Single P-channel MOSFET

ELM34419AA-N

■General description

ELM34419AA-N uses advanced trench technology to provide excellent Rds(on), low gate charge and low gate resistance.

■Features

- Vds=-30V
- Id=-10A
- Rds(on) < 20mΩ (Vgs=-10V)
- Rds(on) < 35mΩ (Vgs=-4.5V)

■Maximum absolute ratings

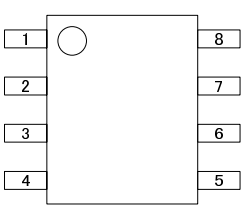
Parameter		Symbol	Limit	Unit	Note
Drain-source voltage		Vds	-30	V	
Gate-source voltage		Vgs	±25	V	
Continuous drain current	Ta=25℃	Id	-10	A	
	Ta=70℃		-8		
Pulsed drain current		Idm	-55	A	3
Avalanche current		Iar	-29	A	
Avalanche energy	L=0.1mH	Eas	43	mJ	
Power dissipation	Ta=25℃	Pd	3	W	
	Ta=70℃		2		
Junction and storage temperature range		Tj, Tstg	-55 to 150	℃	

■Thermal characteristics

Parameter		Symbol	Typ.	Max.	Unit	Note
Maximum junction-to-case		Rθjc		25	℃/W	
Maximum junction-to-ambient		Rθja		40	℃/W	

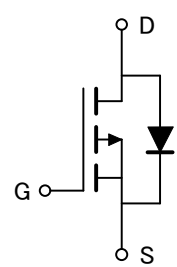
■Pin configuration

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



■Electrical characteristics

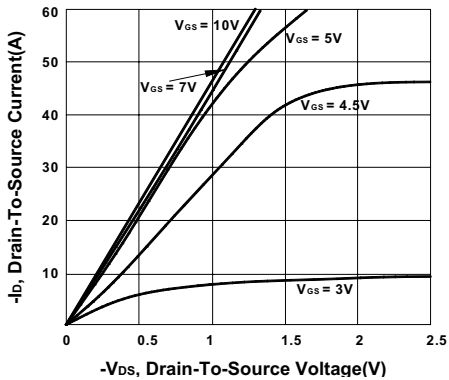
Ta=25℃

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=125℃			-10		
Gate-body leakage current	Igss	Vds=0V, Vgs=±25V			±100	nA	
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=-250μA	-1.0	-1.5	-3.0	V	
Static drain-source on-resistance	Rds(on)	Vgs=-10V, Id=-10A		15	20	mΩ	1
		Vgs=-4.5V, Id=-7A		25	35	mΩ	
Forward transconductance	Gfs	Vds=-10V, Id=-10A		24		S	1
Diode forward voltage	Vsd	Is=-1A, Vgs=0V			-1.2	V	1
Max. body-diode continuous current	Is				-2.5	A	
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=-15V, f=1MHz		1490		pF	
Output capacitance	Coss			301		pF	
Reverse transfer capacitance	Crss			190		pF	
Gate resistance	Rg	Vgs=15mV, Vds=0V, f=1MHz		7.8	9.0	Ω	
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=-10V, Vds=-15V Id=-10A		26		nC	2
Gate-source charge	Qgs			4		nC	2
Gate-drain charge	Qgd			5		nC	2
Turn-on delay time	td(on)	Vgs=-10V, Vds=-15V Id≅-1A, Rgen=6Ω		5.7		ns	2
Turn-on rise time	tr			10.0		ns	2
Turn-off delay time	td(off)			18.0		ns	2
Turn-off fall time	tf			5.0		ns	2

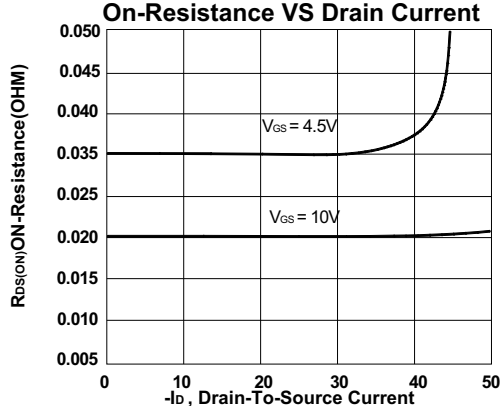
NOTE :
1. Pulsed width≤300μsec and Duty cycle≤2%.
2. Independent of operating temperature.
3. Pulsed width limited by maximum junction temperature.
4. Duty cycle ≤ 1%.

■Typical electrical and thermal characteristics

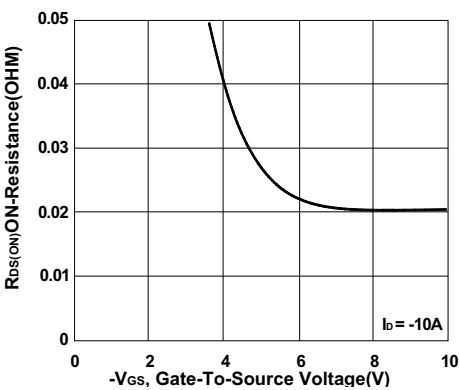
Output Characteristics



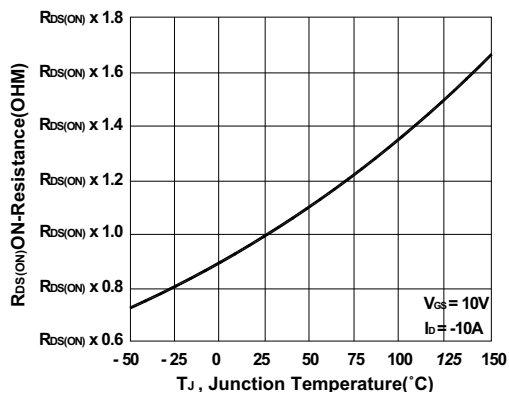
On-Resistance VS Drain Current



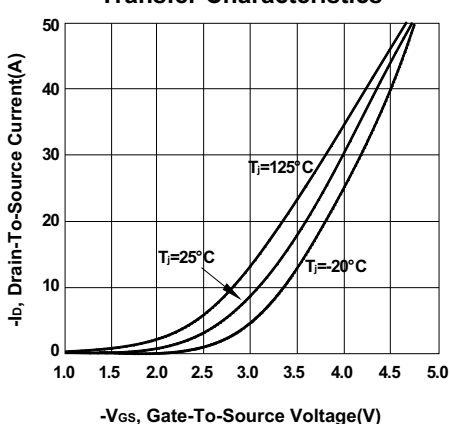
On-Resistance VS Gate-To-Source



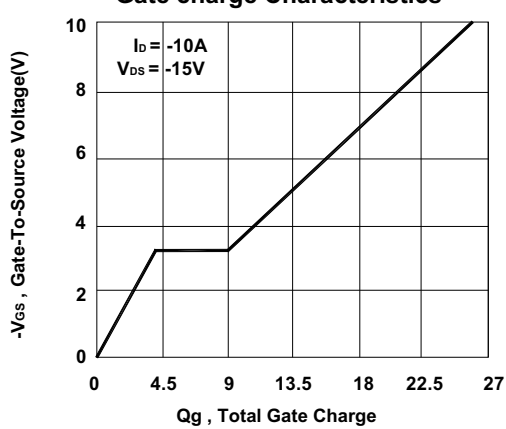
On-Resistance VS Drain Current



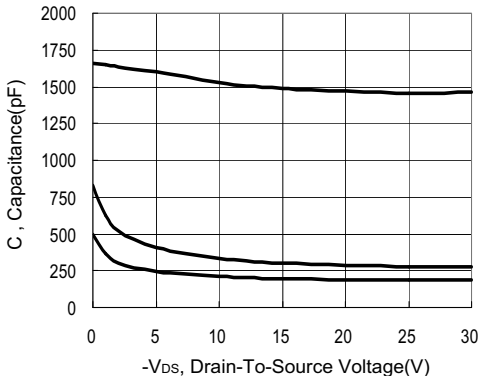
Transfer Characteristics



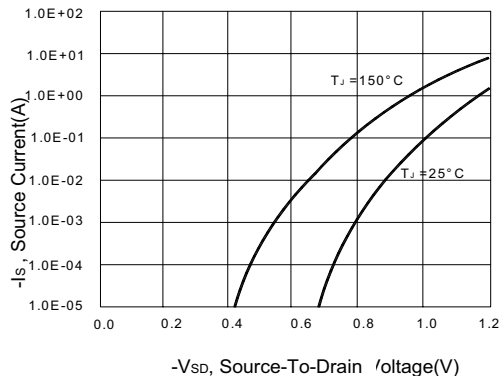
Gate charge Characteristics



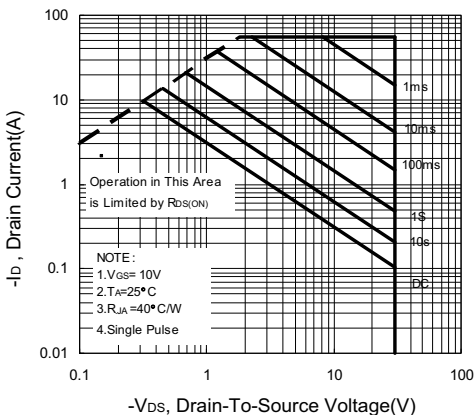
Capacitance Characteristic



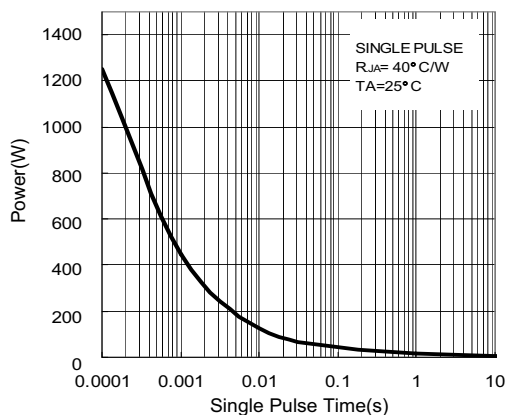
Body Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve