

PRODUCT CHARACTERISTICS

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

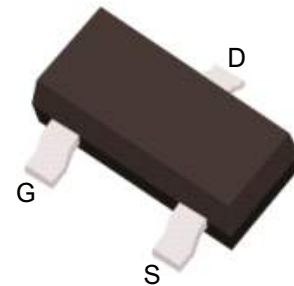
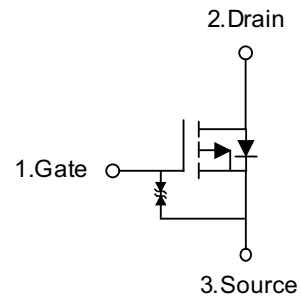
APPLICATIONS

- Load switch for portable
- DC/DC converter

FEATURES

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

Symbol



ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT3415A3	SOT-23A	3000pieces/Reel

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^{\circ}\text{C}$ 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 ($T_C=25^{\circ}\text{C}$, 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	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D = -250uA	-0.4	-	-1	V
Zero Gate Voltage Drain Current 0	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V	-	-	-1	uA
		V _{DS} = -20V,TJ=55 °C	-	-	-5	
Gate Body Leakage	I _{GSS}	V _{GS} = ± 8V, V _{DS} = 0V	-	-	±10	uA
Forward Transconductance ¹⁾	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	-	
Gate-Drain Charge	Q _{gd}		-	2.2	-	
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	-	
Turn-Off Delay Time	t _{d(off)}		-	19	-	
Turn-Off Fall Time	t _f		-	29	-	
Input Capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0V f = 1.0 MHz	-	751	-	pF
Output Capacitance	C _{oss}		-	115	-	
Reverse Transfer Capacitance	C _{rss}		-	80	-	
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

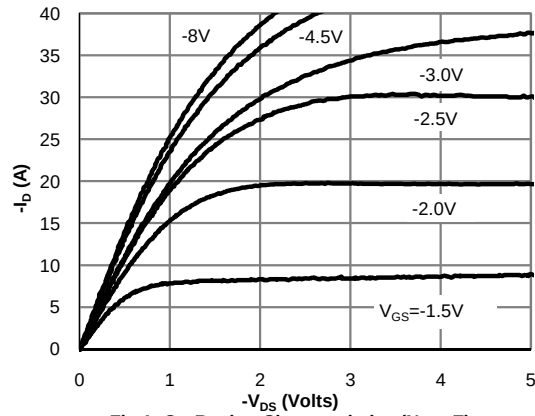


Fig 1: On-Region Characteristics (Note E)

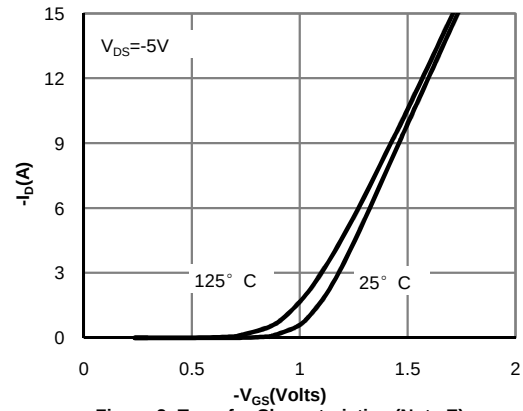


Figure 2: Transfer Characteristics (Note E)

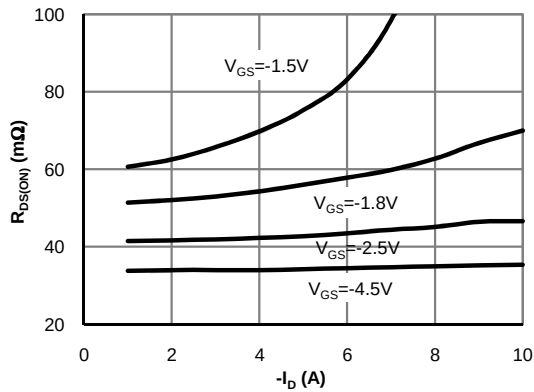


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

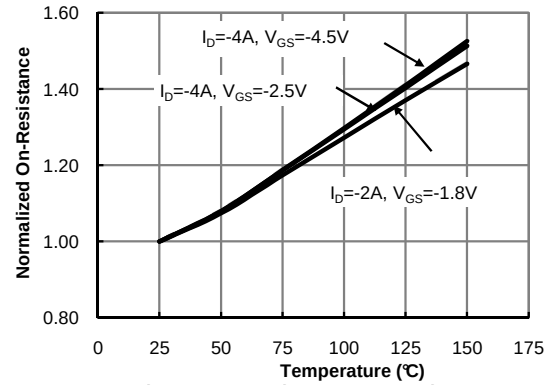


Figure 4: On-Resistance vs. Junction Temperature (Note E)

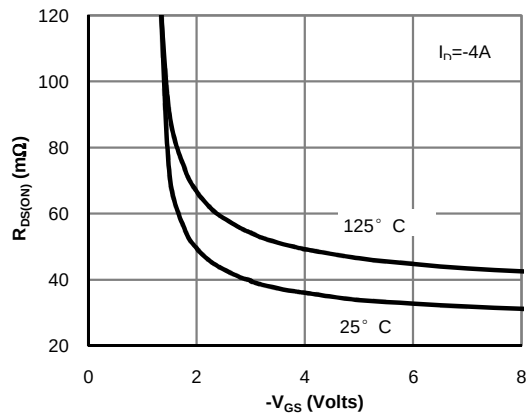


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

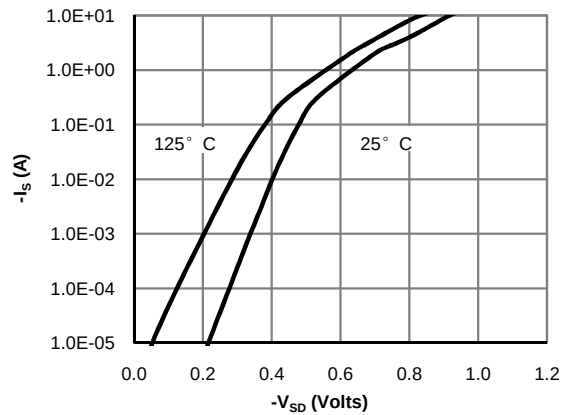


Figure 6: Body-Diode Characteristics (Note E)

■ TYPICAL CHARACTERISTICS(Cont.)

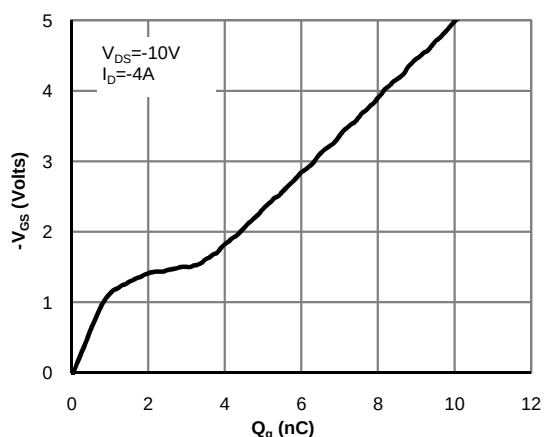


Figure 7: Gate-Charge Characteristics

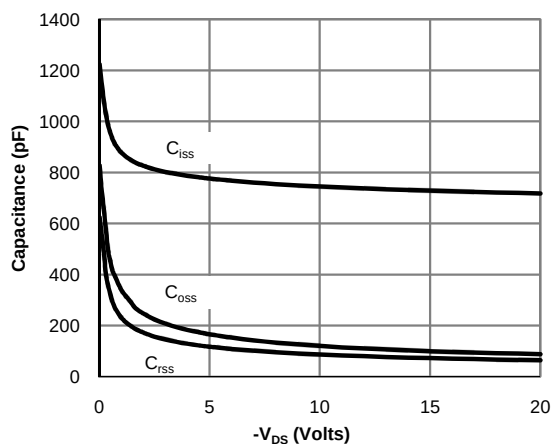


Figure 8: Capacitance Characteristics

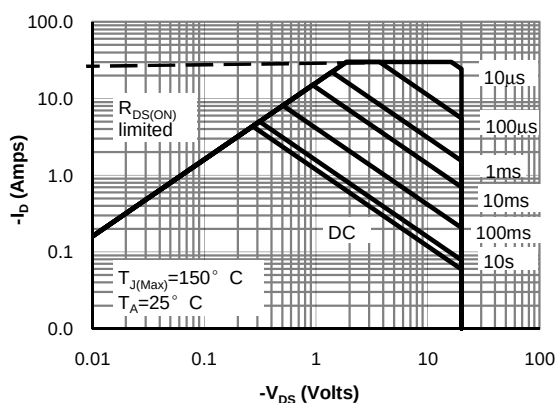


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

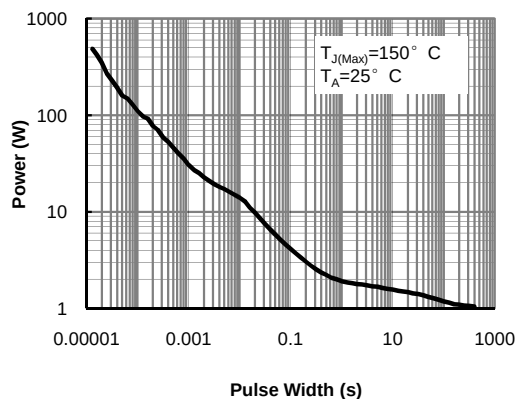


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

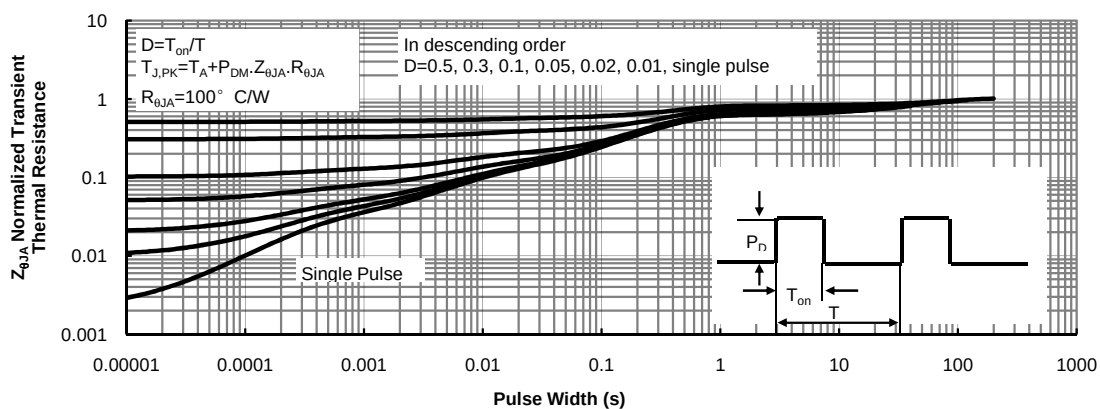


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

■ SOT-23A-3L PACKAGE OUTLINE DIMENSIONS

