

Single P-channel MOSFET

ELM34415AA-N

■General description

ELM34415AA-N uses advanced trench technology to provide excellent $R_{ds(on)}$, low gate charge and low gate resistance.

■Features

- $V_{ds}=-30V$
- $I_d=-13A$
- $R_{ds(on)} < 10.5m\Omega$ ($V_{gs}=-10V$)
- $R_{ds(on)} < 16m\Omega$ ($V_{gs}=-4.5V$)

■Maximum absolute ratings

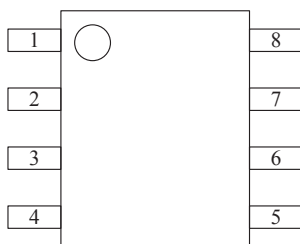
Parameter		Symbol	Limit	Unit	Note
Drain-source voltage		V_{ds}	-30	V	
Gate-source voltage		V_{gs}	± 25	V	
Continuous drain current	$T_a=25^{\circ}C$	I_d	-12	A	
	$T_a=70^{\circ}C$		-9		
Pulsed drain current		I_{dm}	-50	A	3
Power dissipation	$T_a=25^{\circ}C$	P_d	2.5	W	
	$T_a=70^{\circ}C$		1.3		
Junction 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	Steady-state	$R_{\theta jc}$		25	$^{\circ}C/W$	
Maximum junction-to-ambient	Steady-state	$R_{\theta ja}$		50	$^{\circ}C/W$	

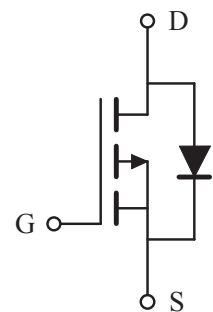
■Pin configuration

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=125°C			-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	
On state drain current	Id(on)	Vgs=-10V, Vds=-5V	-50			A	1
Static drain-source on-resistance	Rds(on)	Vgs=-10V, Id=-13A		9.0	10.5	mΩ	1
		Vgs=-4.5V, Id=-10A		13.0	16.0	mΩ	
Forward transconductance	Gfs	Vds=-10V, Id=-13A		29		S	1
Diode forward voltage	Vsd	Is=If, Vgs=0V			-1.2	V	1
Max. body-diode continuous current	Is				-2.7	A	
Pulsed body-diode current	Ism				-4	A	3
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=-15V, f=1MHz		4200		pF	
Output capacitance	Coss			1218		pF	
Reverse transfer capacitance	Crss			504		pF	
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=-10V, Vds=-15V Id=-13A		42.0	58.0	nC	2
Gate-source charge	Qgs			12.6		nC	2
Gate-drain charge	Qgd			15.4		nC	2
Turn-on delay time	td(on)	Vgs=-10V, Vds=-15V Id≈-1A, Rgen=6Ω		16.8		ns	2
Turn-on rise time	tr			22.4		ns	2
Turn-off delay time	td(off)			7.0		ns	2
Turn-off fall time	tf			140.0		ns	2

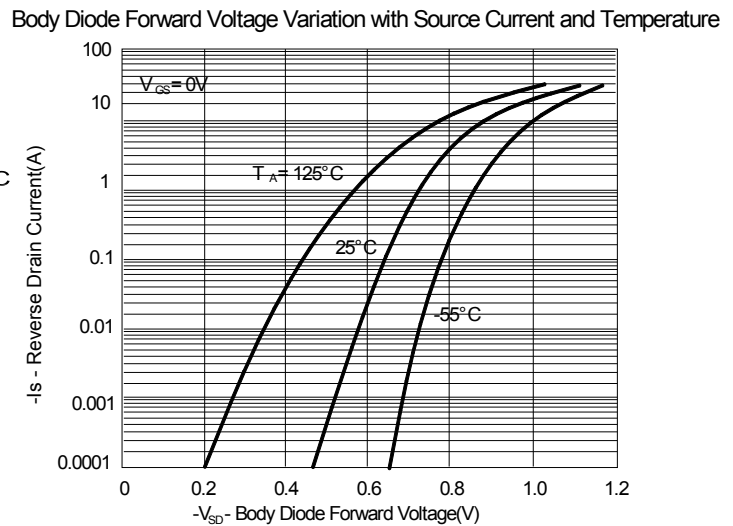
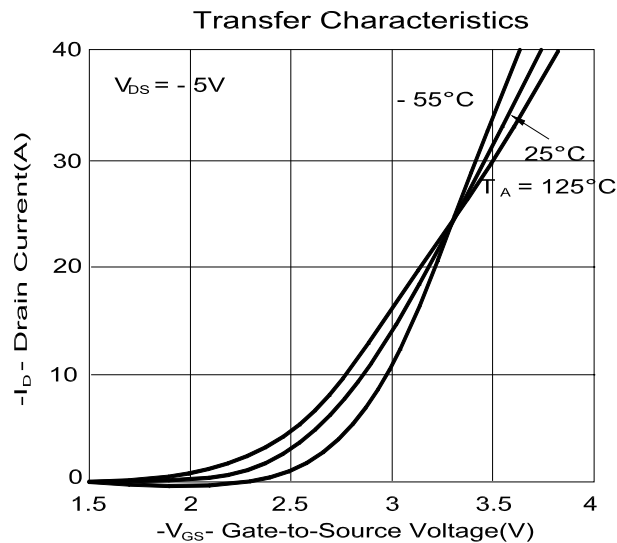
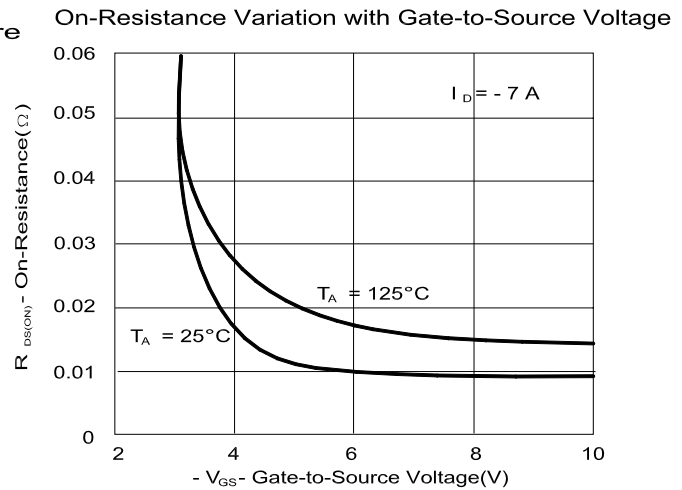
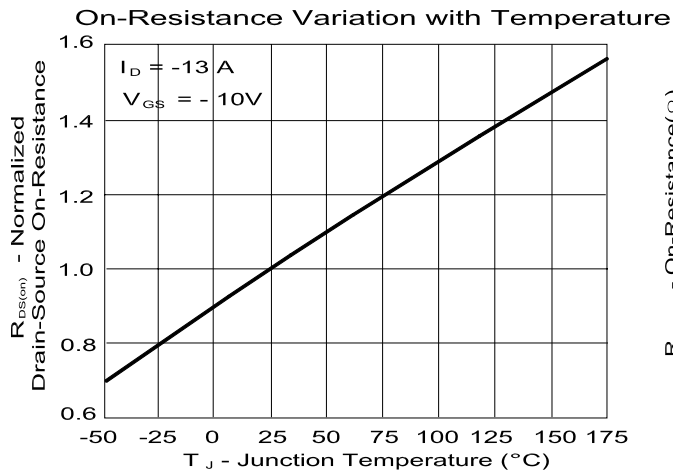
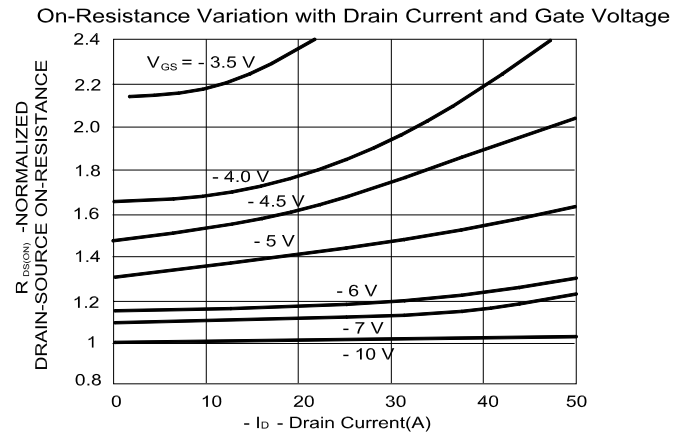
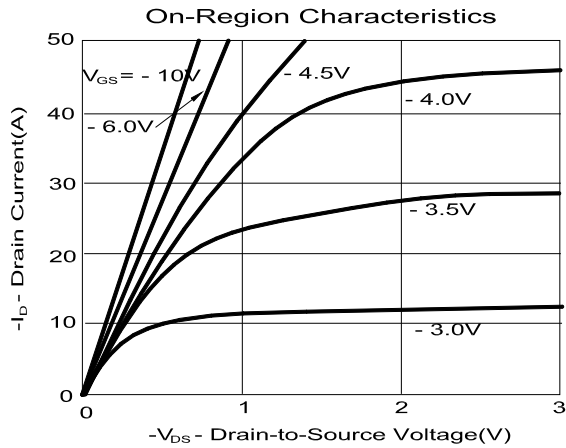
NOTE :

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%.

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■ Typical electrical and thermal characteristics



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