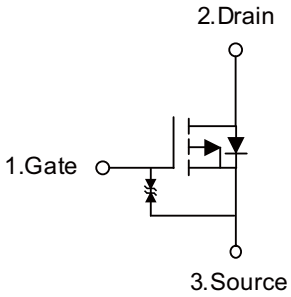
■ PRODUCT CHARACTERISTICS

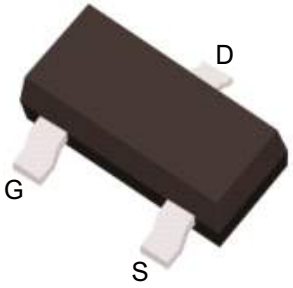
VDSS	-20V
R_{DS}(on)Typ(@V_{GS}=-4.5 V)	32mΩ
R_{DS}(on)typ(@V_{GS} =-2.5 V)	40mΩ
ID	-4A

Symbol



■ APPLICATIONS

- Load switch for portable
- DC/DC converter



■ FEATURES

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

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT3415A3	SOT-23A	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}	±8	V
Continuous Drain Current		I_D	-4	A
Pulsed Drain Current		I_{DM}	-16	A
Maximum Power Dissipation	TA = 25°C	P_D	1.5	W
	TA = 75°C		1	W
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C
Junction-to-Ambient Thermal Resistance		R_{thJA}	100	°C/W

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

Parameter	Symbol	Test condition	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D= -250uA	20	-	-	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -4.0A	-	32	40	mΩ
		V_{GS} = -2.5V, I_D = -4.0A	-	40	52	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = -250uA	-0.4	-	-1	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -20V, V_{GS} = 0V	-	-	-1	uA
		V_{DS} = -20V,TJ=55 °C	-	-	-5	uA
Gate Body Leakage	I_{GSS}	V_{GS} = ± 8V, V_{DS} = 0V	-	-	±10	uA
Forward Transconductance	g_{fs}	V_{DS} = -5V, I_D = -4A	6.5	-	-	S
Dynamic						
Total Gate Charge	Q_g	V_{DS} = -10V, I_D ≅ -4A V_{GS} = -4.5V	-	9.3	-	nC
Gate-Source Charge	Q_{gs}		-	1	-	nC
Gate-Drain Charge	Q_{gd}		-	2.2	-	nC
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -10V, RL=2.5 Ω V_{GS}= -4.5V, R_G =3 Ω	-	13	-	ns
Turn-On Rise Time	t_r		-	9	-	ns
Turn-Off Delay Time	$t_{d(off)}$		-	19	-	ns
Turn-Off Fall Time	t_f		-	29	-	ns
Input Capacitance	C_{iss}	V_{DS} = -10V, V_{GS} = 0V f = 1.0 MHz	-	751	-	pF
Output Capacitance	C_{oss}		-	115	-	pF
Reverse Transfer Capacitance	C_{rss}		-	80	-	pF
Source-drain-diode						
Max. Diode Forward Current	I_S		-	-	-4	A
Diode Forward Voltage	V_{SD}	I_S = -1.0A, V_{GS} = 0V	-	-	-1.2	V

■ TYPICAL CHARACTERISTICS

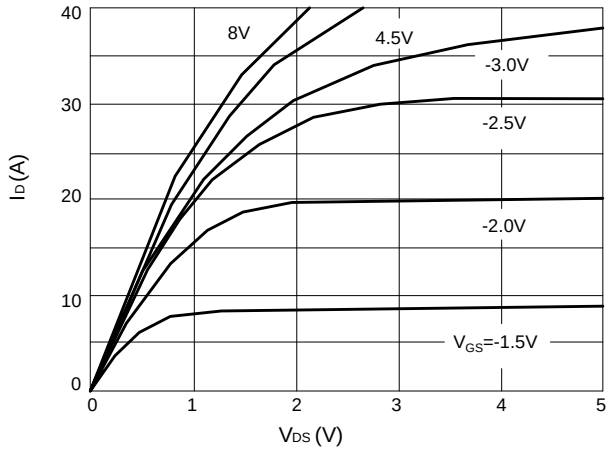


Figure 1: On-region characteristics

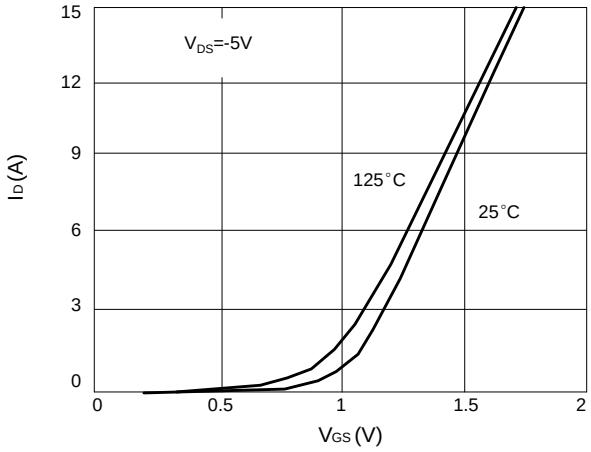


Figure 2: Transfer characteristics

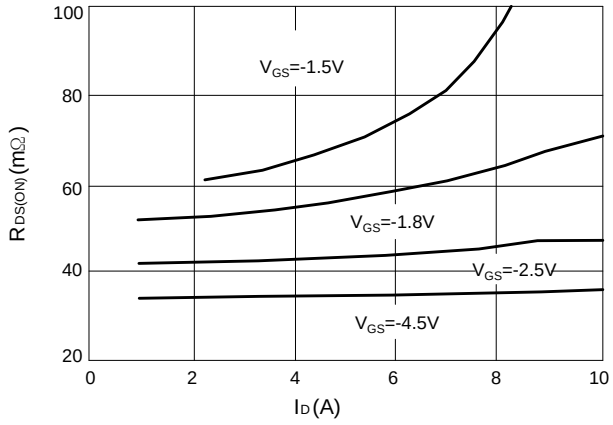


Figure 3: On-resistance vs. drain current gate voltage

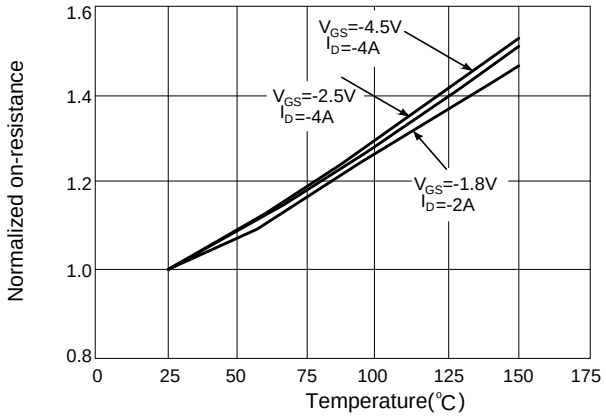


Figure 4: On-resisyance vs. junction temperature

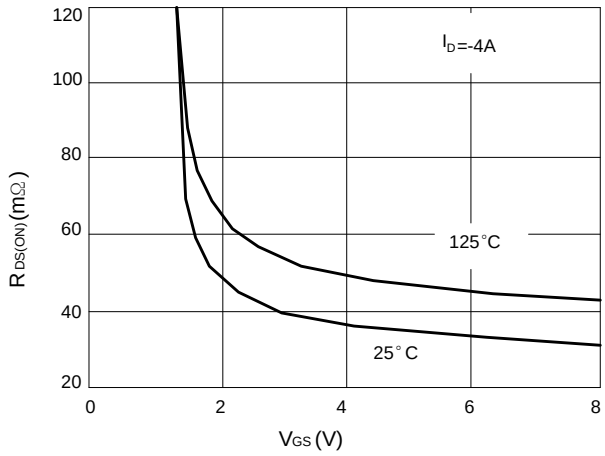


Figure 5: On-resistance vs. gate-source voltage

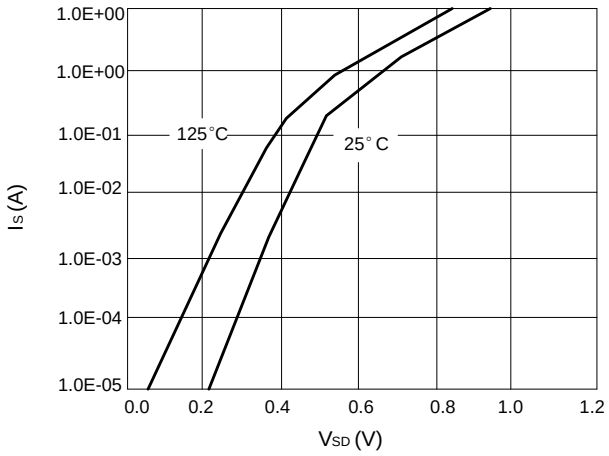


Figure 6: Body-diode characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

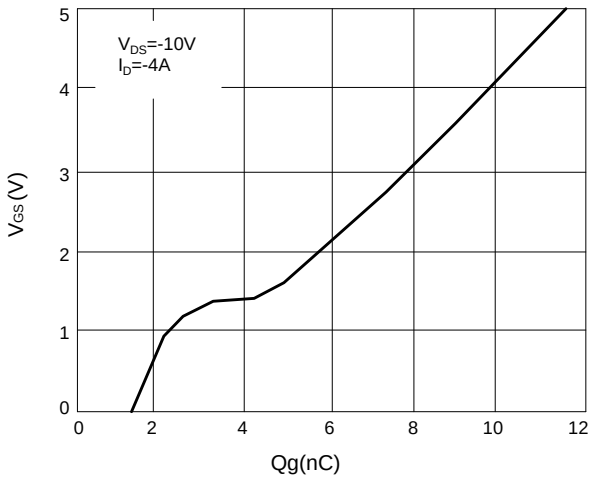


Figure 7: Gate-charge characteristics

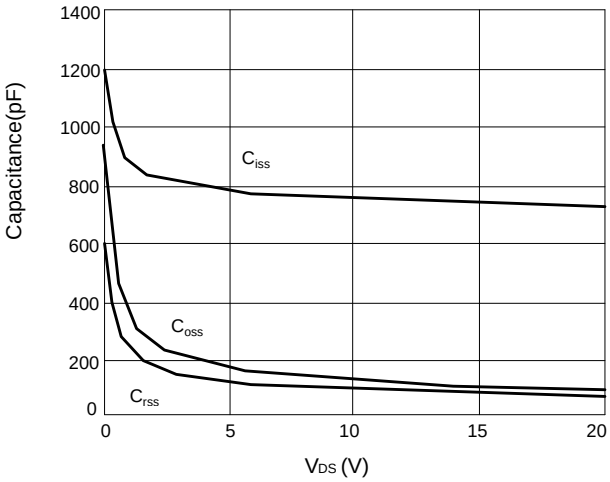


Figure 8: Capacitance characteristics

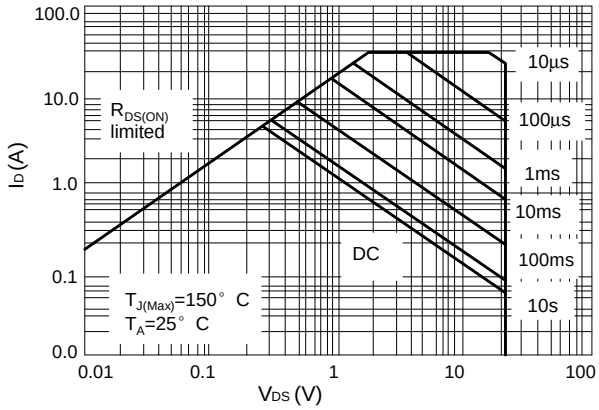
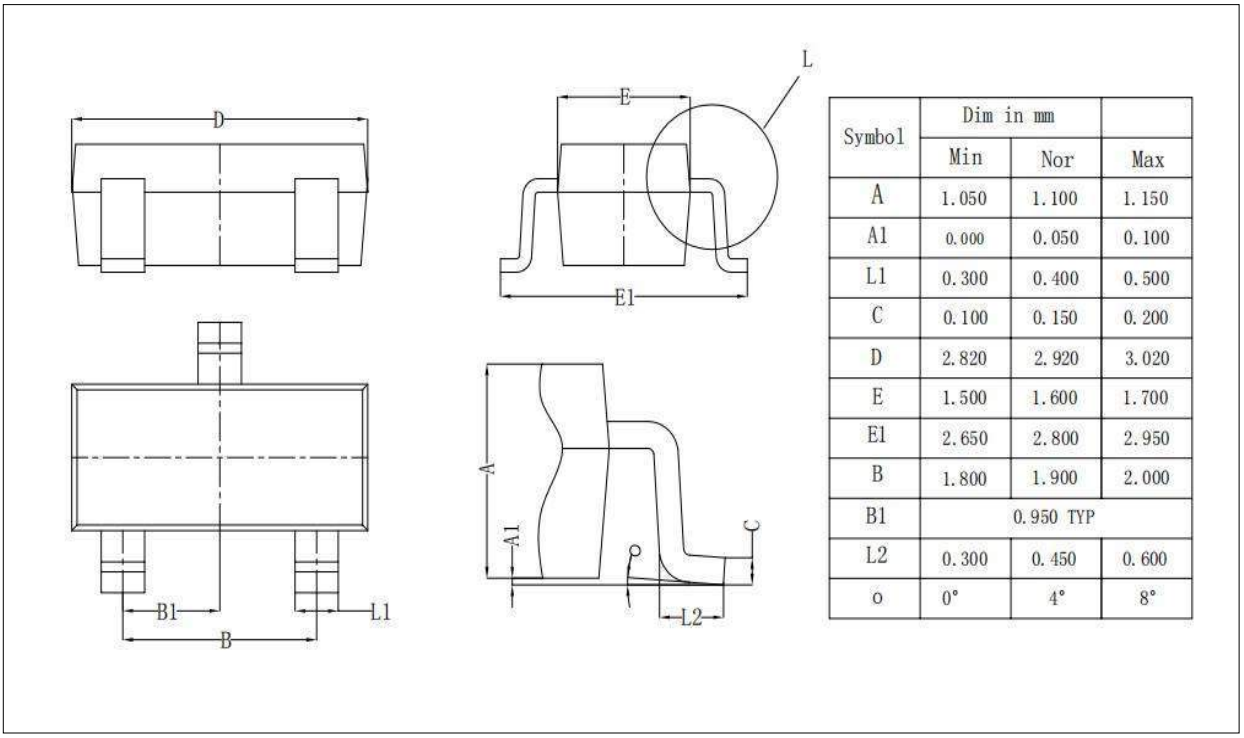


Figure 9: Safe operating area

■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°