

Single N-channel MOSFET

ELM32408LA-S

General description

ELM32408LA-S uses advanced trench technology to provide excellent $R_{ds(on)}$, low gate charge and low gate resistance.

Features

- $V_{ds}=40V$
- $I_d=10A$
- $R_{ds(on)} < 28m\Omega$ ($V_{gs}=10V$)
- $R_{ds(on)} < 42m\Omega$ ($V_{gs}=4.5V$)

Maximum absolute ratings

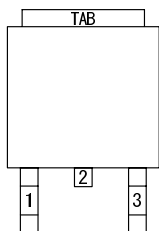
Parameter	Symbol	Limit	Unit	Note	
Drain-source voltage	V_{ds}	40	V		
Gate-source voltage	V_{gs}	± 20	V		
Continuous drain current	I_d	$T_a=25^\circ C$	10	A	
		$T_a=100^\circ C$	8		
Pulsed drain current	I_{dm}	40	A	3	
Power dissipation	P_d	$T_a=25^\circ C$	32	W	
		$T_a=100^\circ C$	22		
Junction and storage 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	$R\theta_{jc}$		3	$^\circ C/W$	
Maximum junction-to-ambient	Steady-state	$R\theta_{ja}$		75	$^\circ C/W$	

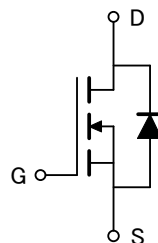
Pin configuration

TO-252-3 (TOP VIEW)



Pin No.	Pin name
1	GATE
2	DRAIN
3	SOURCE

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=250 μA, Vgs=0V	40			V	
Zero gate voltage drain current	Idss	Vds=32V, Vgs=0V			1	μA	
		Vds=30V, Vgs=0V, Tj=125°C			10		
Gate-body leakage current	Igss	Vds=0V, Vgs=±20V			±250	nA	
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=250 μA	1.0	1.5	2.5	V	
On state drain current	Id(on)	Vgs=10V, Vds=10V	40			A	1
Static drain-source on-resistance	Rds(on)	Vgs=10V, Id=10A		21	28	mΩ	1
		Vgs=4.5V, Id=8A		30	42	mΩ	
Forward transconductance	Gfs	Vds=10V, Id=10A		19		S	1
Diode forward voltage	Vsd	If=Is, Vgs=0V			1	V	1
Max. body-diode continuous current	Is				1.3	A	
Pulsed body-diode current	Ism				2.6	A	3
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=10V, f=1MHz		790		pF	
Output capacitance	Coss			175		pF	
Reverse transfer capacitance	Crss			65		pF	
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=10V, Vds=20V, Id=10A		16.0		nC	2
Gate-source charge	Qgs			2.5		nC	2
Gate-drain charge	Qgd			2.1		nC	2
Turn-on delay time	td(on)	Vgs=10V, Vds=20V, Id ≈ 1A Rl=1 Ω, Rgen=6 Ω		2.2	4.4	ns	2
Turn-on rise time	tr			7.5	15.0	ns	2
Turn-off delay time	td(off)			11.8	21.3	ns	2
Turn-off fall time	tf			3.7	7.4	ns	2
Body diode reverse recovery time	trr	If=5A, di/dt=100A/μs		15.5		ns	
Body diode reverse recovery charge	Qrr	If=5A, di/dt=100A/μs		7.9		nC	

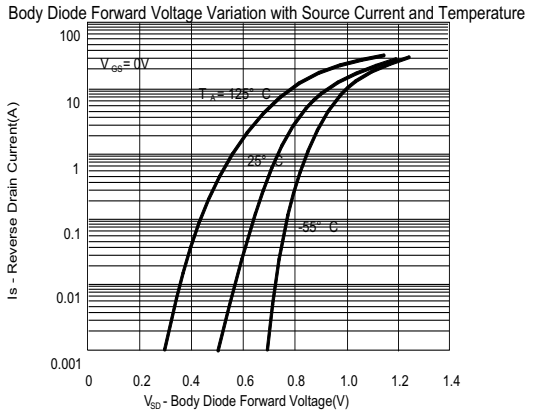
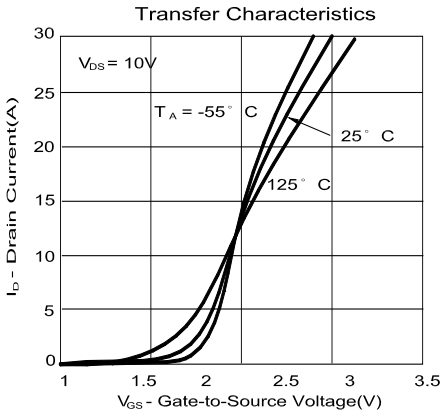
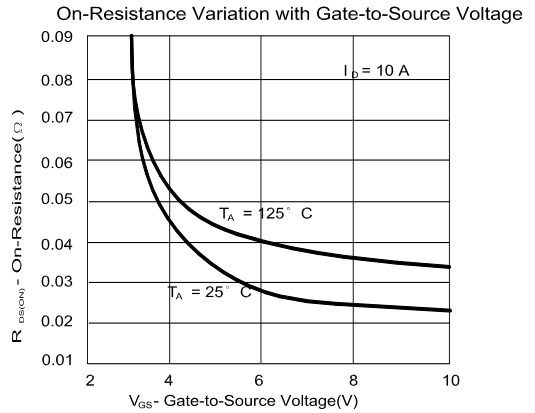
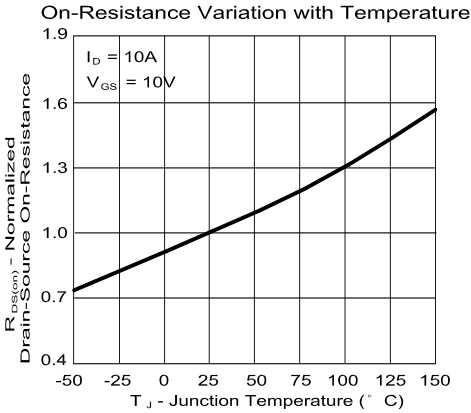
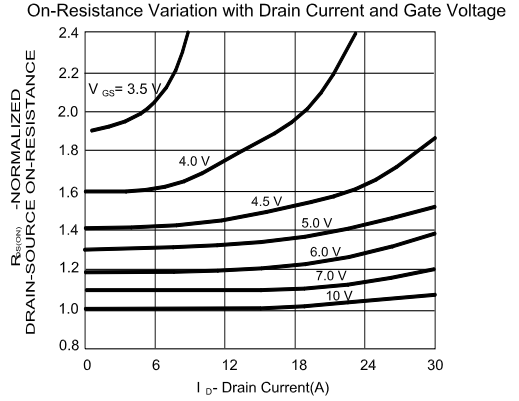
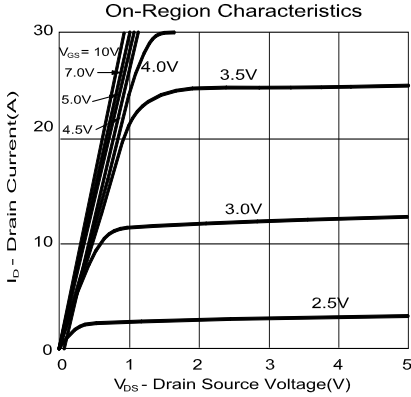
NOTE :

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

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Typical electrical and thermal characteristics



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