Dual N-channel MOSFET (common drain)

ELM588822A-S

■General description

ELM588822A-S uses advanced trench technology to provide excellent Rds(on), low gate charge and low gate resistance.

■Features

- Vds=20V
- Id=7.2A
- Rds(on) = 28mΩ (Vgs=4.5V)
- Rds(on) = 32mΩ (Vgs=2.5V)
- Rds(on) = 45mΩ (Vgs=1.8V)

■Maximum absolute ratings

Ta=25°C. Unless otherwise noted.

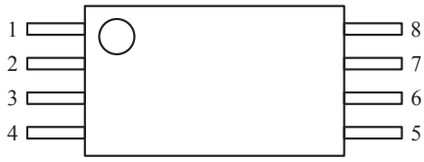
Parameter		Symbol	Limit	Unit
Drain-source voltage		Vds	20	V
Gate-source voltage		Vgs	±12	V
Continuous drain current	Ta=25°C	Id	7.2	A
	Ta=70°C		4.8	
Pulsed drain current		Idm	20	A
Power dissipation	Tc=25°C	Pd	2.8	W
	Tc=70°C		1.8	
Junction and storage temperature range		Tj, Tstg	-55 to 150	°C

■Thermal characteristics

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

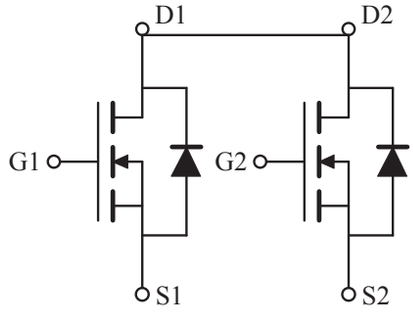
■Pin configuration

TSSOP-8(TOP VIEW)



Pin No.	Pin name
1	DRAIN1/DRAIN2
2	SOURCE1
3	SOURCE1
4	GATE1
5	GATE2
6	SOURCE2
7	SOURCE2
8	DRAIN1/DRAIN2

■Circuit

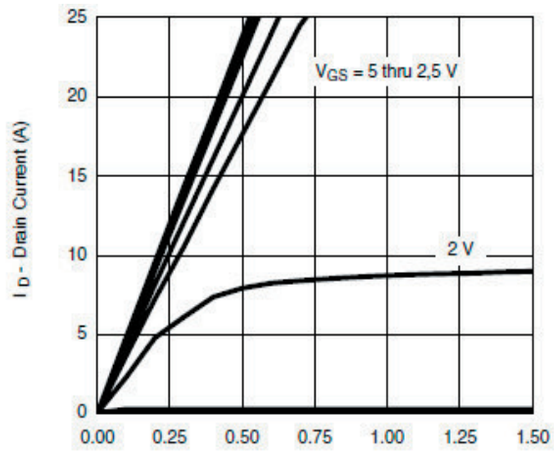


■Electrical characteristics

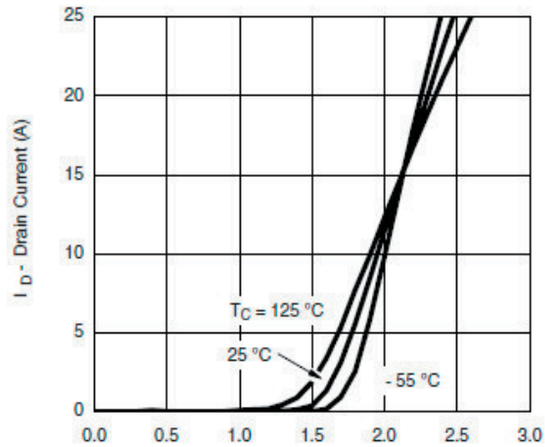
Ta=25°C. Unless otherwise noted.

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	BVdss	Id=250μA, Vgs=0V	20			V
Zero gate voltage drain current	Idss	Vds=16V, Vgs=0V			1	μA
		Vds=16V, Vgs=0V, Ta=85°C			30	
Gate-body leakage current	Igss	Vds=0V, Vgs=±12V			±100	nA
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=250μA	0.4		0.8	V
On state drain current	Id(on)	Vgs=4.5V, Vds=5V	10			A
Static drain-source on-resistance	Rds(on)	Vgs=4.5V, Id=7.2A		24	28	mΩ
		Vgs=2.5V, Id=4.8A		27	32	
		Vgs=1.8V, Id=3.0A		36	45	
Forward transconductance	Gfs	Vds=5V, Id=7A		25		S
Diode forward voltage	Vsd	Is=1.6A, Vgs=0V		0.7	1.2	V
Max.body-diode continuous current	Is				1.5	A
DYNAMIC PARAMETERS						
Input capacitance	Ciss	Vgs=0V, Vds=20V, f=1MHz		700		pF
Output capacitance	Coss			75		pF
Reverse transfer capacitance	Crss			45		pF
SWITCHING PARAMETERS						
Total gate charge	Qg	Vgs=4.5V, Vds=10V, Id=7A		650		nC
Gate-source charge	Qgs			200		nC
Gate-drain charge	Qgd			180		nC
Turn-on delay time	td(on)	Vgs=4.5V, Vds=10V RL=1.4Ω, Id=1A Rgen=3Ω		8	12	ns
Turn-on rise time	tr			12	20	ns
Turn-off delay time	td(off)			32	40	ns
Turn-off fall time	tf			10	15	ns

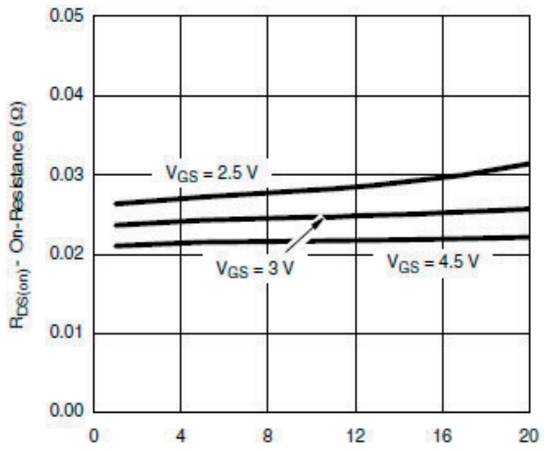
■Typical electrical and thermal characteristics



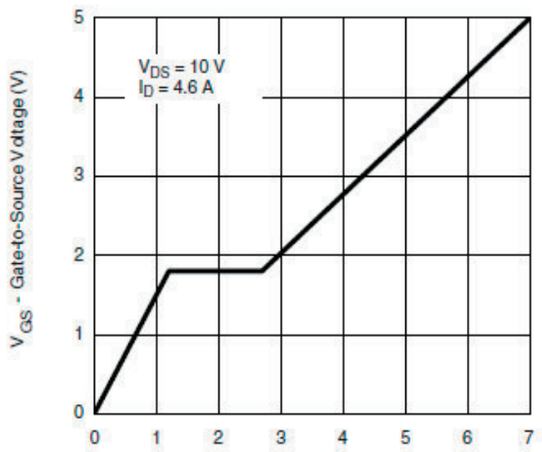
Output Characteristics



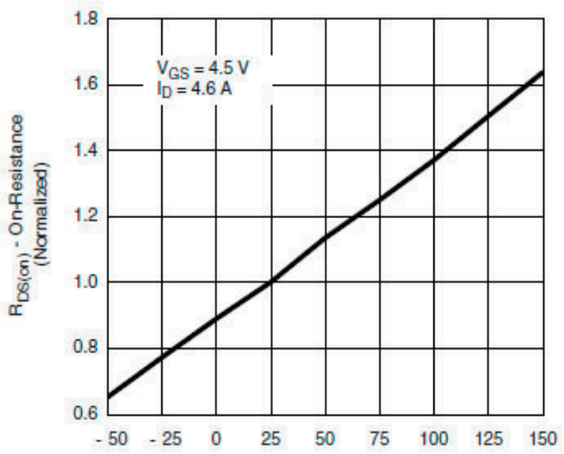
Transfer Characteristics



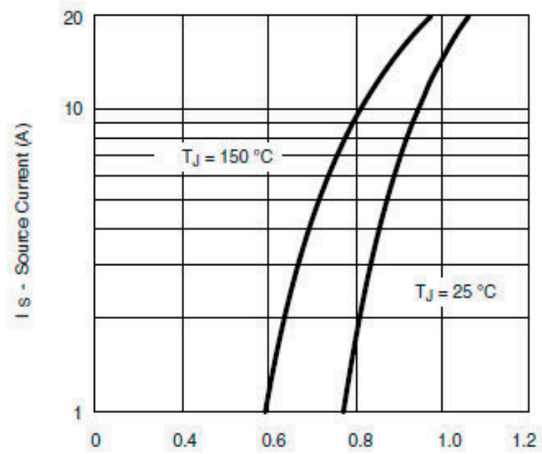
On-Resistance vs. Drain Current



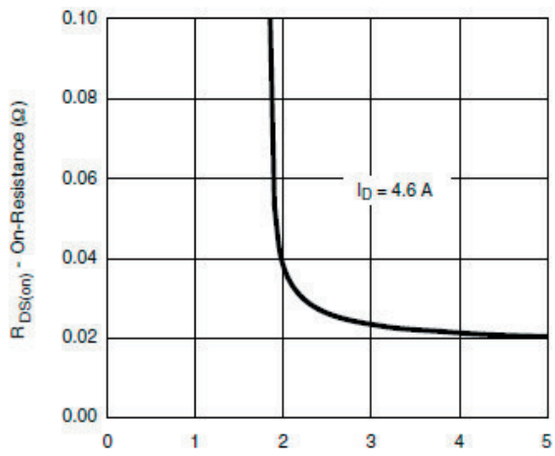
Gate Charge



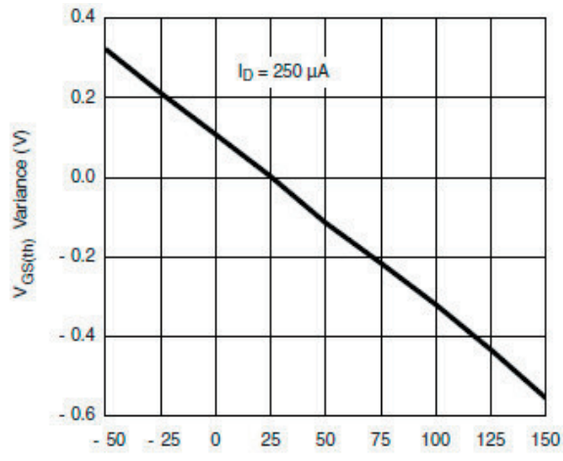
On-Resistance vs. Junction Temperature



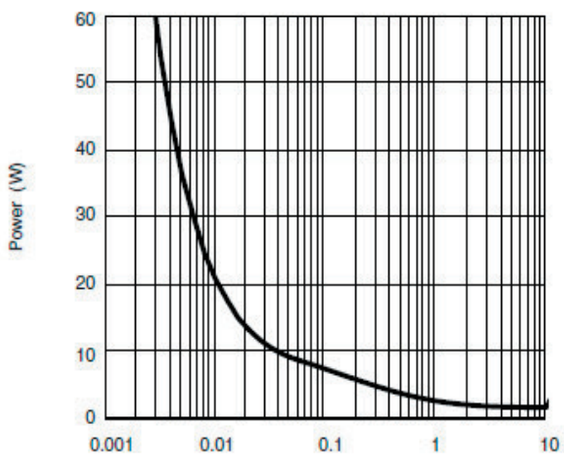
Source-Drain Diode Forward Voltage



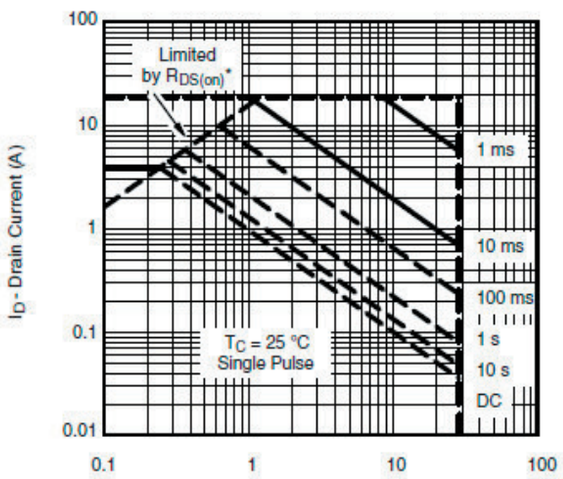
On-Resistance vs. Gate-to-Source Voltage



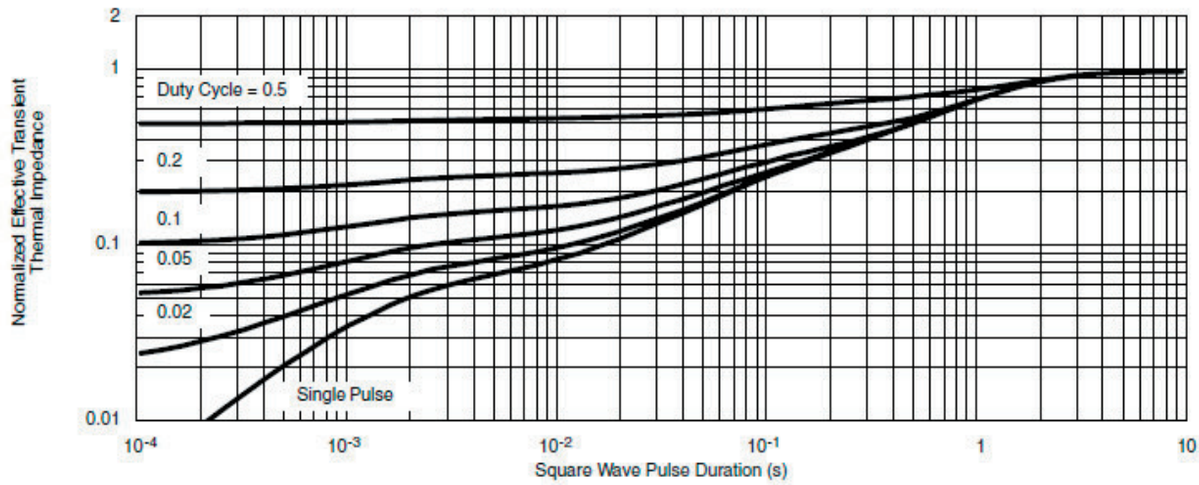
Threshold Voltage



Single Pulse Power



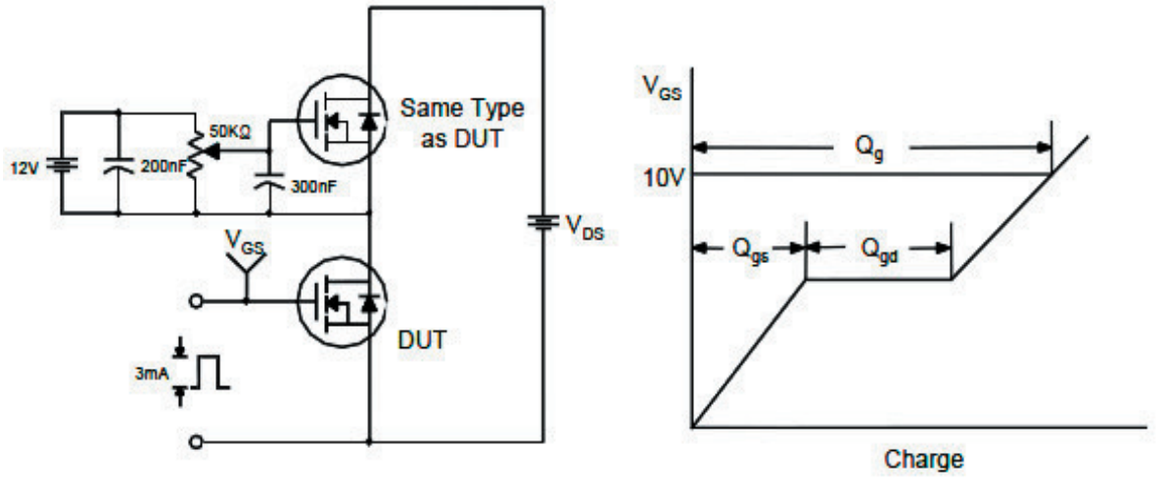
Safe Operating Area



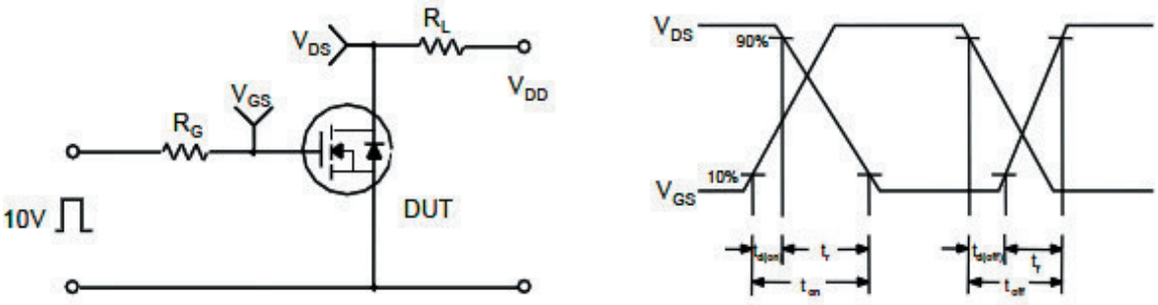
Normalized Thermal Transient Impedance, Junction-to-Foot

■Test circuit and waveform

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms