Single N-channel MOSFET

ELM54848WSA-N

■General description

ELM54848WSA-N uses advanced trench technology to provide excellent Rds(on), low gate charge and low gate threshold voltage.

■Features

- Vds=150V
- Id=3.7A
- Rds(on) = 64mΩ (Vgs=10V)
- Rds(on) = 70mΩ (Vgs=6V)

■Maximum absolute ratings

Ta=25°C. Unless otherwise noted.

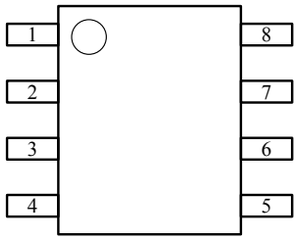
Parameter		Symbol	Limit	Unit
Drain-source voltage		Vds	150	V
Gate-source voltage		Vgs	±20	V
Continuous drain current(Tj=150°C)	Ta=25°C	Id	3.7	A
	Ta=70°C		3.0	
Pulsed drain current		Idm	25	A
Power dissipation	Tc=25°C	Pd	2.8	W
	Tc=70°C		1.8	
Operating junction temperature		Tj	150	°C
Storage temperature range		Tstg	- 55 to 150	°C

■Thermal characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal resistance junction-to-ambient	Rθja		62.5	°C/W

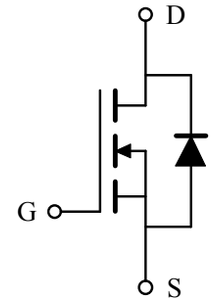
■Pin configuration

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

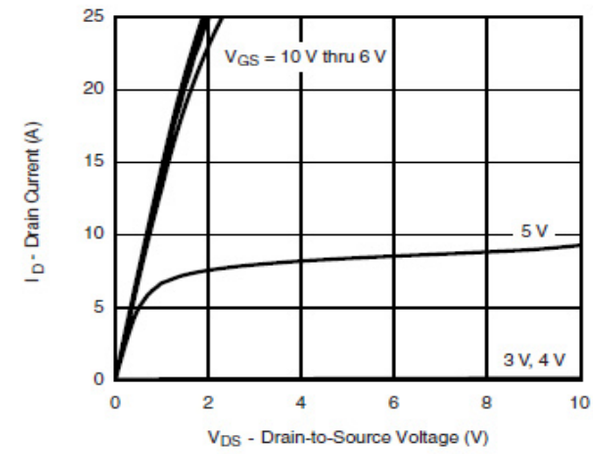


■Electrical characteristics

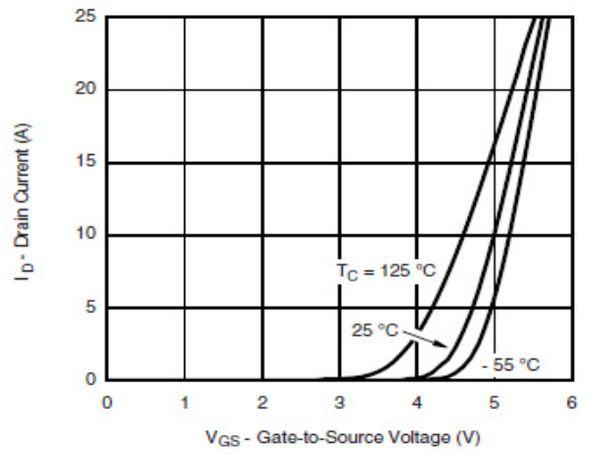
Ta=25°C. Unless otherwise noted.

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	BVdss	Id=250μA, Vgs=0V	150			V
Zero gate voltage drain current	Idss	Vds=120V, Vgs=0V			1	μA
		Vds=120V, Vgs=0V, Ta=85°C			5	
Gate-body leakage current	Igss	Vds=0V, Vgs=±20V			±100	nA
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=250μA	2	3	4	V
On state drain current	Id(on)	Vgs=10V, Vds≥5V	25			A
Static drain-source on-resistance	Rds(on)	Vgs=10V, Id=3.5A		56	64	mΩ
		Vgs=6V, Id=3.0A		59	70	
Forward transconductance	Gfs	Vds=15V, Id=5A		15		S
Diode forward voltage	Vsd	Is=2.5A, Vgs=0V		0.8	1.2	V
Max. body-diode continuous current	Is				2.5	A
DYNAMIC PARAMETERS						
Input capacitance	Ciss	Vgs=0V, Vds=90V, f=1MHz		850		pF
Output capacitance	Coss			85		pF
Reverse transfer capacitance	Crss			50		pF
SWITCHING PARAMETERS						
Total gate charge	Qg	Vds=75V, Vgs=10V Id≡3.5A		17.0	30.0	nC
Gate-source charge	Qgs			3.2		nC
Gate-drain charge	Qgd			6.0		nC
Turn-on delay time	td(on)	Vgs=10V, Vds=75V RL=21Ω, Id≡3.5A Rgen=6.0Ω		10	20	ns
Turn-on rise time	tr			10	20	ns
Turn-off delay time	td(off)			25	50	ns
Turn-off fall time	tf			18	35	ns

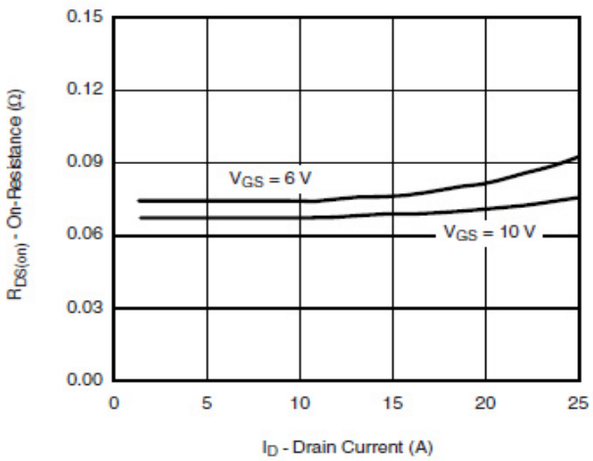
■Typical electrical and thermal characteristics



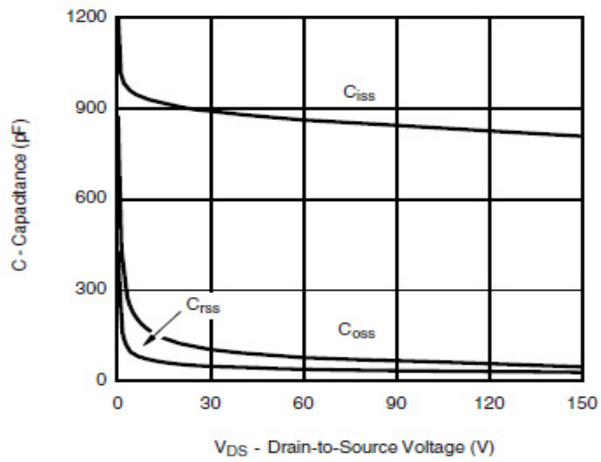
Output Characteristics



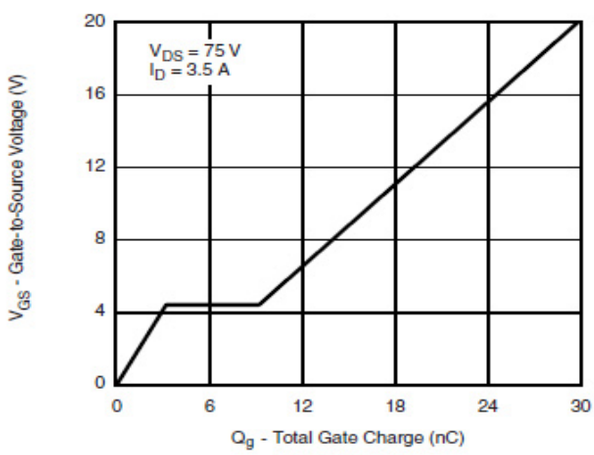
Transfer Characteristics



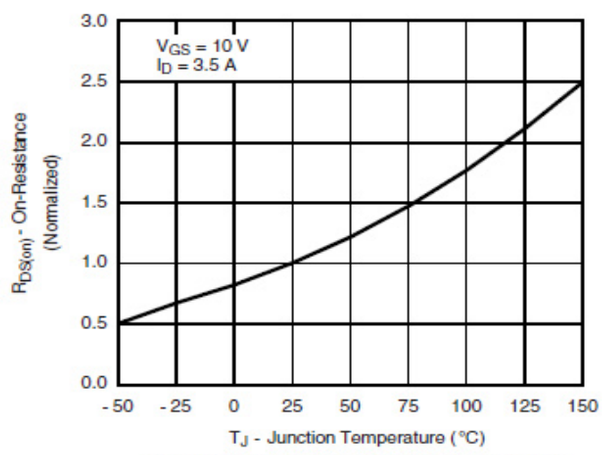
On-Resistance vs. Drain Current



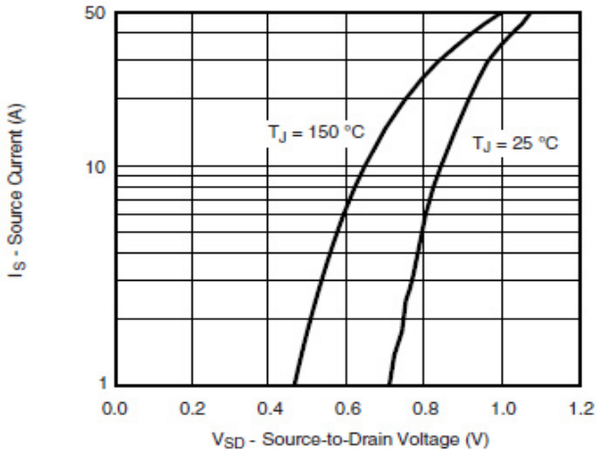
Capacitance



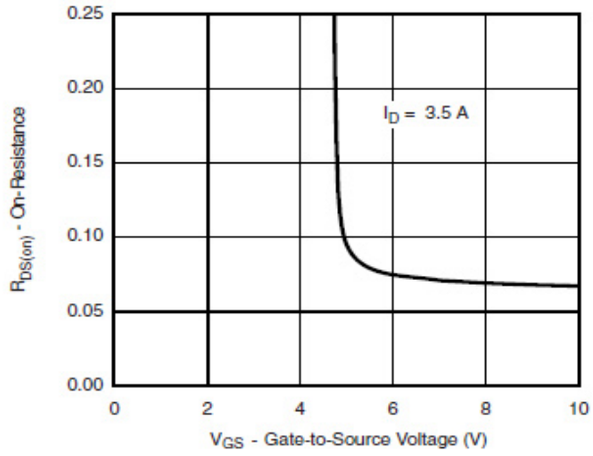
Gate Charge



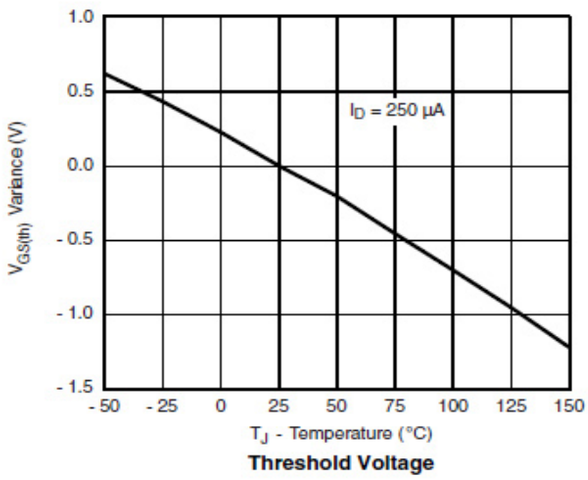
On-Resistance vs. Junction Temperature



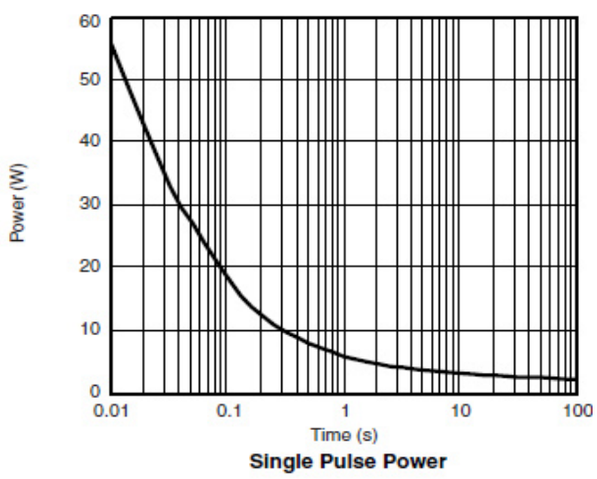
Source-Drain Diode Forward Voltage



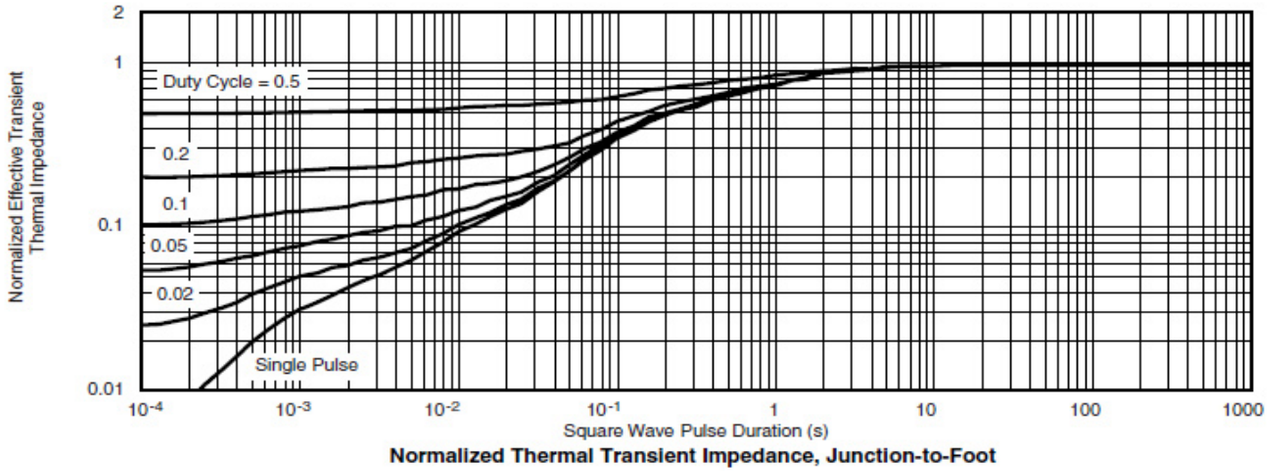
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



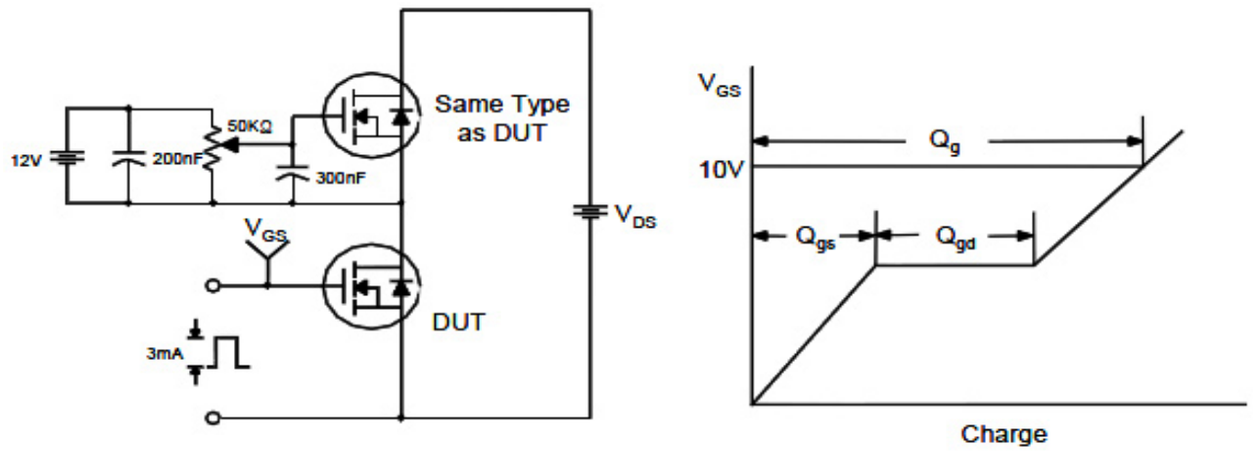
Single Pulse Power



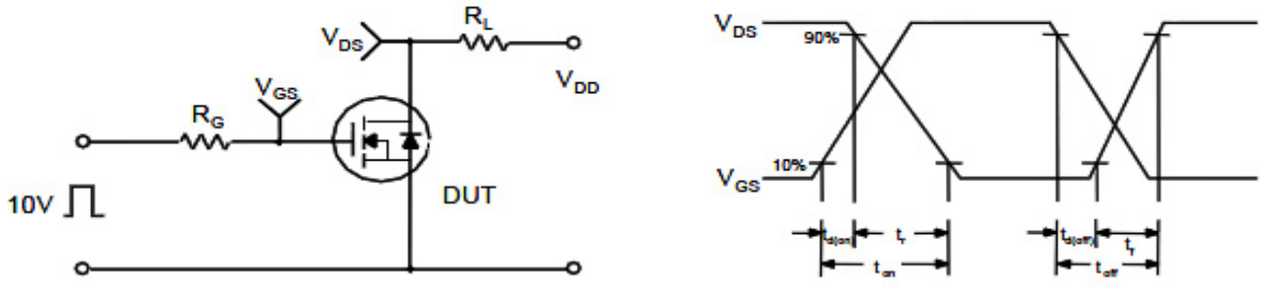
Normalized Thermal Transient Impedance, Junction-to-Foot

■Test circuit and waveform

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms