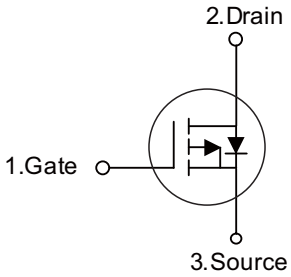
■ PRODUCT CHARACTERISTICS

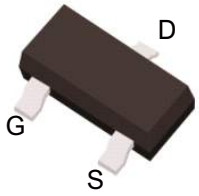
VDSS	-20V
R_{DS}(on)Typ(@V_{GS}=-4.5 V)	22mΩ
R_{DS}(on)typ(@V_{GS} =-2.5 V)	28mΩ
ID	-10 A

Symbol



■ APPLICATIONS

- Load switch for portable
- DC/DC converter



■ FEATURES

* High Density Cell Design For Ultra Low On-Resistance
* Advanced trench process technology

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT2307CA3	SOT-23A-3L	3000pieces/Reel

■ ABSOLUTE MAXIMUM RATINGS (T_C = 25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	±10	A
Pulsed Drain Current	I_{DM}	-40	A
Maximum Power Dissipation	P_D	1.5	W
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	83.5	°C/W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	°C

■ELECTRICAL CHARACTERISTICS (T_C=25°C, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=-250μA	-20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V,V_{GS}=0V	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±12V,V_{DS}=0V	-	-	±100	nA
On characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-0.5	-0.7	-1.4	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-3A	-	22	28	mΩ
		V_{GS}=-2.5V, I_D=-3A	-	28	35	mΩ
Forward Transconductance	g_{FS}	V_{DS}=-5V,I_D=-1A	5	-	-	S
Dynamic characteristics						
Input Capacitance	C_{lss}	V_{DS}=-10V,V_{GS}=0V, F=1.0MHz	-	2015	-	PF
Output Capacitance	C_{oss}		-	190	-	PF
Reverse Transfer Capacitance	C_{rss}		-	173	-	PF
Switching characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-10V, R_L=10Ω, V_{GS}=-4.5V,R_{GEN}=6Ω	-	4.5	-	nS
Turn-on Rise Time	t_r		-	9.2	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	18.7	-	nS
Turn-Off Fall Time	t_f		-	3.3	-	nS
Total Gate Charge	Q_g	V_{DS}=-10V,I_D=-10 A,V_{GS}=-4.5V	-	15	-	nC
Gate-Source Charge	Q_{gs}		-	1.8	-	nC
Gate-Drain Charge	Q_{gd}		-	2.8	-	nC
Drain-source diode characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=-10A	-	-	-1.2	V

■ TYPICAL CHARACTERISTICS

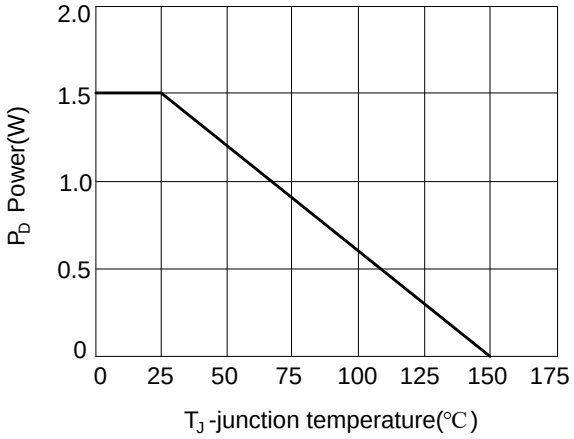


Figure 1: Power dissipation

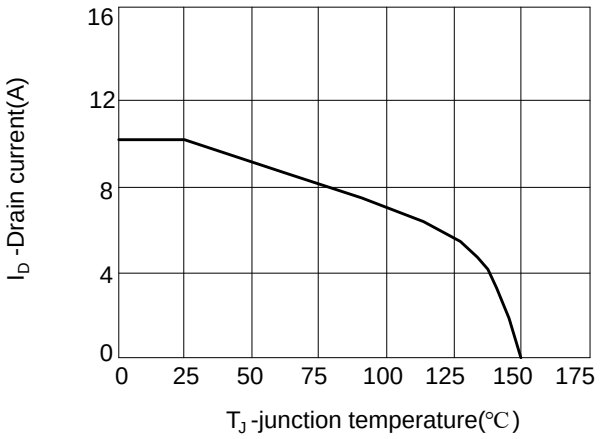


Figure 2: Drain current

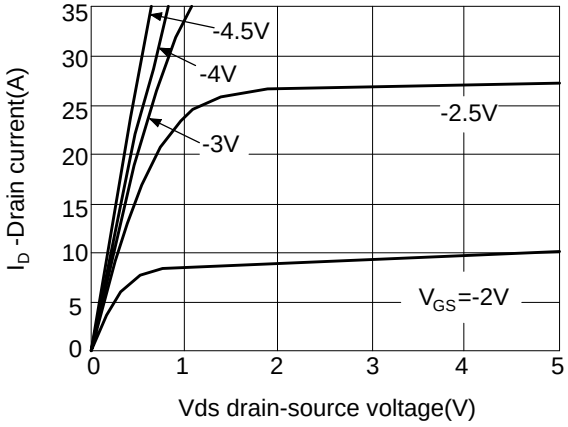


Figure 3: Output characteristics

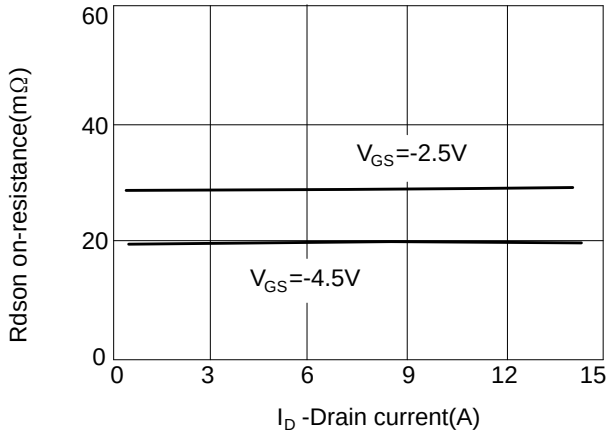


Figure 4: Drain-source on-resistance

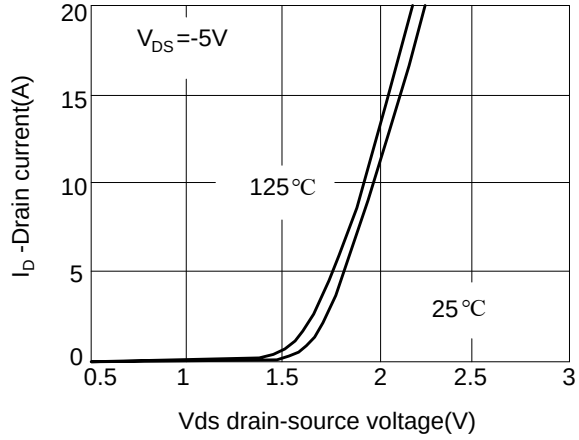


Figure 5: Transfer characteristics

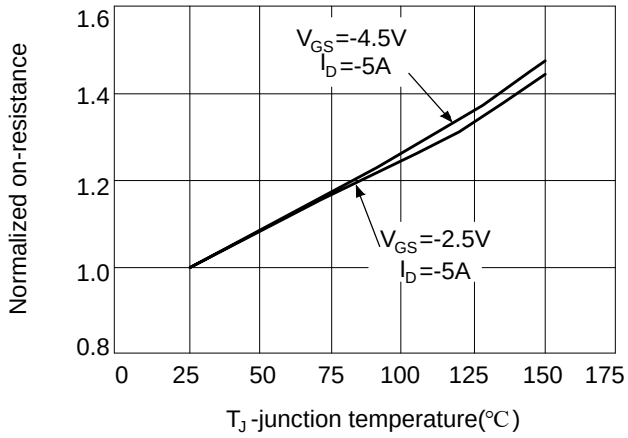


Figure 6: Drain-source on-resistance

■ TYPICAL CHARACTERISTICS(Cont.)

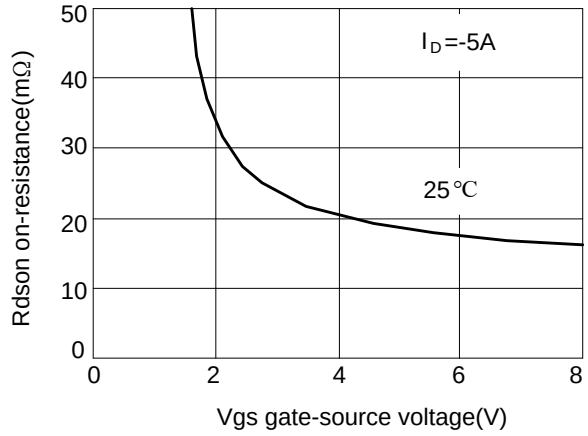


Figure 7: Rdson vs vgs

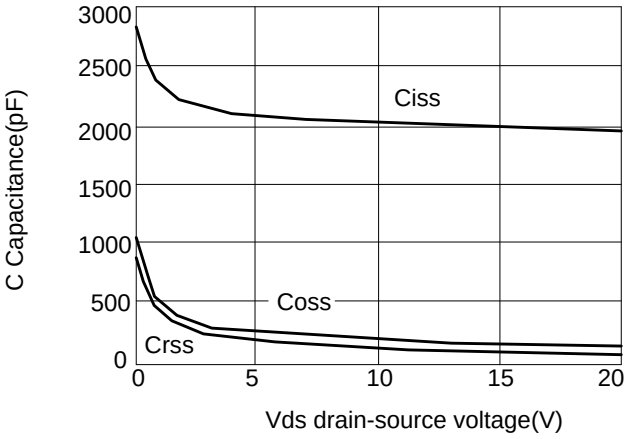


Figure 8:Capacitance vs vgs

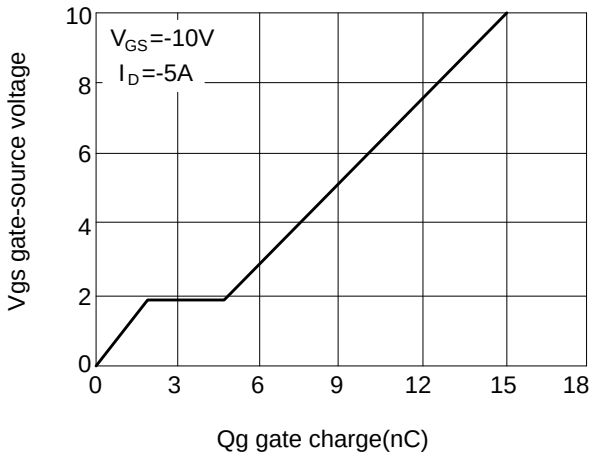


Figure 9: Gate charge

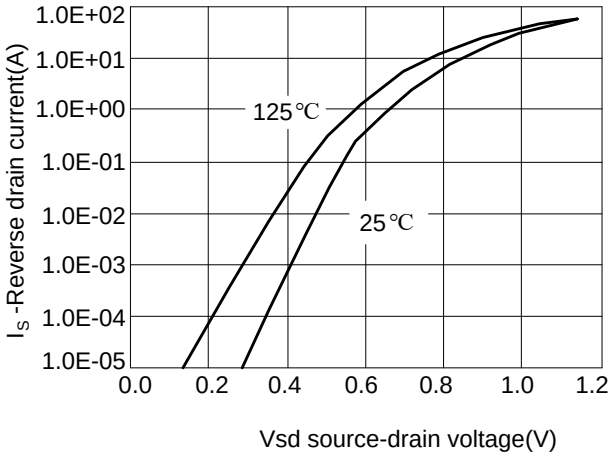


Figure 10:Source-drain diode forward

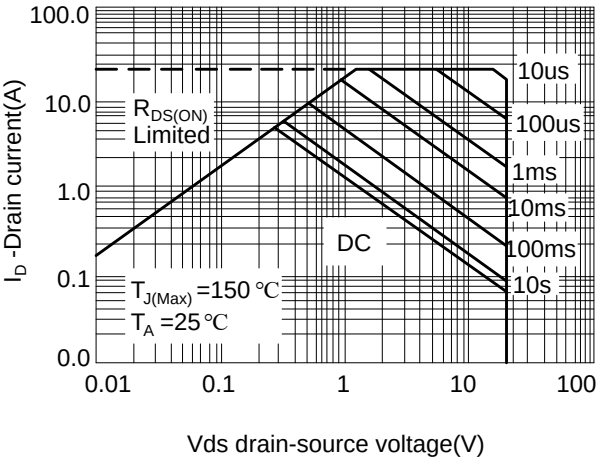
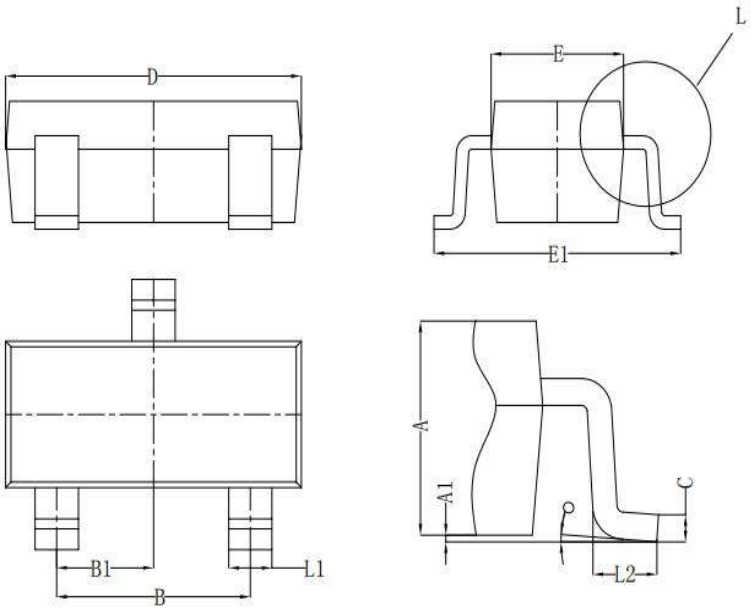


Figure 11:Safe operation area

■SOT-23A-3L PACKAGE OUTLINE DIMENSIONS



Symbol	Dim in mm		
	Min	Nor	Max
A	1.050	1.100	1.150
A1	0.000	0.050	0.100
L1	0.300	0.400	0.500
C	0.100	0.150	0.200
D	2.820	2.920	3.020
E	1.500	1.600	1.700
E1	2.650	2.800	2.950
B	1.800	1.900	2.000
B1	0.950 TYP		
L2	0.300	0.450	0.600
o	0°	4°	8°