Single P-channel MOSFET

ELM34537BA-N

■General description

ELM34537BA-N uses advanced trench technology to provide excellent Rds(on), low gate charge and low gate resistance.

■Features

- Vds=-30V
- Id=-11A
- Rds(on) < 9mΩ (Vgs=-10V)
- Rds(on) < 14mΩ (Vgs=-4.5V)

■Maximum absolute ratings

Ta=25°C. Unless otherwise noted.

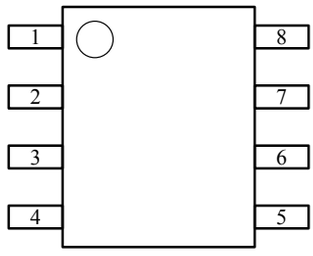
Parameter		Symbol	Limit	Unit	Note
Drain-source voltage		Vds	-30	V	
Gate-source voltage		Vgs	±25	V	
Continuous drain current	Ta=25°C	Id	-11.0	A	
	Ta=70°C		-8.7		
Pulsed drain current		Idm	-50	A	3
Avalanche current		Ias	-35	A	
Avalanche energy	L=0.1mH	Eas	61	mJ	
Power dissipation	Tc=25°C	Pd	1.8	W	
	Tc=70°C		1.2		
Junction and storage temperature range		Tj, Tstg	-55 to 150	°C	

■Thermal characteristics

Parameter	Symbol	Typ.	Max.	Unit	Note
Maximum junction-to-ambient	Rθja		68	°C/W	4
Maximum junction-to-case	Rθjc		25		

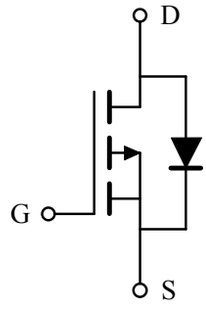
■Pin configuration

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°C. Unless otherwise noted.

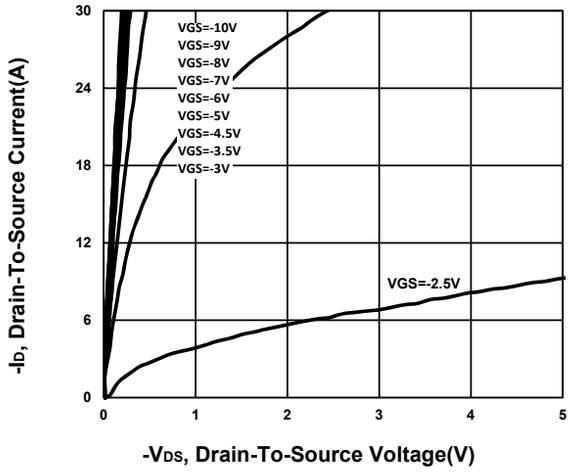
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
STATIC PARAMETERS							
Drain-source breakdown voltage	BVdss	Id=-250μA, Vgs=0V	-30			V	
Zero gate voltage drain current	Idss	Vds=-24V, Vgs=0V			-1	μA	
		Vds=-20V, Vgs=0V, Ta=55°C			-10		
Gate-body leakage current	Igss	Vds=0V, Vgs=±25V			±100	nA	
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=-250μA	-1.0	-1.6	-3.0	V	
Static drain-source on-resistance	Rds(on)	Vgs=-10V, Id=-11A		7.2	9.0	mΩ	1
		Vgs=-4.5V, Id=-11A		10.4	14.0		
Forward transconductance	Gfs	Vds=-10V, Id=-11A		40		S	1
Diode forward voltage	Vsd	If=-11A, Vgs=0V			-1.3	V	1
Max. body-diode continuous current	Is				-11	A	
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=-15V, f=1MHz		2664		pF	
Output capacitance	Coss			374		pF	
Reverse transfer capacitance	Crss			271		pF	
Gate resistance	Rg	Vgs=0V, Vds=0V, f=1MHz		3.7		Ω	
SWITCHING PARAMETERS							
Total gate charge (Vgs=-10V)	Qg	Vds=-15V, Id=-11A		56		nC	2
Total gate charge (Vgs=-4.5V)	Qg			28		nC	2
Gate-source charge	Qgs			9		nC	2
Gate-drain charge	Qgd			13		nC	2
Turn-on delay time	td(on)	Vgs=-10V, Vds=-15V Id=-11A, Rgen=6Ω		22		ns	2
Turn-on rise time	tr			26		ns	2
Turn-off delay time	td(off)			102		ns	2
Turn-off fall time	tf			75		ns	2
Reverse recovery time	trr	If=-11A, dIf/dt=100A/μs		26		ns	
Reverse recovery charge	Qrr			14		μC	

NOTE :

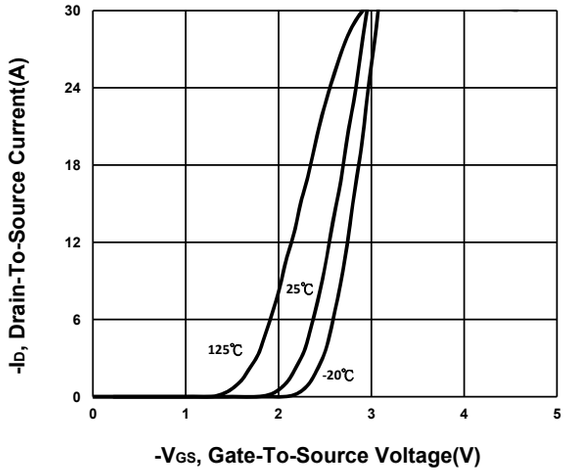
1. Pulsed test : Pulsed width≤300μsec and Duty cycle≤2%.
2. Independent of operating temperature.
3. Pulsed width limited by maximum junction temperature.
4. The value of Rθja is measured with the device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with Ta =25°C.

■Typical electrical and thermal characteristics

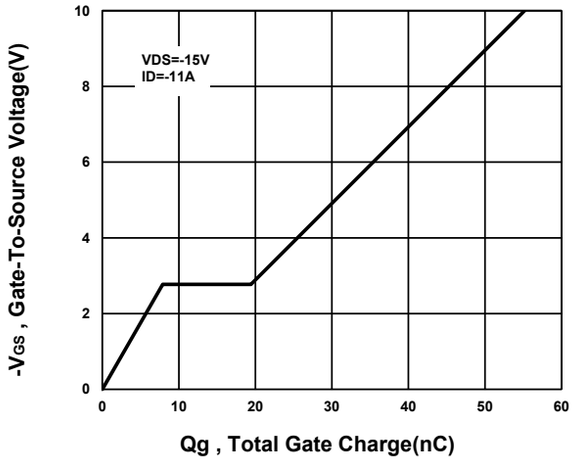
Output Characteristics



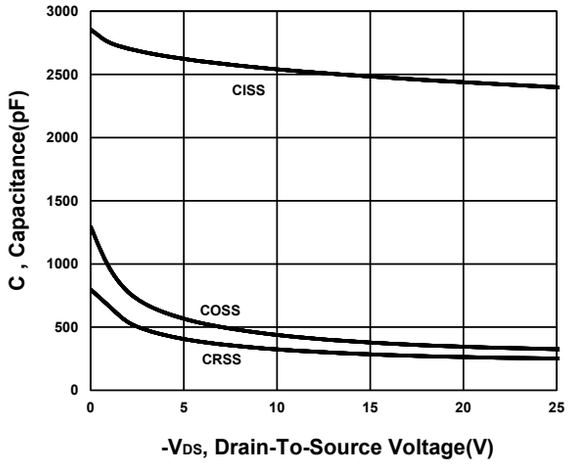
Transfer Characteristics



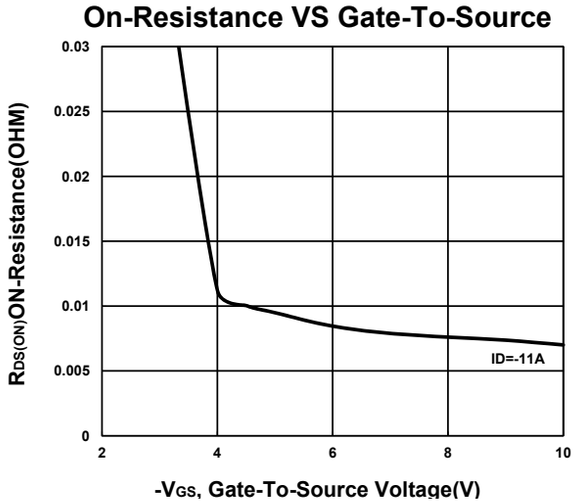
Gate charge Characteristics



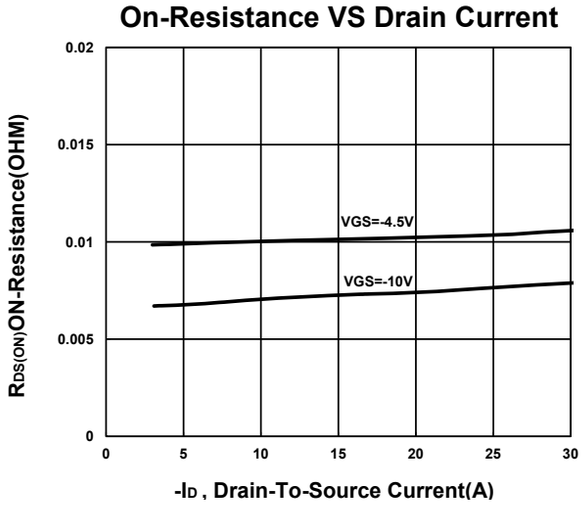
Capacitance Characteristic



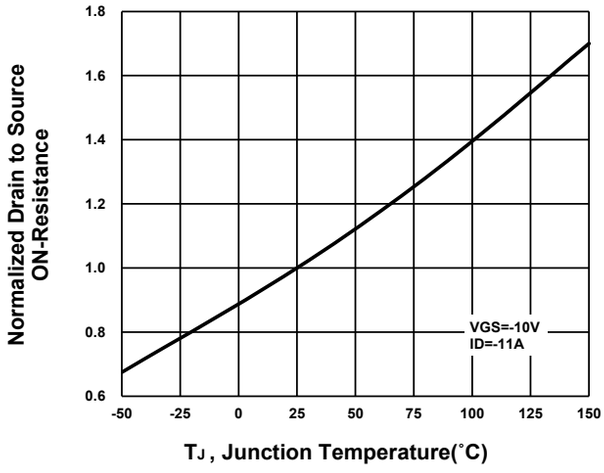
On-Resistance VS Gate-To-Source



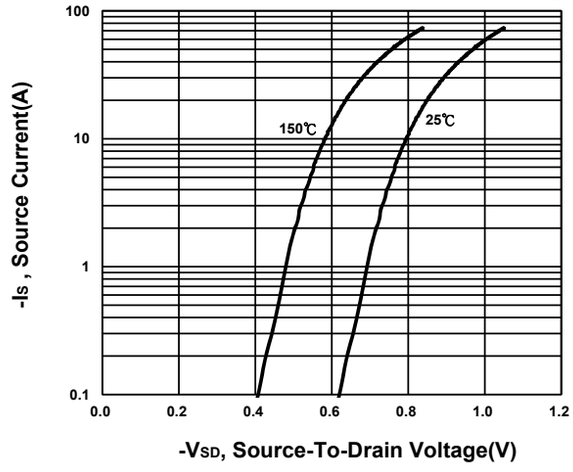
On-Resistance VS Drain Current



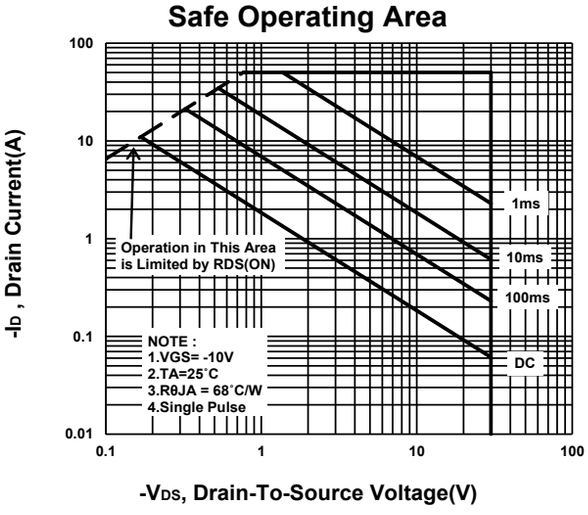
On-Resistance VS Temperature



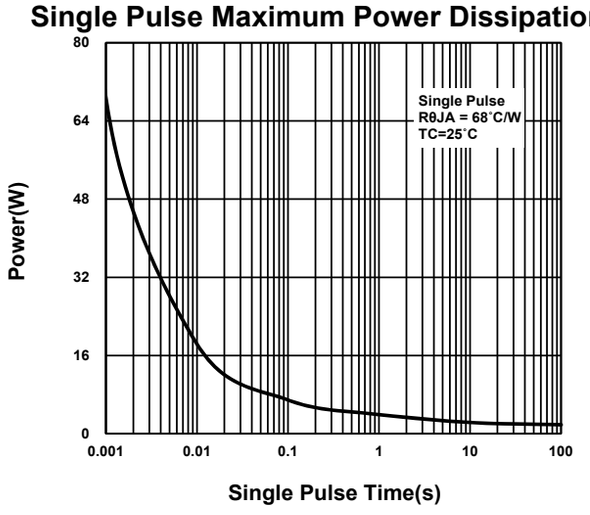
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve