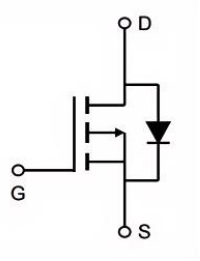
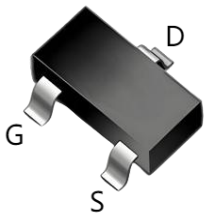
P-Channel Enhancement Mode MOSFET

Parameter	Value	Unit
V_{DS}	-60	V
$R_{DS(on)}$	130	mΩ
I_D	-2	A





SOT-23

Features

- Leading trench technology for low $R_{DS(on)}$
- Low Gate Charge
- Excellent package for good heat dissipation

Applications

- Battery protection
- Load switch
- Power management

Absolute Maximum Ratings (T_A=25℃,unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25℃	I_D	-2	A
Pulsed Drain Current		I_{DM}	-8	A
Total Power Dissipation	T_A=25℃	P_D	0.35	W
Storage Temperature Range		T_{STG}	-55 to 150	℃
Operating Junction Temperature Range		T_J	-55 to 150	℃

Thermal Characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction-ambient	$R_{\theta JA}$	--	357	℃/W
Thermal Resistance Junction-Case	$R_{\theta JC}$	--	--	℃/W

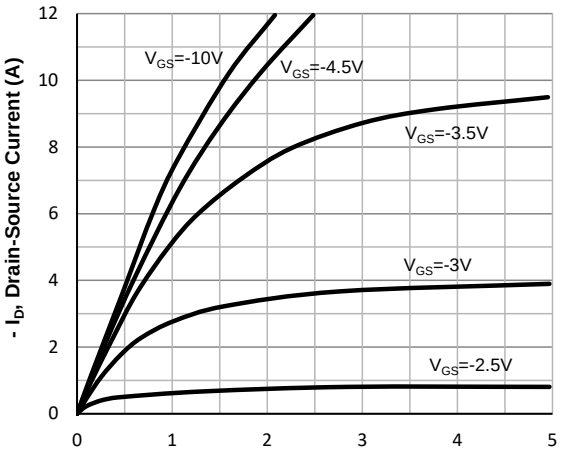
Electrical Characteristics(T_J=25℃ ,unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=-250μA, V_{GS}=0V	-55	-62	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-50V, V_{GS}=0V	--	--	-1.0	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V	--	--	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=-250μA	-1.2	-1.7	-2.5	V
Static Drain-Source ON-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-2A	--	130	190	mΩ
		V_{GS}=-4.5V, I_D=-1.5A	--	160	240	mΩ
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-25V f= 1MHz	--	555	--	pF
Output Capacitance	C_{oss}		--	35	--	pF
Reverse Transfer Capacitance	C_{rss}		--	30	--	pF
Total Gate Charge	Q_g	V_{GS}=-10V V_{DS}= -25V, I_D=-10A	--	20	--	nC
Gate Source Charge	Q_{gs}		--	3	--	nC
Gate Drain("Miller") Charge	Q_{gd}		--	6.5	--	nC
Turn-On DelayTime	$t_{d(on)}$	V_{DD}= -25V, I_D=-10A R_G=3Ω, V_{GS}=-10V	--	10	--	ns
Turn-On Rise Time	t_r		--	46	--	ns
Turn-Off DelayTime	$t_{d(off)}$		--	18	--	ns
Turn-Off Fall Time	t_f		--	30	--	ns

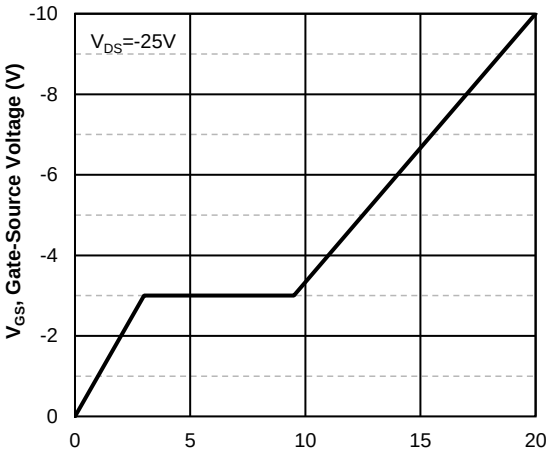
Diode Characteristics

Maximum Continuous Drain to Source Diode Forward Current	I_S		--	--	-2	A
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-2A	--	--	-1.2	V

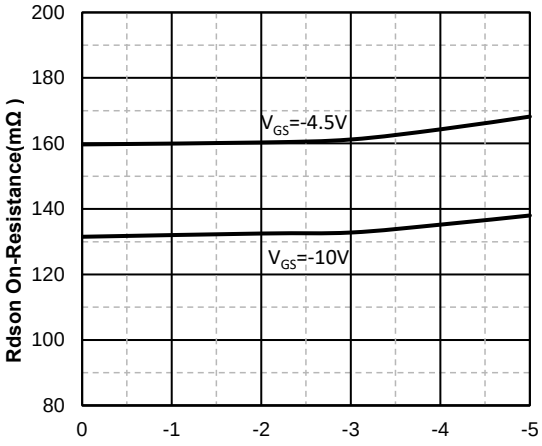
Typical Characteristics



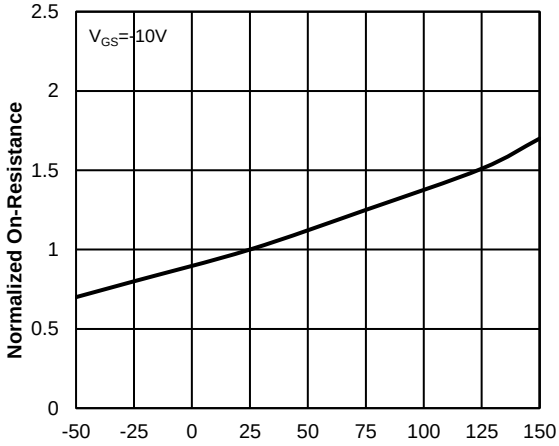
- V_{DS}, Drain -Source Voltage (V)
Fig1. Typical Output Characteristics



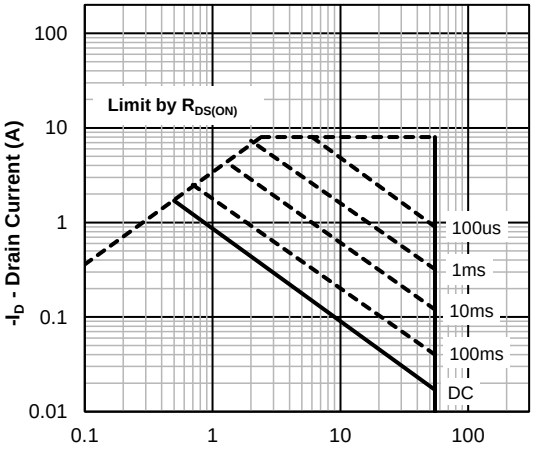
Qg -Total Gate Charge (nC)
Fig2. Typical Gate Charge Vs.Gate-Source Voltage



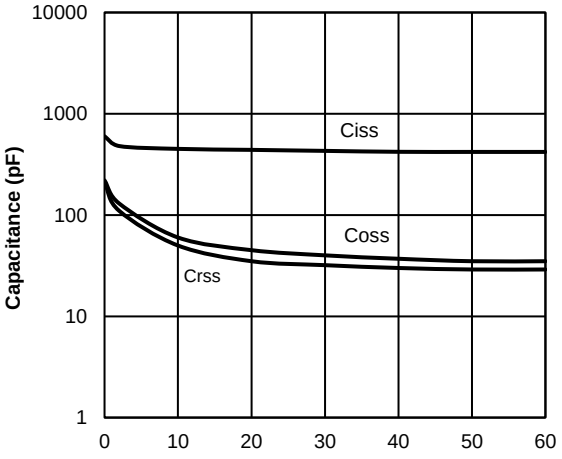
I_D, Drain-Source Current (A)
Fig3. Drain-Source on Resistance



Tj - Junction Temperature (°C)
Fig4. Normalized On-Resistance Vs. Temperature



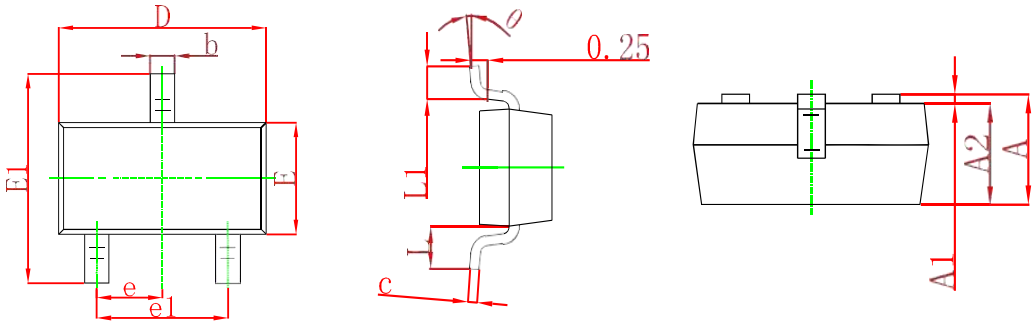
-V_{DS}, Drain -Source Voltage (V)
Fig5. Maximum Safe Operating Area



-V_{DS} , Drain-Source Voltage (V)
Fig6 Typical Capacitance Vs.Drain-Source Voltage

Package Outlines Dimensions (Units: mm)

SOT-23



Symbol	Dimensions In Millimeters		Dimensions In 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
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

***Important Usage Information and Disclaimer**

The specifications of Zhuhai Hypersemi Co., Ltd. products are not guarantees of product characteristics. They reflect typical performance expected in standard applications, which may vary with specific uses. Users must conduct prior testing for their applications and make necessary adjustments.

Users are responsible for the safety of applications utilizing our products and must implement adequate safety measures to prevent physical injury, fire, or other risks in case of product failure. It is the user's duty to ensure that application designs comply with all applicable laws and standards. Our products must not be used in any applications where a product failure could reasonably result in personal injury, unless specifically authorized in a signed document by Zhuhai Hypersemi Co., Ltd.

No representations or warranties are made regarding the accuracy or completeness of this information, including any claims of non-infringement of third-party intellectual property rights. Zhuhai Hypersemi Co., Ltd. assumes no liability for any applications or uses of its products and does not grant any licenses to its intellectual property rights or those of others. We also make no claims regarding non-infringement of third-party intellectual property rights that may arise from applications.

Due to technical requirements, our products may contain hazardous substances. For details, please contact your nearest sales office. This document replaces all previous information and may be updated. We reserve the right to make changes.