMETERS</b>							
Drain-source breakdown voltage	BVdss	Id=250μA, Vgs=0V	60			V	
Zero gate voltage drain current	Idss	Vds=48V, Vgs=0V			1	μA	
		Vds=40V, Vgs=0V, Ta=125°C			10		
Gate-body leakage current	Igss	Vds=0V, Vgs=±20V			±250	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=10V	100			A	1
Static drain-source on-resistance	Rds(on)	Vgs=10V, Id=20A		22.3	28.0	mΩ	1
		Vgs=4.5V, Id=12A		28.0	38.0		
Forward transconductance	Gfs	Vds=5V, Id=20A		25		S	1
Diode forward voltage	Vsd	If=20A, Vgs=0V			1.3	V	1
Max. body-diode continuous current	Is				30	A	
<b>DYNAMIC PARAMETERS</b>							
Input capacitance	Ciss	Vgs=0V, Vds=25V, f=1MHz		1500		pF	
Output capacitance	Coss			168		pF	
Reverse transfer capacitance	Crss			106		pF	
Gate resistance	Rg	Vgs=0V, Vds=0V, f=1MHz		1.3		Ω	
<b>SWITCHING PARAMETERS</b>							
Total gate charge	Qg	Vgs=10V, Vds=30V, Id=20A		27.4		nC	2
Gate-source charge	Qgs			6.1		nC	2
Gate-drain charge	Qgd			5.8		nC	2
Turn-on delay time	td(on)	Vgs=10V, Vds=30V Id=20A, Rgen=6Ω		8		ns	2
Turn-on rise time	tr			6		ns	2
Turn-off delay time	td(off)			29		ns	2
Turn-off fall time	tf			6		ns	2
Reverse recovery time	trr	If=20A, dIf/dt=100A/μs		41		ns	
Reverse recovery charge	Qrr			46		nC	

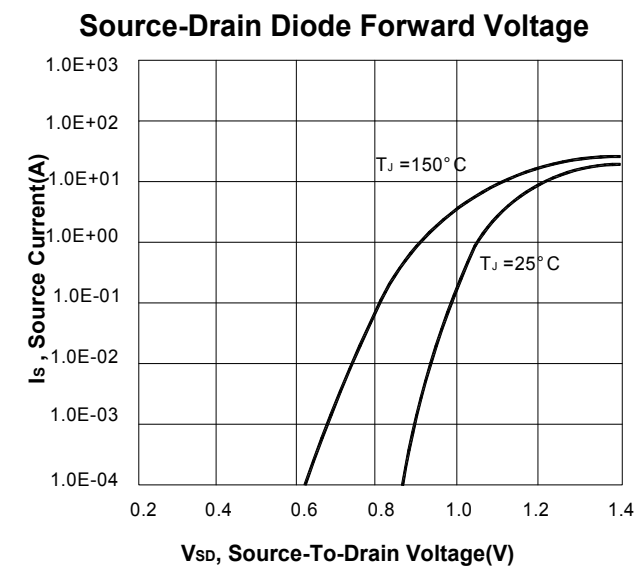
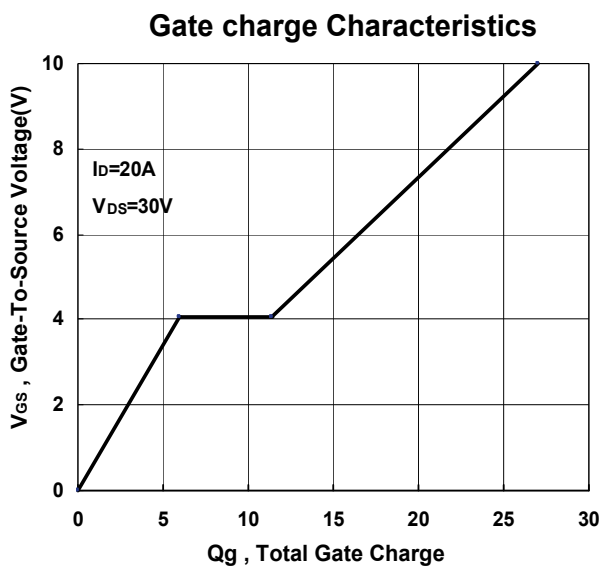
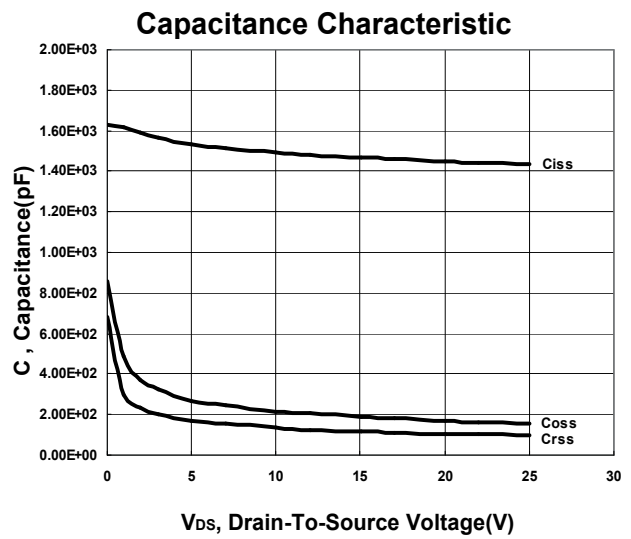
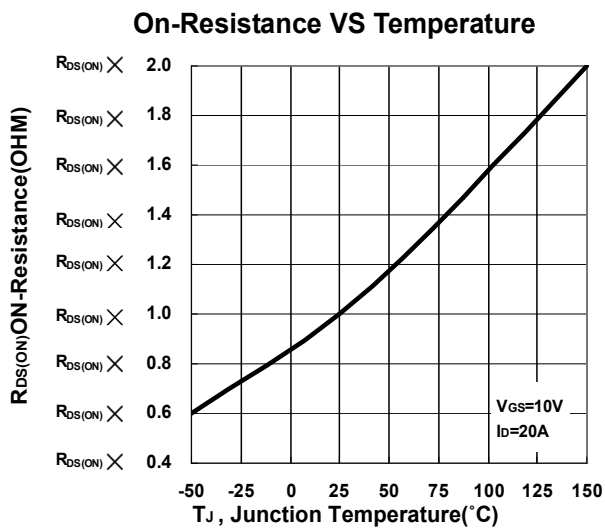
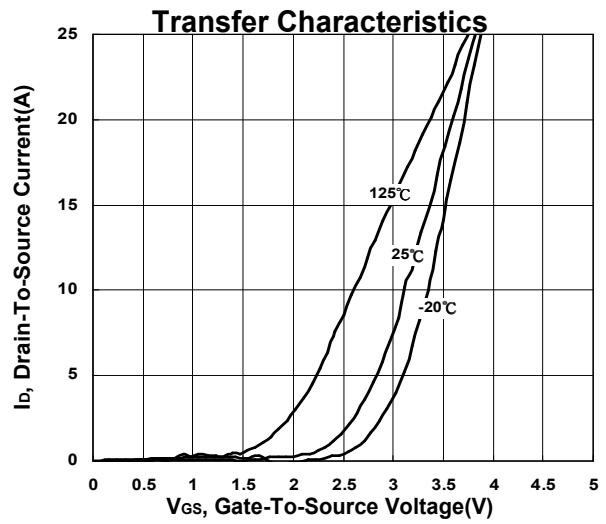
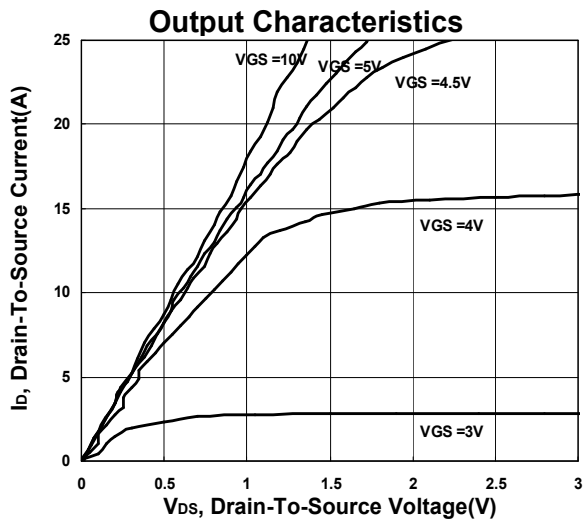
NOTE :

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

# Single N-channel MOSFET

ELM322806A-S

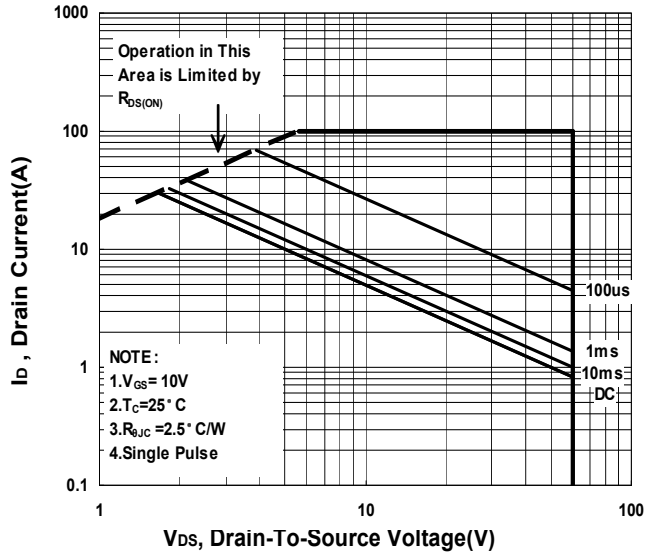
## Typical electrical and thermal characteristics



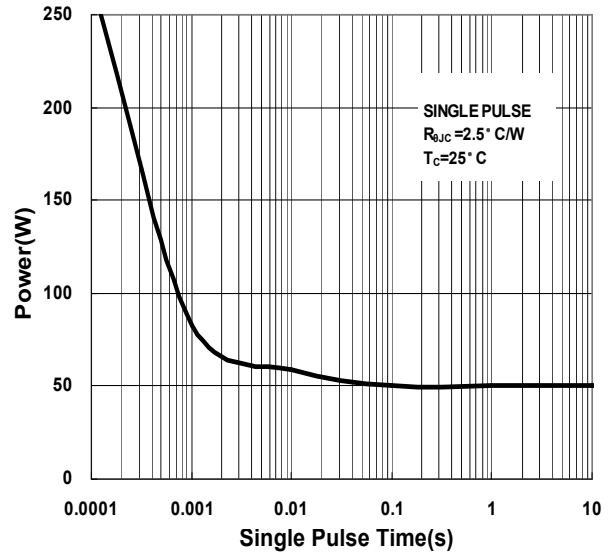
# Single N-channel MOSFET

ELM322806A-S

### Safe Operating Area



### Single Pulse Maximum Power Dissipation



### Transient Thermal Response Curve

