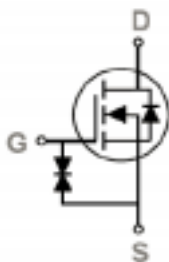
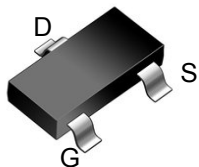


SOT-23



Features

Advanced trench process technology
High density cell design for Ultra Low On-Resistance
Halogen free and RoHS compliant

Mechanical Data

SOT-23 Small Outline Plastic Package
Epoxy UL: 94V-0

$V_{(BR)DSS}$	$R_{DS(ON)}$ Typ	I_D Max
-20V	28 mΩ @ -4.5V	-5A
	46 mΩ @ -2.5V	

Marking: 3415E

Application

Battery protection
Load switch
Power management

Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
SOT-23	Tape/Reel, 7" reel	3000	EIA-481-1

Maximum Ratings & Thermal Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified.)

Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V _{DS}	Drain-Source Breakdown Voltage		-20	V
V _{GS}	Gate-Source Voltage		±10	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	Tc=25°C	-5	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested	Tc=25°C	-30	A
I _D	Continuous Drain Current	Tc=25°C	-5	A
P _D	Maximum Power Dissipation	Tc=25°C	1.5	W
R _{θJA}	Thermal Resistance Junction-to-Ambient		105	°C/W

Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified).

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-20	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-20V, V _{GS} =0V	--	--	-1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±10V, V _{DS} =0V	--	--	±10	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-0.4	-0.8	-1.0	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-4.5V, I _D =-4A	--	28	45	mΩ
		V _{GS} =-2.5V, I _D =-3A	--	46	65	mΩ
		V _{GS} =-1.8V, I _D =-1A	--	100	200	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-10V, V _{GS} =0V, f=1MHz	--	540	--	pF
C _{OSS}	Output Capacitance		--	120	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	100	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =-10V, I _D =-5A, V _{GS} =-4.5V	--	13	--	nC
Q _{gs}	Gate Source Charge		--	1.9	--	nC
Q _{gd}	Gate Drain Charge		--	2	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =-10V, R _L =2.5Ω, V _{GS} =-10V, R _G =2.2Ω	--	5	--	nS
t _r	Turn-on Rise Time		--	47	--	nS
t _{d(off)}	Turn-Off Delay Time		--	52	--	nS
t _f	Turn-Off Fall Time		--	69	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=-4A,	--	--	-1.2	V

Ratings and Characteristic Curves

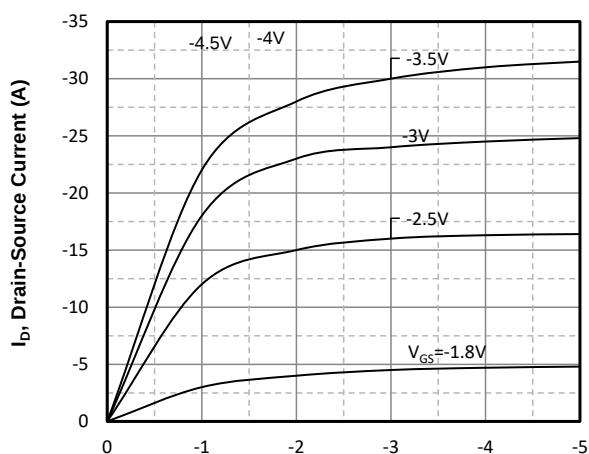


Fig1. Typical Output Characteristics

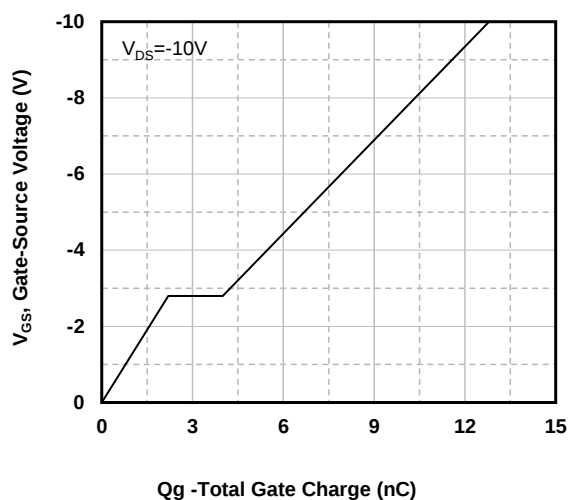


Fig2. Typical Gate Charge Vs. Gate-Source Voltage



Ratings and Characteristic Curves

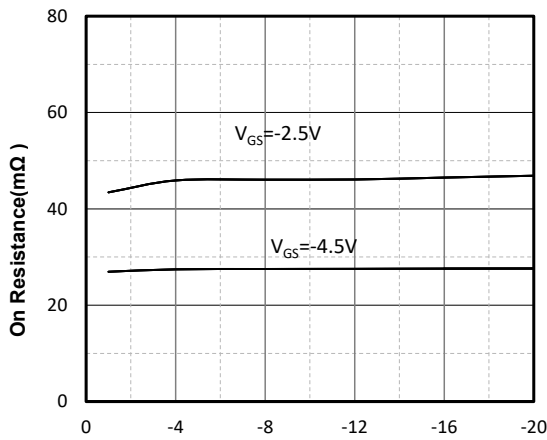


Fig3. Drain-Source on Resistance

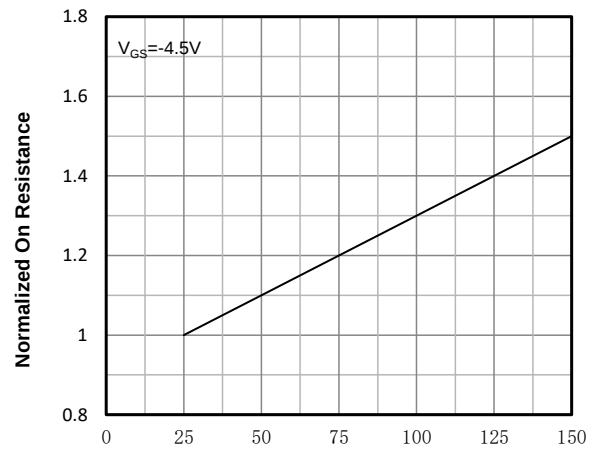


Fig4. Normalized On-Resistance Vs. Temperature

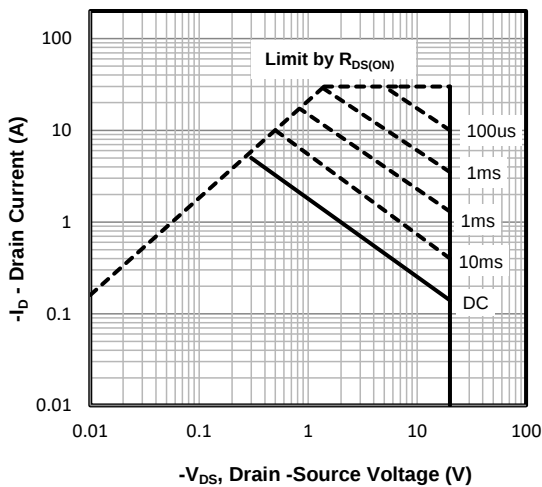


Fig5. Maximum Safe Operating Area

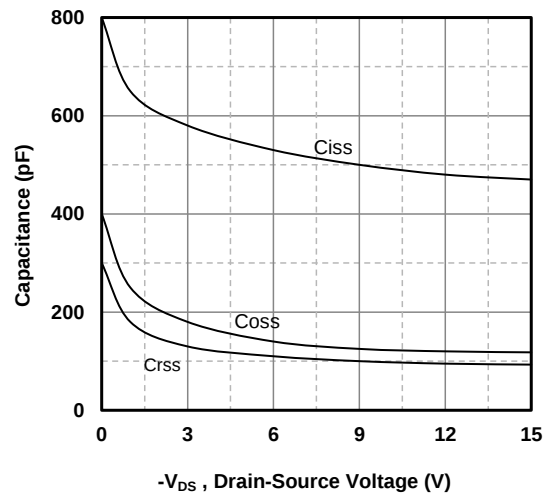
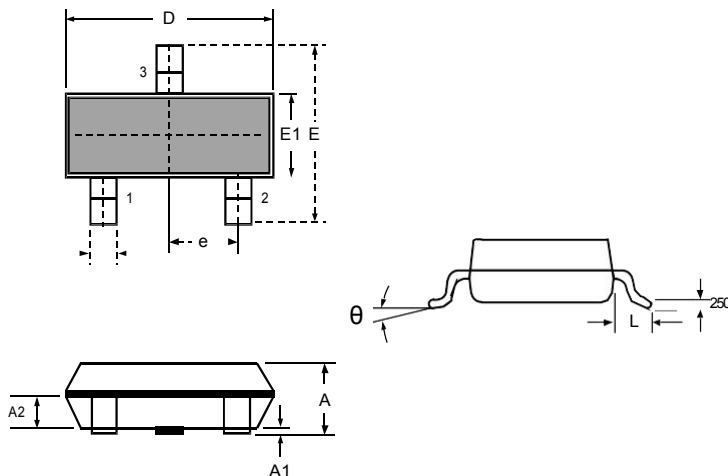


Fig6 Typical Capacitance Vs. Drain-Source Voltage

Package Outline Dimensions: SOT-23



DIMENSIONS

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
D	2.800	3.000	0.110	0.118
b	0.300	0.500	0.012	0.020
E	2.250	2.550	0.089	0.100
E1	1.200	1.400	0.047	0.055
e	0.950 BSC		0.037 BSC	
L	0.300	0.500	0.012	0.020
θ	0	8°	0	8°