Leiditech

SE2305A

P-Channel Enhancement Mode Power MOSFET

Revision:B

General Description

SE2305A is produced with high cell density DMOS trench technology, which is especially used to minimize on-state resistance. This device particularly suits low voltage applications such as portable equipment, power management and other battery powered circuits, and low in-line power dissipation are needed in a very small outline surface mount

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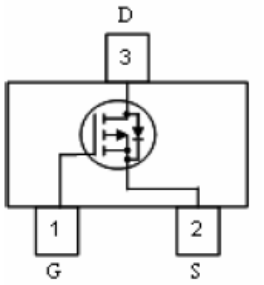
Features

- V_{DS}= -20V
- $R_{DS(on)}$= 50mΩ @V_{GS}= -4.5V，I_D = -4.2A
- $R_{DS(on)}$= 70mΩ@V_{GS}= -2.5V，I_D = -3A
- $R_{DS(on)}$= 105mΩ@V_{GS}= -1.8V，I_D = -1A

Application

- Load Switch
- A Switch and Battery Switch for Portable Devices

Pin configurations(SOT23)

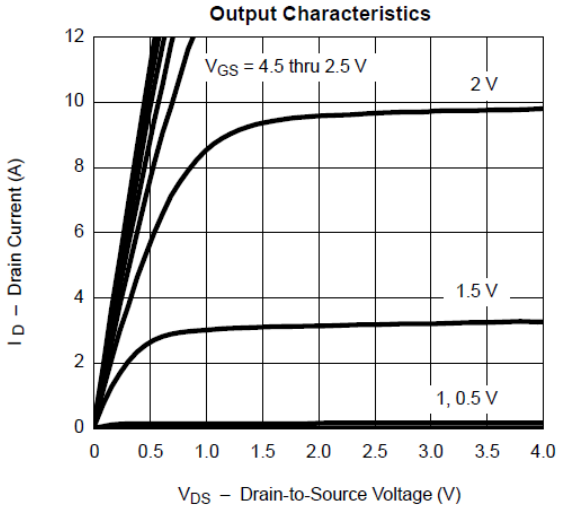


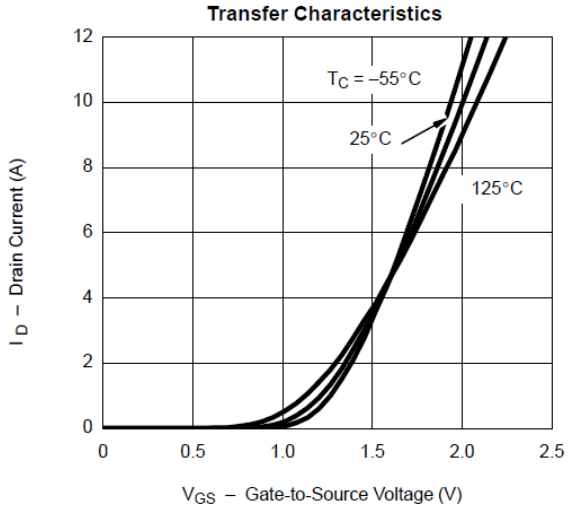
Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±12	V
Drain Current (Note 1)	25°C	I_D	-4.7	A
	Pulsed Drain Current		-20	
Total Power Dissipation	@TA=25°C	P_D	1.1	W
	@TA=75°C		0.7	
Operating Junction Temperature Range		T_J	-55 to 150	°C

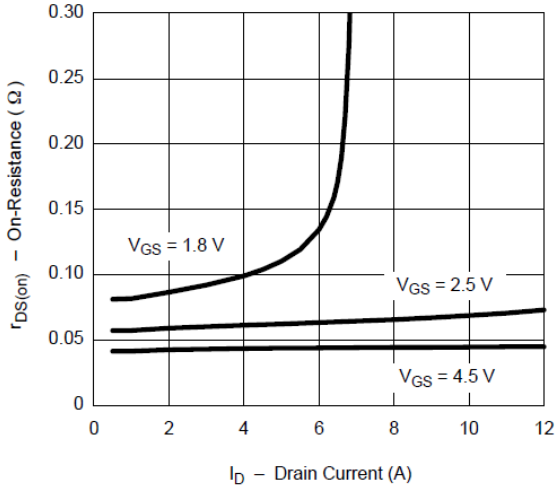
Electrical Characteristics (T_J=25°C unless otherwise noted)						
Symbol	**Parameter**	**Test Conditions**	**Min**	**Typ**	**Max**	**Units**
OFF CHARACTERISTICS (Note 2)						
BVDSS	Drain-Source Breakdown Voltage	I_D=-250μA, V_{GS}=0 V	-20	-	-	V
IDSS	Zero Gate Voltage Drain Current	V_{DS}=-20V, V_{GS}=0 V	-	-	-1	μA
IGSS	Gate-Body leakage current	V_{DS}=0 V, V_{GS}=±12 V	-	-	±100	μA
V_{GS}(th)	Gate Threshold Voltage	V_{DS}=V_{GS} I_D=-250μA	-0.6	-0.85	-1.4	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=-4.5V, I_D=-4.2A	-	0.045	0.050	Ω
		V_{GS}=-2.5V, I_D=-3A		0.065	0.070	
		V_{GS}=-1.8V, I_D=-1A	-	0.095	0.105	
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-6V, f = 1.0 MHz	-	415	-	pF
C_{oss}	Output Capacitance		-	223	-	pF
C_{rss}	Reverse Transfer Capacitance		-	87	-	pF
Q_g	Total Gate Charge	V_{DS}=-10V,I_D=-4.7A, V_{GS}=-4.5V		24	36	nC
Q_{gs}	Gate-Source Charge			18		nC
Q_{gd}	Gate-Drain Charge			2.7		nC
SWITCHING PARAMETERS						
$t_{d(on)}$	Turn-On DelayTime[2]	V_{DD}=-10V, V_{GEN}=-4.5V, R_L=10Ω, R_G=6Ω I_D=-1A	-	22	35	ns
$t_{d(off)}$	Turn-Off DelayTime		-	45	70	ns
Tr	Turn-on Rise Time			35	55	ns
Tf	Turn-on Fall Time			25	40	ns

Typical Characteristics

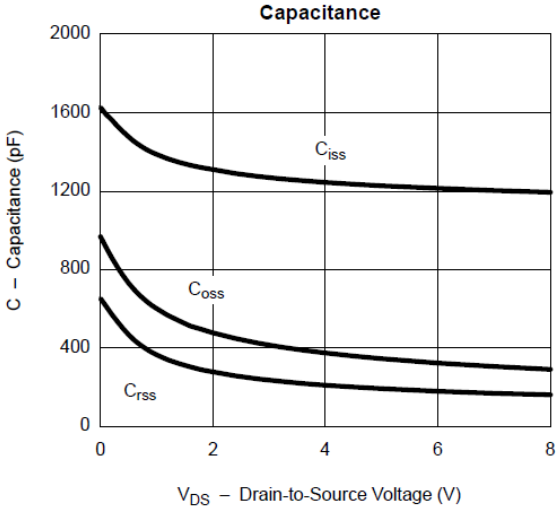




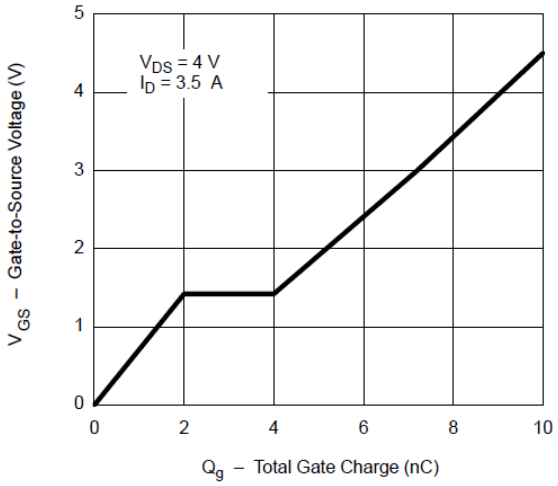
On-Resistance vs. Drain Current



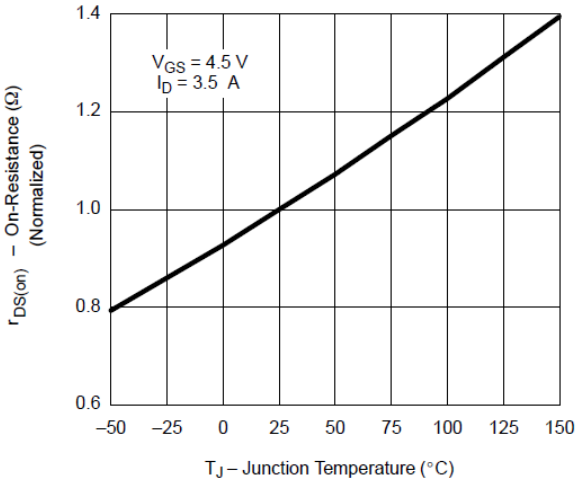
Capacitance



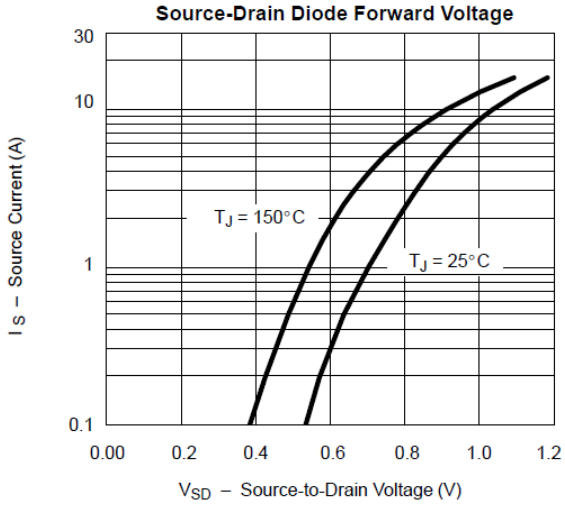
Gate Charge



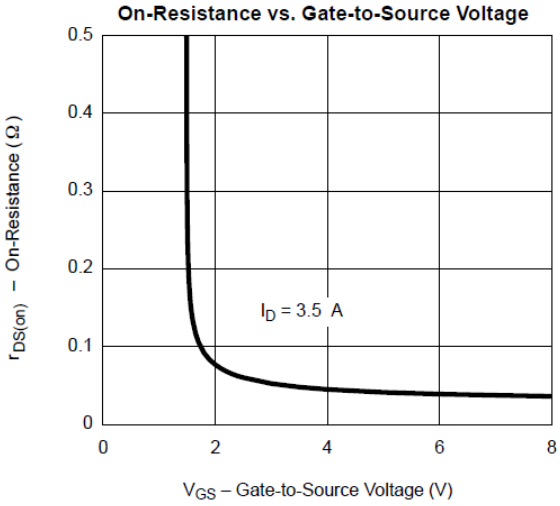
On-Resistance vs. Junction Temperature

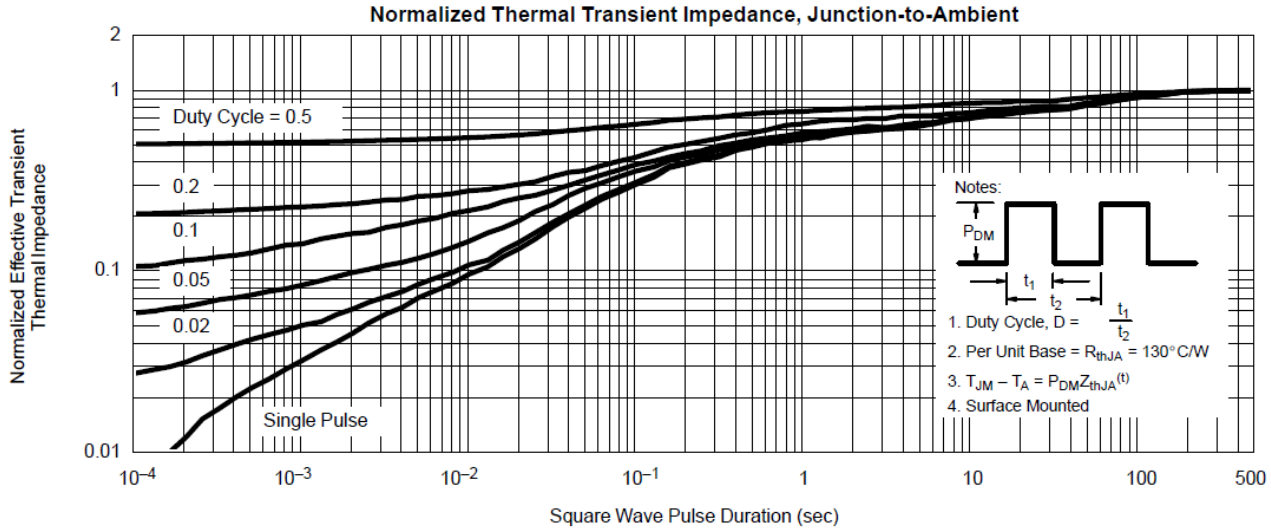


Source-Drain Diode Forward Voltage

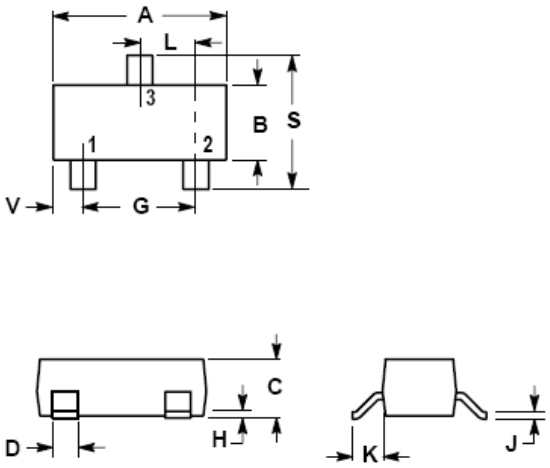


On-Resistance vs. Gate-to-Source Voltage





SOT–23



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

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