Single P-channel MOSFET

ELM549407A-N

■General description

ELM549407A-N uses advanced trench technology to provide excellent Rds(on), low gate charge and low gate resistance.

■Features

- Vds=-60V
- Id=-4.6A
- Rds(on) < 100mΩ (Vgs=-10V)
- Rds(on) < 120mΩ (Vgs=-4.5V)

■Maximum absolute ratings

Ta=25°C. Unless otherwise noted.

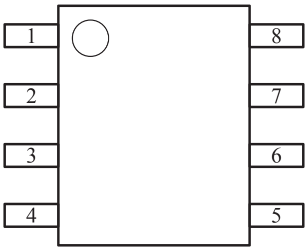
Parameter		Symbol	Limit	Unit
Drain-source voltage		Vds	-60	V
Gate-source voltage		Vgs	±20	V
Continuous drain current	Ta=25°C	Id	-4.6	A
	Ta=70°C		-3.8	
Pulsed drain current		Idm	-20	A
Power dissipation	Tc=25°C	Pd	2.8	W
	Tc=70°C		1.8	
Junction and storage temperature range		Tj, Tstg	- 55 to 150	°C

■Thermal characteristics

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

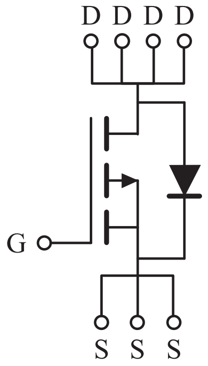
■Pin configuration

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

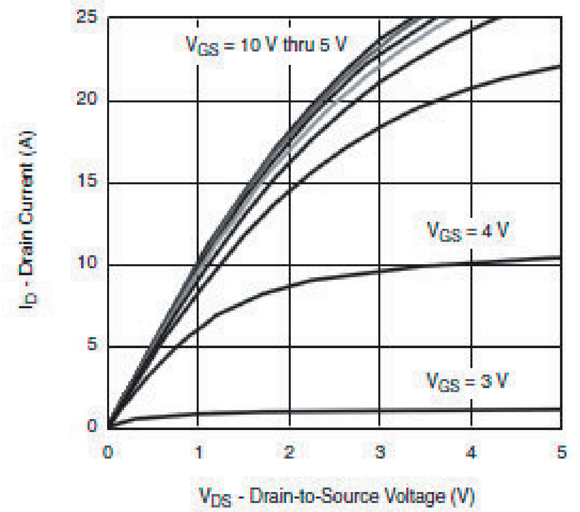


■Electrical characteristics

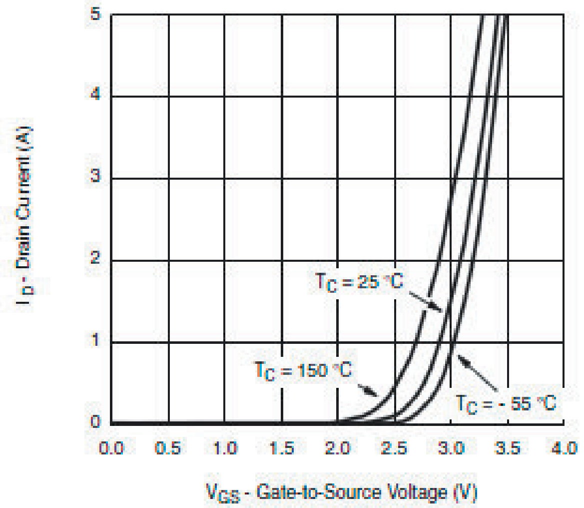
Ta=25°C. Unless otherwise noted.

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	BVdss	Id=-250μA, Vgs=0V	-60			V
Zero gate voltage drain current	Idss	Vds=-48V, Vgs=0V			-1	μA
		Vds=-48V, Vgs=0V, Ta=85°C			-20	
Gate-body leakage current	Igss	Vds=0V, Vgs=±20V			±100	nA
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=-250μA	-0.8		-2.5	V
On state drain current	Id(on)	Vgs=-10V, Vds=-5V	-20			A
Static drain-source on-resistance	Rds(on)	Vgs=-10V, Id=-4.6A		88	100	mΩ
		Vgs=-4.5V, Id=-3.8A		98	120	
Forward transconductance	Gfs	Vds=-15V, Id=-3.2A		12		S
Diode forward voltage	Vsd	Is=-2A, Vgs=0V		-0.8	-1.2	V
Max. body-diode continuous current	Is				-2	A
DYNAMIC PARAMETERS						
Input capacitance	Ciss	Vgs=0V, Vds=-30V, f=1MHz		900		pF
Output capacitance	Coss			90		pF
Reverse transfer capacitance	Crss			40		pF
SWITCHING PARAMETERS						
Total gate charge	Qg	Vgs=-10V, Vds=-30V, Id=-4A		12.0	20.0	nC
Gate-source charge	Qgs			2.5		nC
Gate-drain charge	Qgd			3.5		nC
Turn-on delay time	td(on)	Vgs=-10V, Vds=-30V RL=7.5Ω, Id=-3.8A Rgen=3Ω		10	20	ns
Turn-on rise time	tr			6	10	ns
Turn-off delay time	td(off)			30	45	ns
Turn-off fall time	tf			12	25	ns

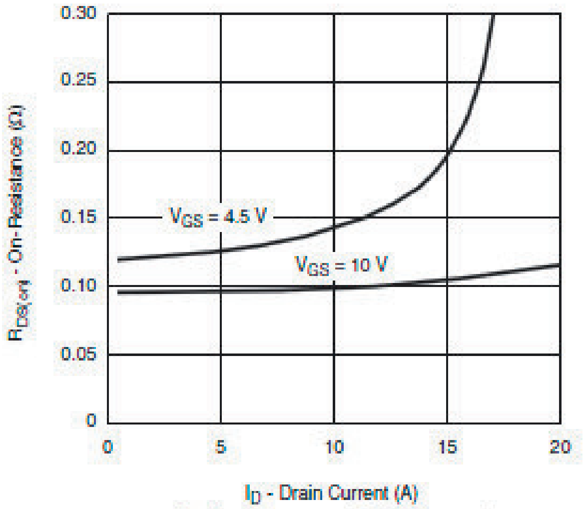
■Typical electrical and thermal characteristics



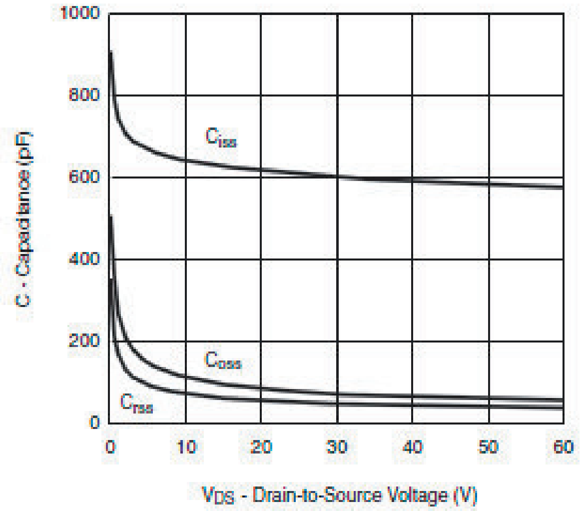
Output Characteristics



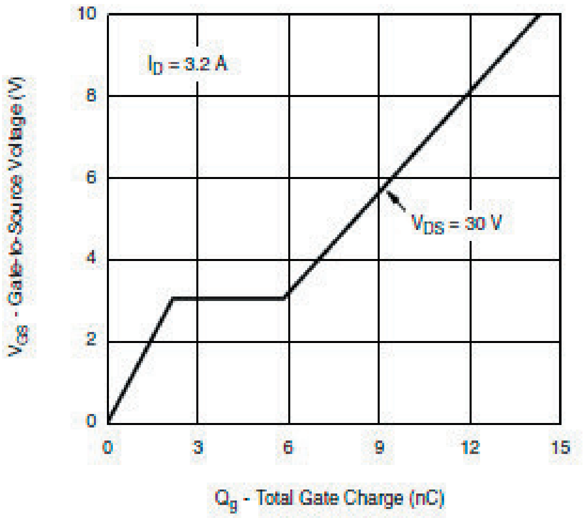
Transfer Characteristics



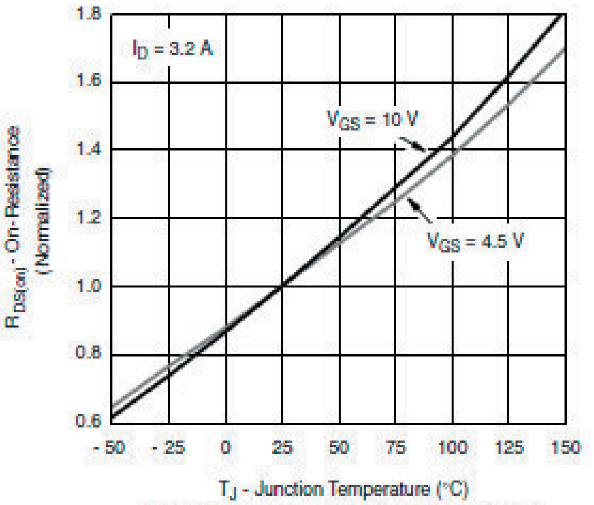
On-Resistance vs. Drain Current



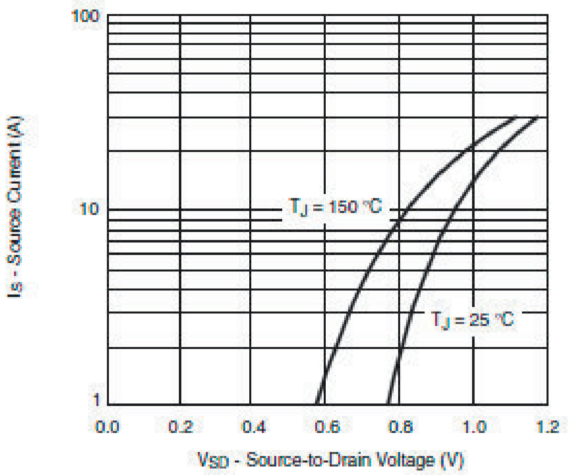
Capacitance



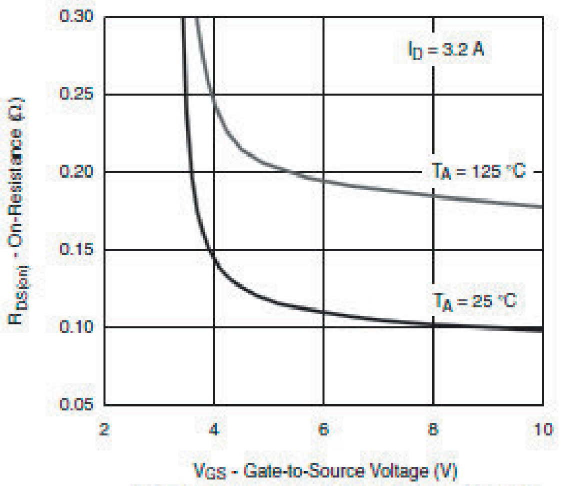
Gate Charge



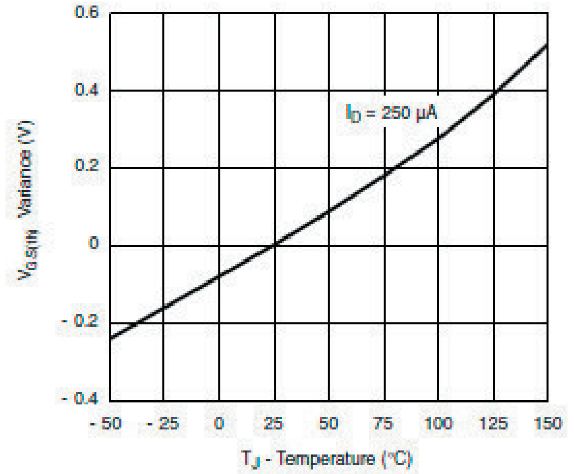
On-Resistance vs. Junction Temperature



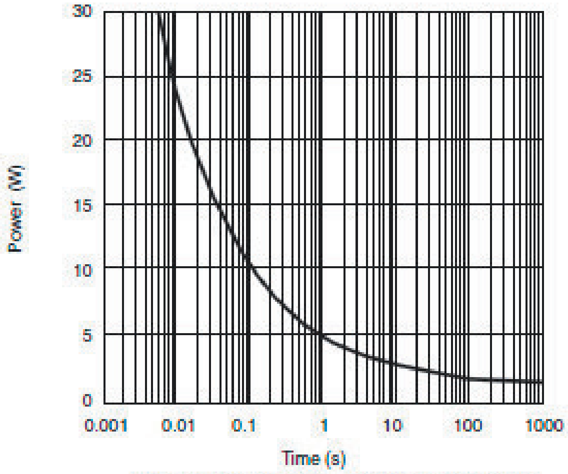
Source-Drain Diode Forward Voltage



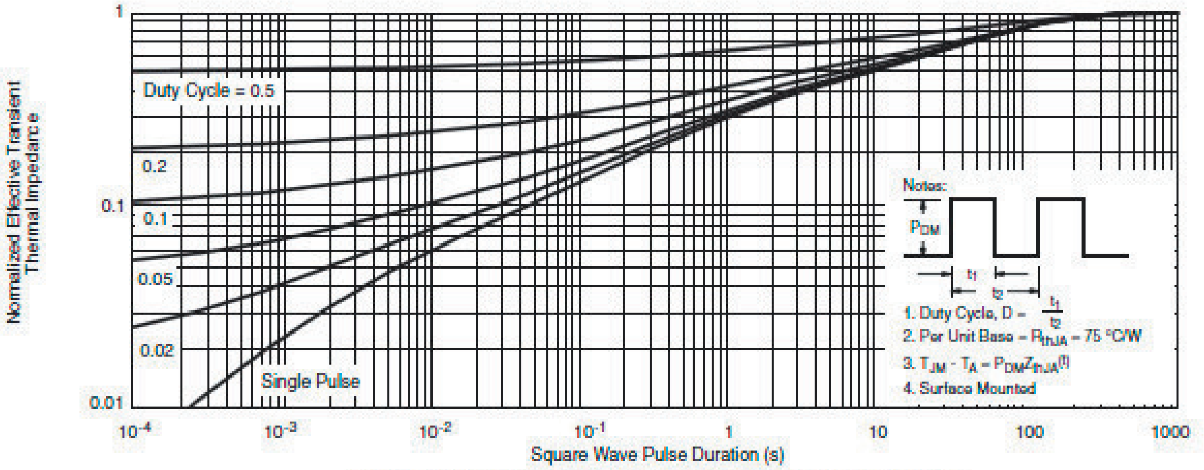
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



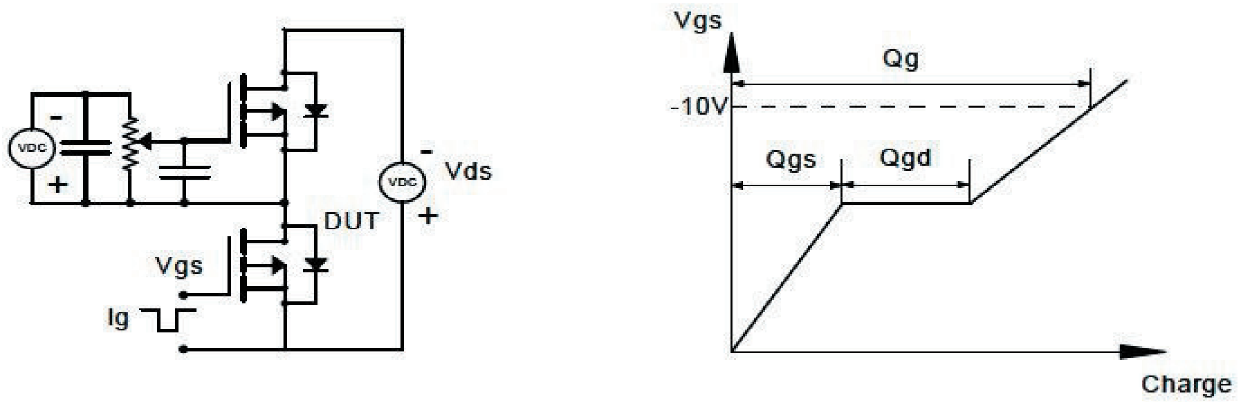
Single Pulse Power, Junction-to-Ambient



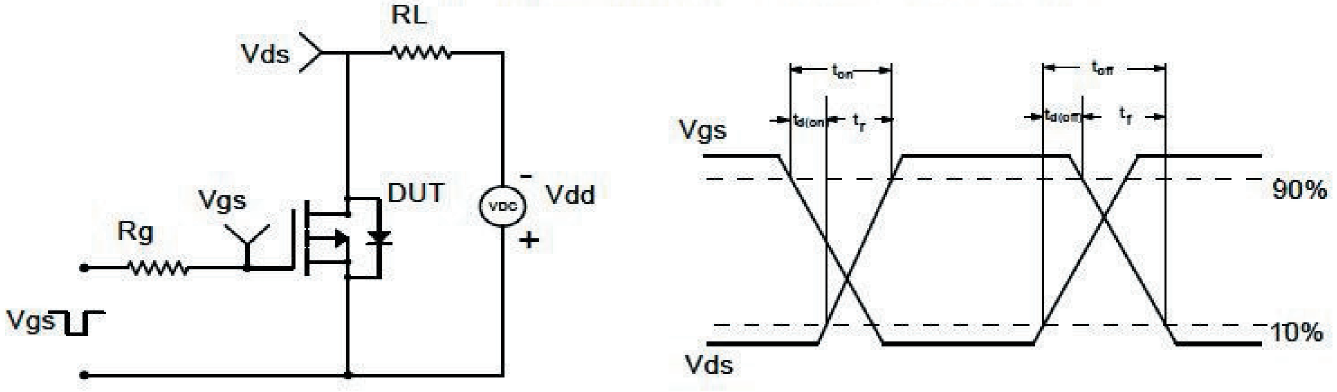
Normalized Thermal Transient Impedance, Junction-to-Ambient

■Test circuit and waveform

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms