Single N-channel MOSFET

ELM56882SA-N

■General description

ELM56882SA-N uses advanced trench technology to provide excellent Rds(on), low gate charge and low gate resistance.

■Features

- Vds=100V
- Id=17A
- Rds(on) = 9mΩ (Vgs=10V)
- Rds(on) = 13mΩ (Vgs=4.5V)

■Maximum absolute ratings

Ta=25°C. Unless otherwise noted.

Parameter		Symbol	Limit	Unit
Drain-source voltage		Vds	100	V
Gate-source voltage		Vgs	±20	V
Continuous drain current(Tj=150°C)	Ta=25°C	Id	17	A
	Ta=70°C		13	
Pulsed drain current		Idm	80	A
Single pulse avalanche current	L=0.1mH	Ias	30	A
		Eas	45	mJ
Power dissipation	Tc=25°C	Pd	5.4	W
	Tc=75°C		3.4	
Operating junction temperature		Tj	150	°C
Storage temperature range		Tstg	- 55 to 150	°C

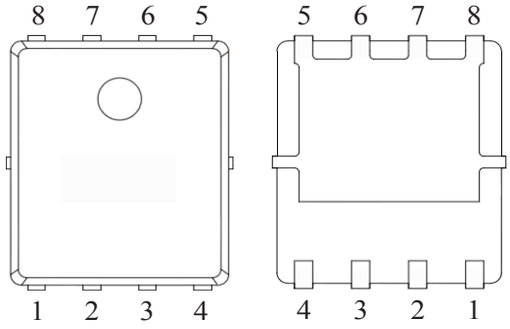
■Thermal characteristics

Parameter		Symbol	Typ.	Max.	Unit
Maximum junction-to-ambient	t ≤ 10s	Rθja		15	°C/W
	Steady-state			45	

■Pin configuration

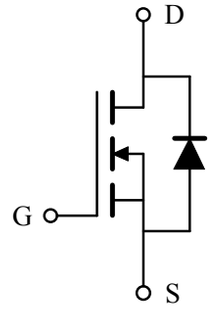
DFN8-5×6

(TOP VIEW) (BOTTOM VIEW)



Pin No.	Pin name
1	SOURCE
2	SOURCE
3	SOURCE
4	GATE
5	DRAIN
6	DRAIN
7	DRAIN
8	DRAIN

■Circuit

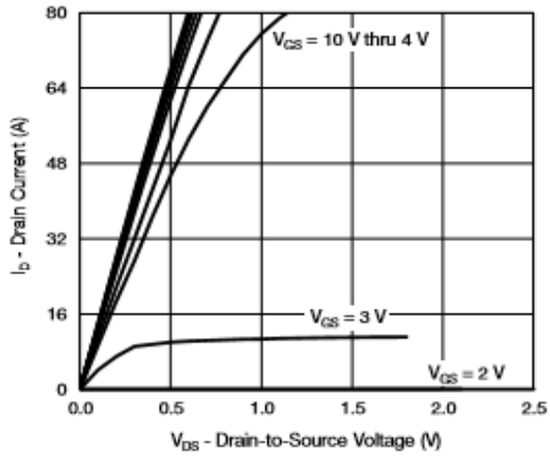


■Electrical characteristics

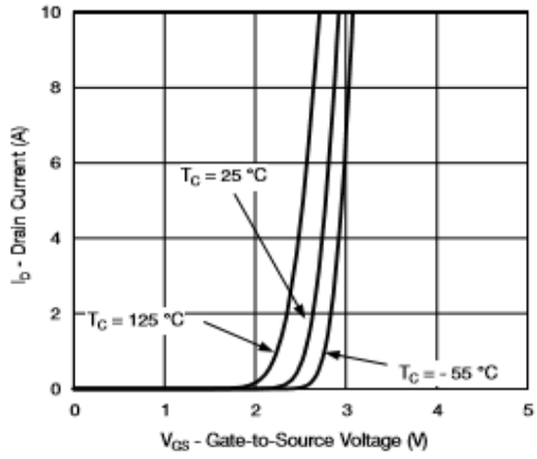
Ta=25°C. Unless otherwise noted.

Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
STATIC PARAMETERS							
Drain-source breakdown voltage	BVdss	Id=250μA, Vgs=0V		100			V
Zero gate voltage drain current	Idss	Vds=80V, Vgs=0V				1	μA
			Ta=85°C			10	
Gate-body leakage current	Igss	Vds=0V, Vgs=±20V				±100	nA
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=250μA		1.2		2.5	V
On state drain current	Id(on)	Vgs=10V, Vds≥5V		30			A
Static drain-source on-resistance	Rds(on)	Vgs=10V, Id=15A			7.3	9.0	mΩ
		Vgs=4.5V, Id=10A			10.8	13.0	
Forward transconductance	Gfs	Vds=10V, Id=20A			60		S
Diode forward voltage	Vsd	Is=5A, Vgs=0V			0.8	1.3	V
Max. body-diode continuous current	Is					4.9	A
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=50V, f=1MHz			1950		pF
Output capacitance	Coss				735		pF
Reverse transfer capacitance	Crss				60		pF
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=4.5V, Vds=50V Id≡10A			20	40	nC
Gate-source charge	Qgs				6		nC
Gate-drain charge	Qgd				9		nC
Turn-on delay time	td(on)	Vgs=10V, Vds=50V RL=5Ω, Id≡10A Rgen=1Ω			12	25	ns
Turn-on rise time	tr				10	20	ns
Turn-off delay time	td(off)				35	70	ns
Turn-off fall time	tf				10	20	ns

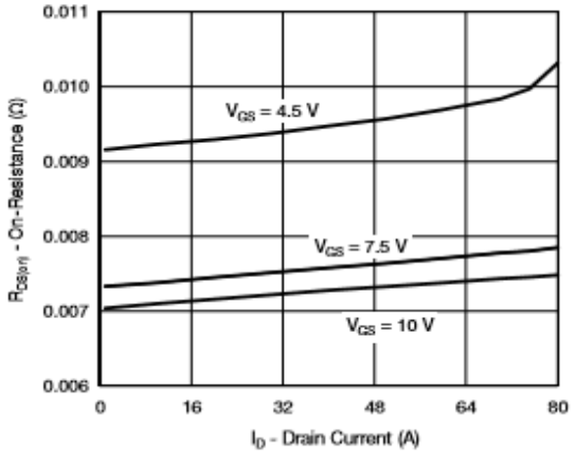
■Typical electrical and thermal characteristics



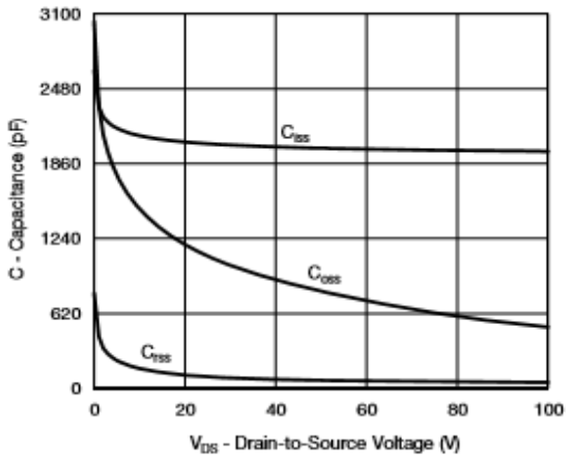
Output Characteristics



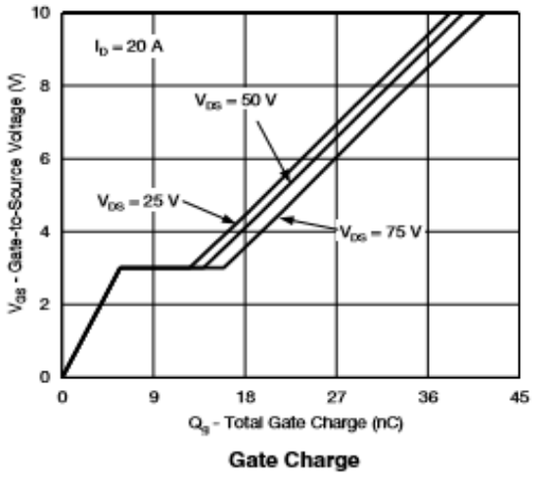
Transfer Characteristics



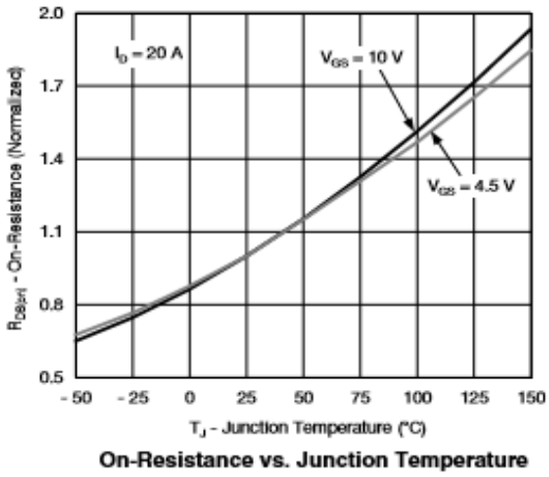
On-Resistance vs. Drain Current and Gate Voltage



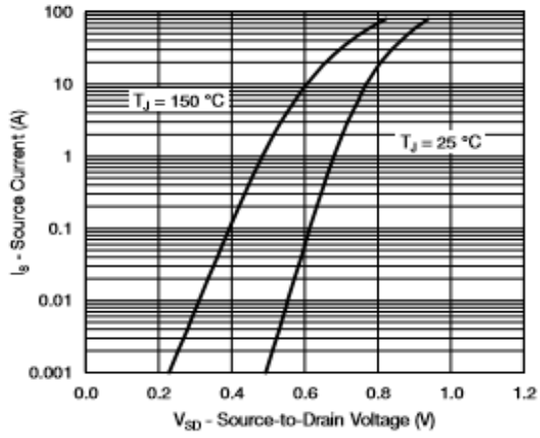
Capacitance



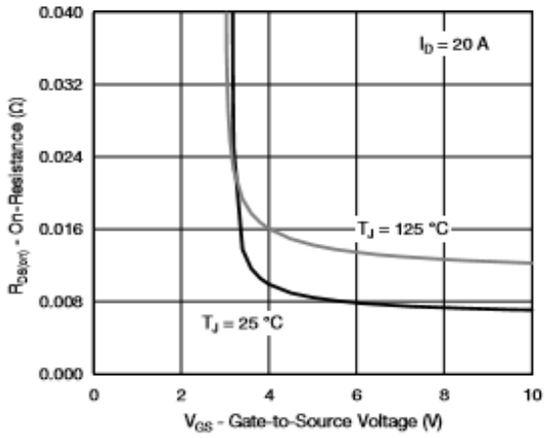
Gate Charge



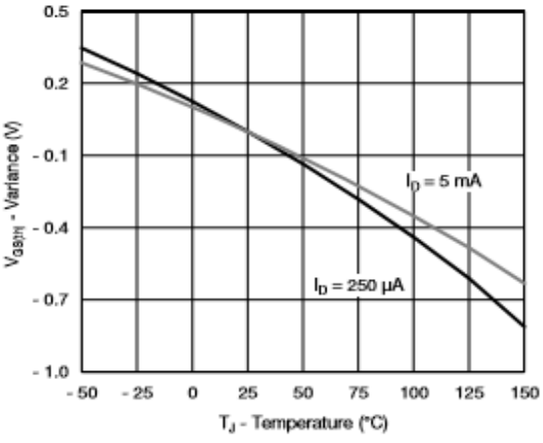
On-Resistance vs. Junction Temperature



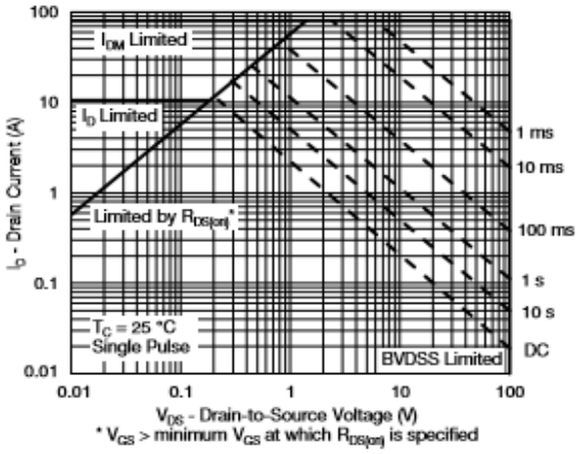
Source-Drain Diode Forward Voltage



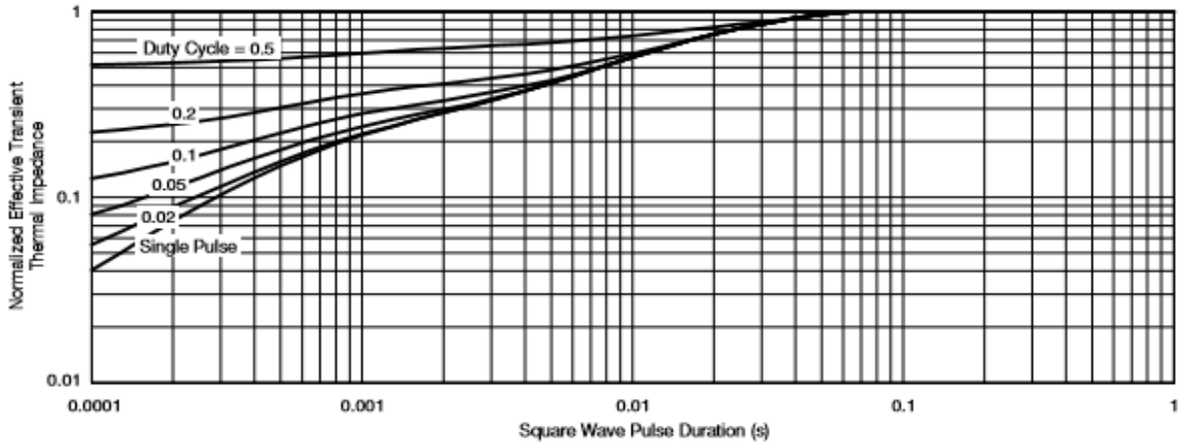
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



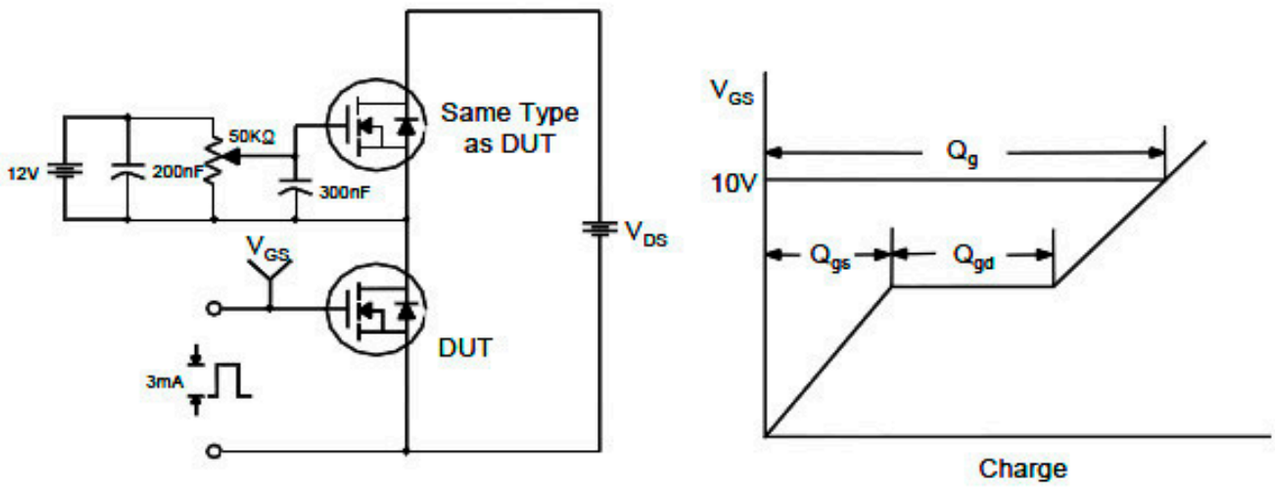
Safe Operating Area, Junction-to-Ambient



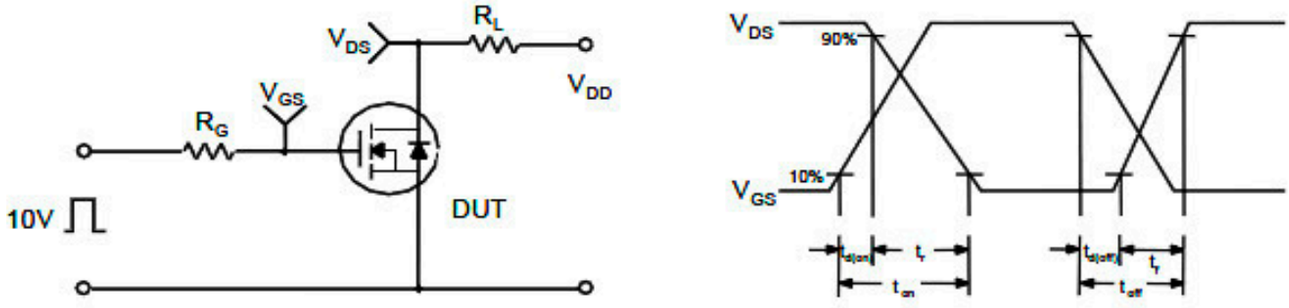
Normalized Thermal Transient Impedance, Junction-to-Case

■Test circuit and waveform

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms