SE3400
5.8A,30V N-Channel MOSFET

Revision:A

General Description

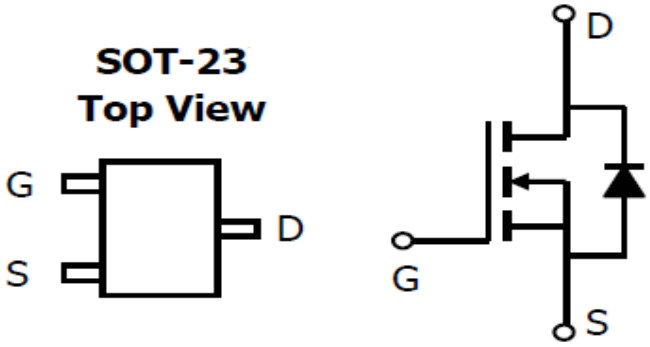
The MOSFETs from SINO-IC provide the best combination of fast switching, low on-resistance and cost-effectiveness.

Features

- V_{DS} (V) =30V
- I_D =5.8A (V_{GS} = 10V)
- $R_{DS(ON)}$ <28mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ <33mΩ (V_{GS} = 4.5V)
- $R_{DS(ON)}$ <52mΩ (V_{GS} = 2.5V)

Pin configurations

See Diagram below



Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±12	V
Drain Current (Note 1)	Continuous	I_D	5.8	A
	70℃		4.9	
Total Power Dissipation		P_D	1.4	W
Operating Junction Temperature Range		T_J	-50 to 150	°C

Thermal Characteristics

Parameter		Symbol	Typ	Max
Maximum Junction-to-Ambient A	Steady-State	$R_{\theta JA}$	65	90
Maximum Junction-to-- Case	Steady-State	$R_{\theta JC}$	0.8	-

Electrical Characteristics (T_J=25°C unless otherwise noted)						
Symbol	**Parameter**	**Test Conditions**	**Min**	**Typ**	**Max**	**Units**
OFF/ON CHARACTERISTICS (Note 2)						
BV_{DSS}	Drain-Source Breakdown Voltage	I_D=250μA, V_{GS}=0 V	30			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=24 V, V_{GS}=0 V			1	μA
I_{GSS}	Gate-Body leakage current	V_{DS}=0 V, V_{GS}=±12 V			100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} I_D=250μA	0.7	1.1	1.4	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=10V, I_D=5.8A	-	22	28	mΩ
		V_{GS}=4.5V, I_D=5A		27	33	mΩ
		V_{GS}=2.5V, I_D=4A		43	52	mΩ
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_D=1A	-		1.2	V
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, f=1MHz		823		pF
C_{oss}	Output Capacitance			99		pF
C_{rss}	Reverse Transfer Capacitance			77		pF
T_{ON}	Turn-On Time	V_{DS} =15V, R_L= 2.7Ω, R_{GEN}= 3Ω, V_{GS} = 10 V	-	7	14	ns
T_{OFF}	Turn-Off Time		-	38	76	ns
Tr	Turn-on Rise Time		-	15	30	ns
Tf	Turn-on Fall Time		-	3	6	ns
Q_g	Total Gate Charge	V_{DS}=4.5V,I_D=5.8A,V_{GS}=15V		11	14	nC
Q_{gs}	Gate-Source Charge			1.6	2.1	nC
Q_{gd}	Gate-Drain Charge			3.0	3.6	nC
t_{rr}	Body Diode Reverse Recovery Time	I_F=5A, dI/dt=100A/μs		16	20	ns
Q_{rr}	Body Diode Reverse Recovery Charge	I_F=5A, dI/dt=100A/μs		8.9	12	nC

Typical Characteristics

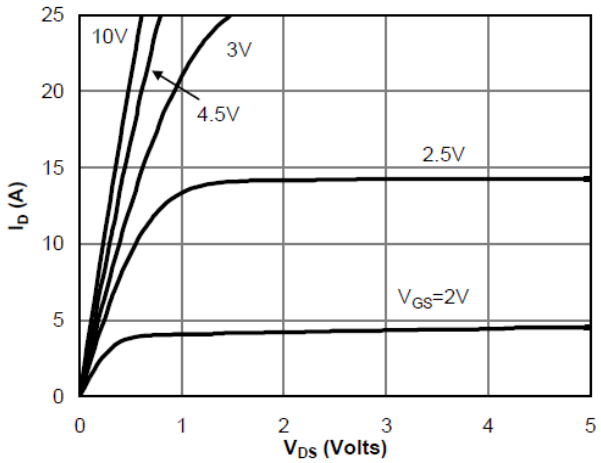


Fig 1: On-Region Characteristics

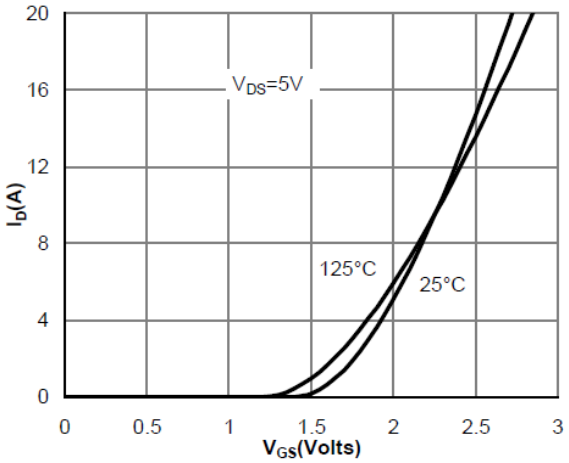


Figure 2: Transfer Characteristics

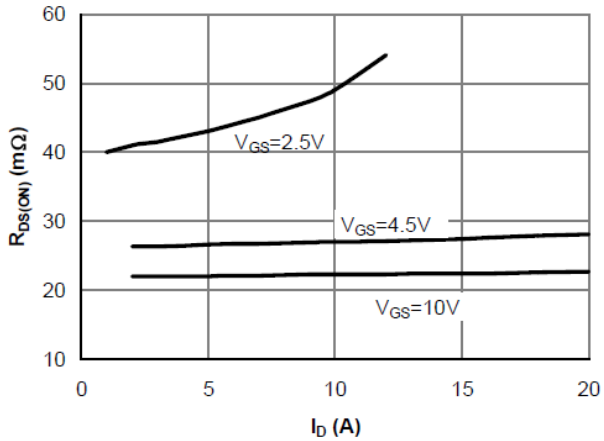


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

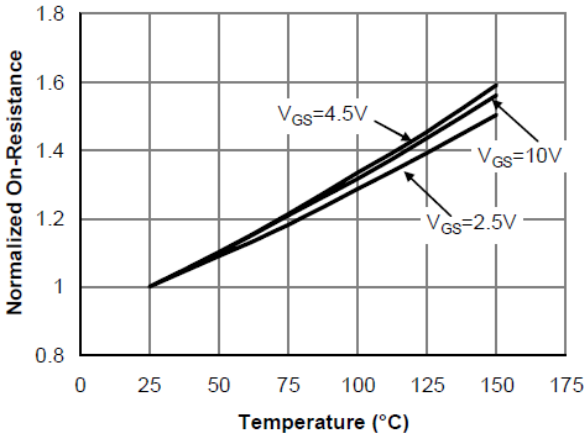


Figure 4: On-Resistance vs. Junction Temperature

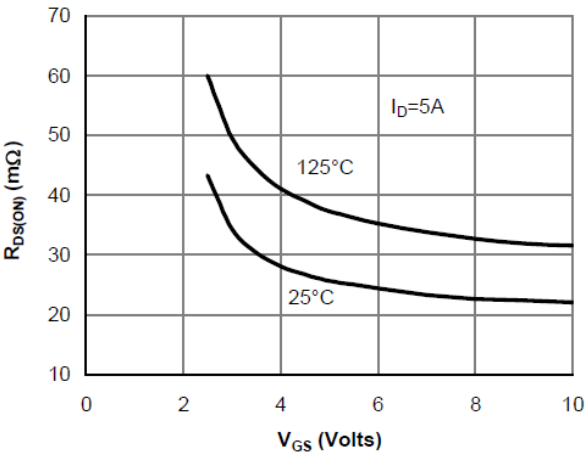


Figure 5: On-Resistance vs. Gate-Source Voltage

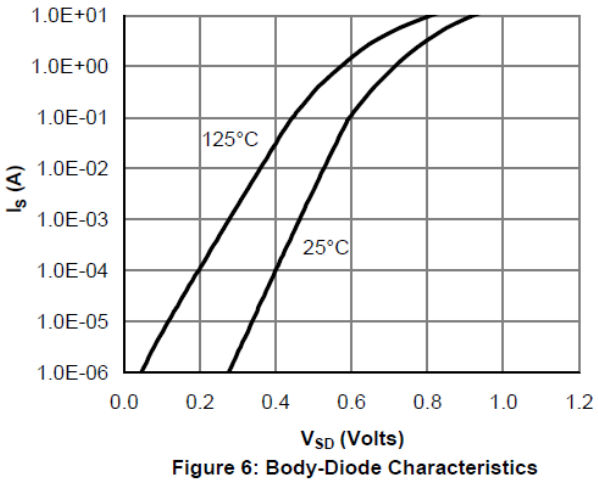


Figure 6: Body-Diode Characteristics

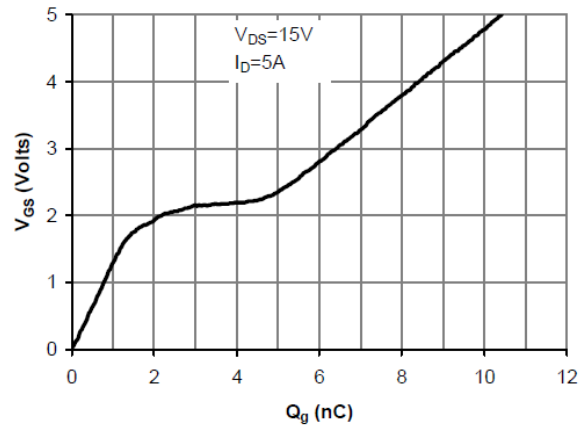


Figure 7: Gate-Charge Characteristics

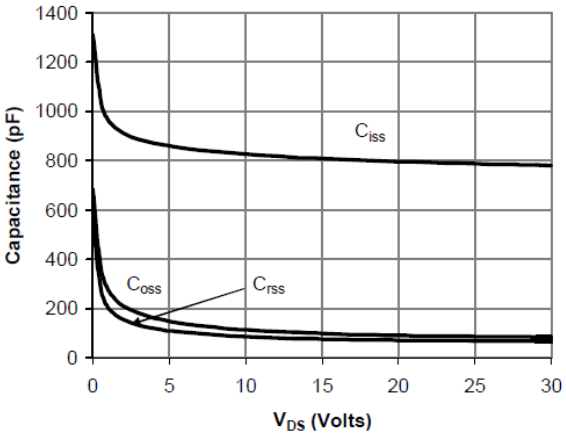


Figure 8: Capacitance Characteristics

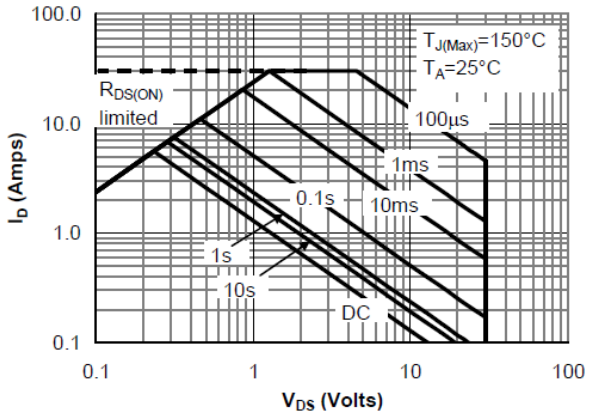


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

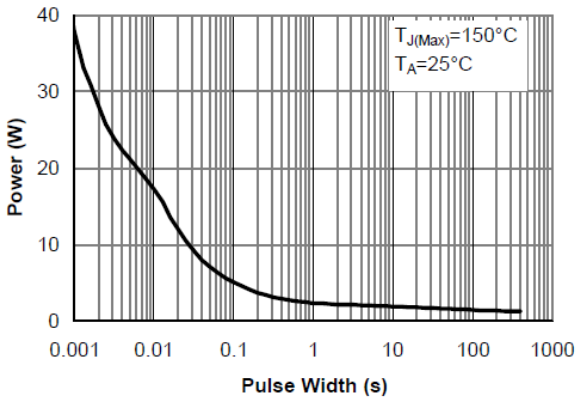


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

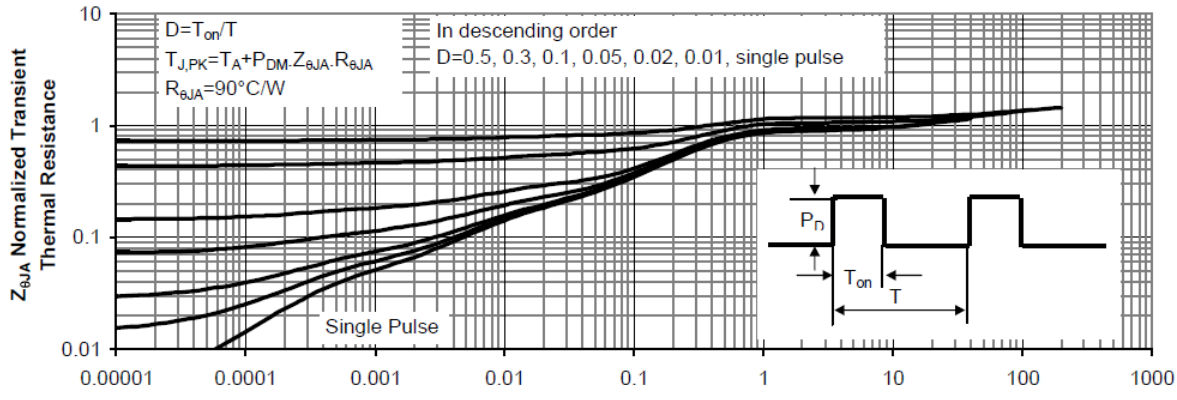


Figure 11: Normalized Maximum Transient Thermal Impedance

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