

SE4422
30V,11.6A N-Channel MOSFET

Revision:A

General Description

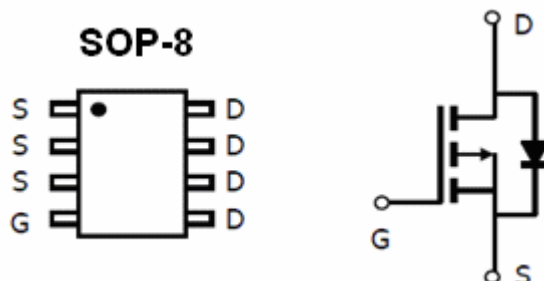
The MOSFETs from SINO-IC provide the best combination of fast switching, low on-resistance and cost-effectiveness.

Features

- $V_{DS(V)} = 30V$
- $I_D = 11.6A (V_{GS} = 10V)$
- $R_{DS(ON)} < 14m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 22m\Omega (V_{GS} = 4.5V)$

Pin configurations

See Diagram below



Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		VDS	30	V
Gate-Source Voltage		VGS	±20	V
Drain Current (Note 1)	Continuous	ID	11.6	A
	Pulsed		50	
Total Power Dissipation		PD	3.1	W
Operating Junction Temperature Range		TJ	-55 to 150	°C

Thermal Characteristics

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient A	t ≤ 10s	R θ JA	31	40	°C/W
Maximum Junction-to-- Lead	Steady-State	R θ JL	16	24	°C/W

Electrical Characteristics (T _J =25°C unless otherwise noted)						
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF/ON CHARACTERISTICS (Note 2)						
BVDSS	Drain-Source Breakdown Voltage	ID=250 μ A, VGS=0 V	30			V
IDSS	Zero Gate Voltage Drain Current	VDS=24 V, VGS=0 V		0.3	1	μ A
IGSS	Gate-Body leakage current	VDS=0 V, VGS=±20 V			±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=10mA	1.5	2	3	V
RDS(ON)	Static Drain-Source On-Resistance ²	VGS=10V, ID=11.6A		11	14	mΩ
		VGS=4.5V, ID=10A		17.4	22	mΩ
VSD	Drain-Source Diode Forward Voltage	VGS = 0 V, IS = 1 A	-	0.73	1	V
DYNAMIC PARAMETERS						
Ciss	Input Capacitance	VGS=0V, VDS=15V, f=1MHz		955	1200	pF
Coss	Output Capacitance			145		pF
Crss	Reverse Transfer Capacitance			112		pF
TON	Turn-On Time	VDS =15V, VGS=10V , RL= 1.3 Ω , RGEN =3 Ω	-	5	6.5	ns
TOFF	Turn-Off Time		-	19	25	ns
Tr	Turn-on Rise Time		-	6	7.5	ns
Tf	Turn-on Fall Time		-	4.5	6	ns
Qg(10)	Total Gate Charge				17	24
Qgs	Gate-Source Charge	VDS=15V, ID=11.6A, VGS=10V		3.4		nC
Qgd	Gate-Drain Charge			4.7		nC
trr	Body Diode Reverse Recovery Time	IF=11.6A, dI/dt=100A/μ s		19	21	ns
Qrr	Body Diode Reverse Recovery Charge	IF=11.6A, dI/dt=100A/μ s		9	12	nC

Typical Characteristics

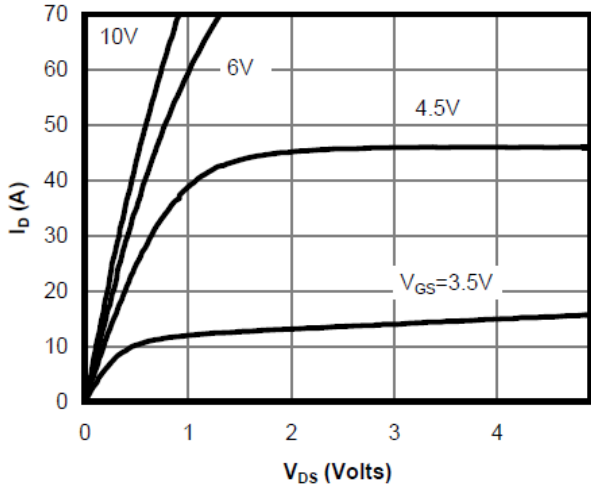


Fig 1: On-Region Characteristics

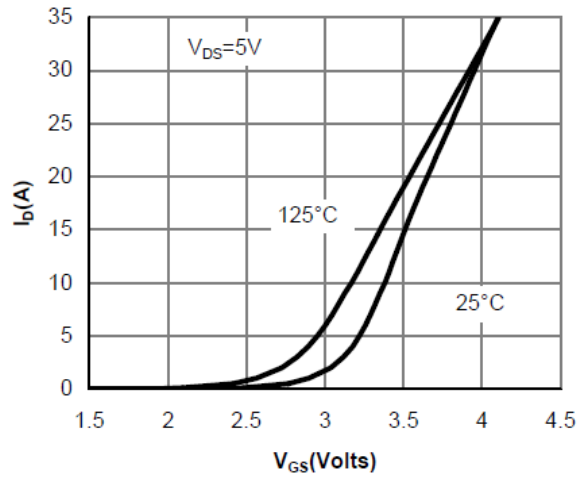


Figure 2: Transfer Characteristics

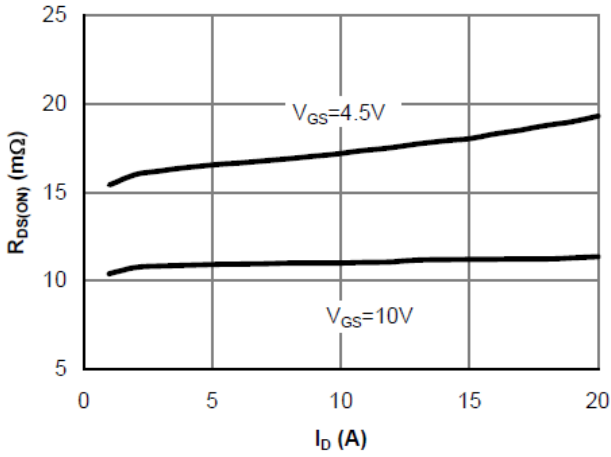


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

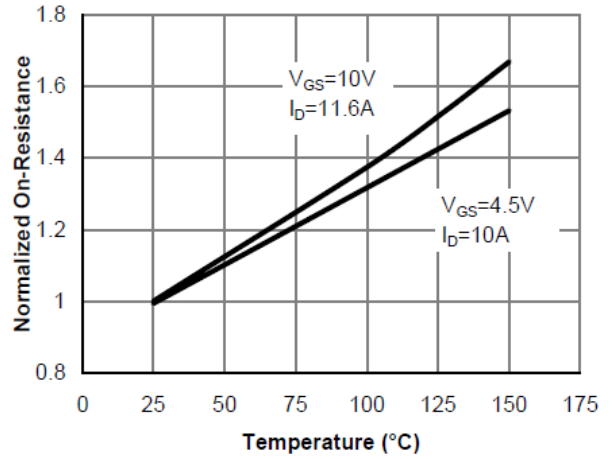


Figure 4: On-Resistance vs. Junction Temperature

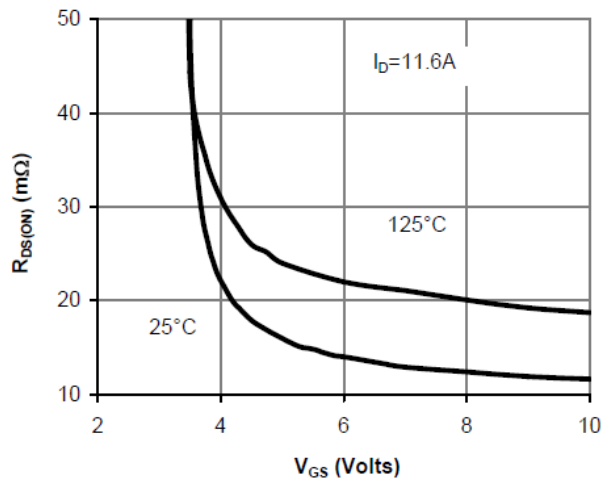


Figure 5: On-Resistance vs. Gate-Source Voltage

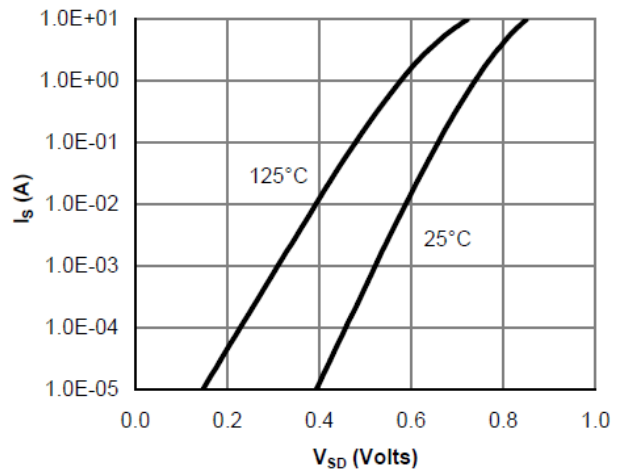


Figure 6: Body-Diode Characteristics

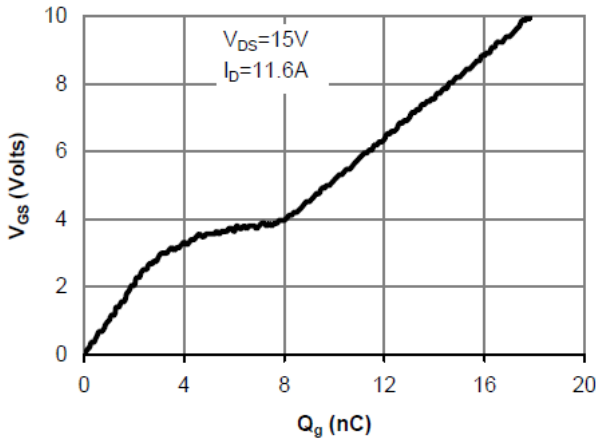


Figure 7: Gate-Charge Characteristics

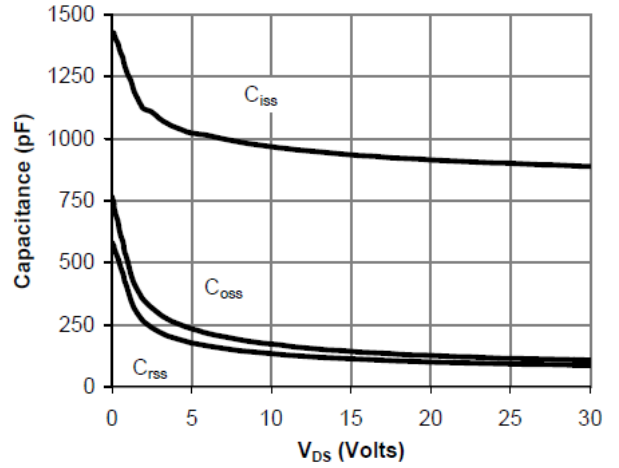


Figure 8: Capacitance Characteristics

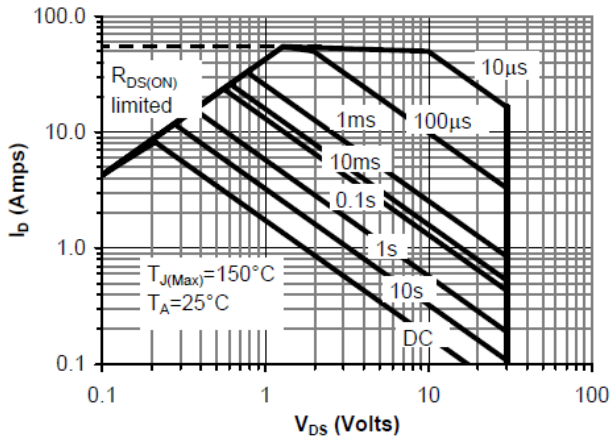


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

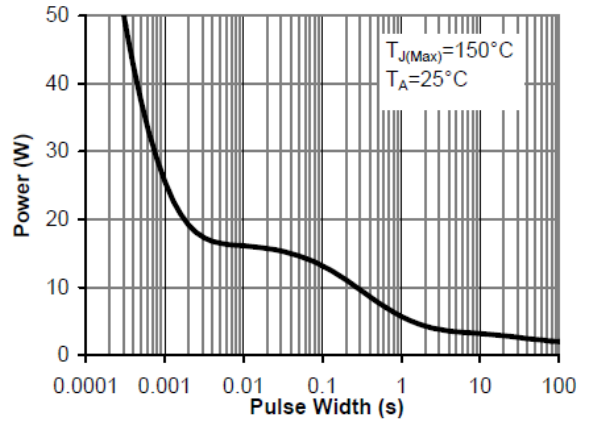


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

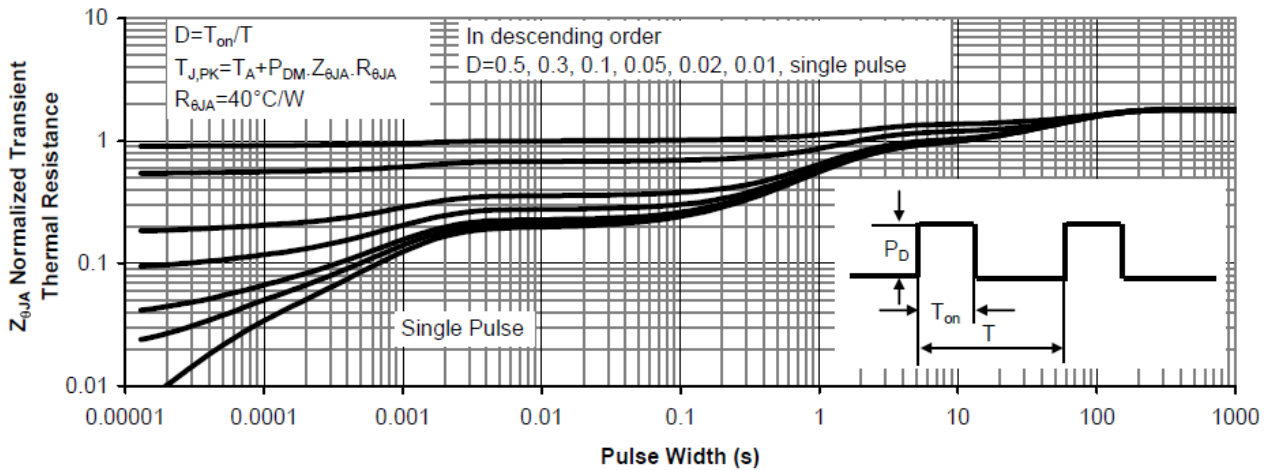


Figure 11: Normalized Maximum Transient Thermal Impedance

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