

-30V/-2.3A P-Channel MOSFET

Features

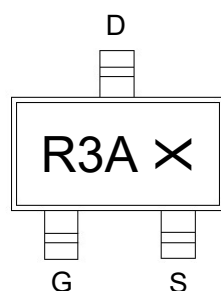
- Industry-standard pinout
- Compatible with existing Surface Mount Techniques

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-30V	165mΩ@-10V	-2.3A
	270mΩ@-4.5V	

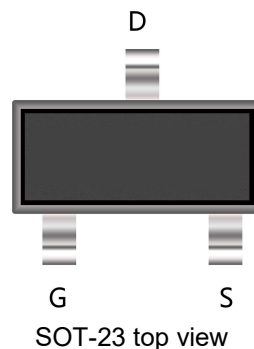
Application

- System/Load Switch

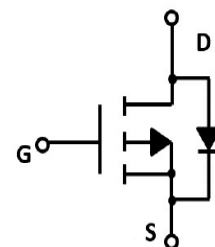


R3A: Device code
X : Code

Marking and pin assignment



SOT-23 top view



Schematic diagram



Pb-Free



RoHS



Halogen-Free

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit
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Common Ratings (TC=25°C Unless Otherwise Noted)

V_{DS}	Drain-Source Breakdown Voltage		-30	V
V_{GS}	Gate-Source Voltage		±20	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_S	Diode Continuous Forward Current	$T_C=25^{\circ}\text{C}$	-2.3	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}\text{C}$	-12	A
I_D	Continuous Drain Current	$T_C=25^{\circ}\text{C}$	-2.3	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}\text{C}$	1.25	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient		100	°C/W

Electrical Characteristics (T _J =25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
B _{V(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-30V, V _{GS} =0V	--	--	-1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-1.3	--	-2.4	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-2.3A	--	135	165	mΩ
		V _{GS} =-4.5V, I _D =-1.8A	--	220	270	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	--	190	--	pF
C _{OSS}	Output Capacitance		--	34	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	26	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =-15V, I _D =-1A, V _{GS} =-10V	--	6.1	--	nC
Q _{gs}	Gate Source Charge		--	1.3	--	nC
Q _{gd}	Gate Drain Charge		--	1.2	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =-15V, I _D =-1A, V _{GS} =-10V, R _G =3Ω	--	4	--	nS
t _r	Turn-on Rise Time		--	22	--	nS
t _{d(off)}	Turn-Off Delay Time		--	2	--	nS
t _f	Turn-Off Fall Time		--	27	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _j =25°C, I _s =-1.3A	--	--	-1.2	V

Typical Operating Characteristics

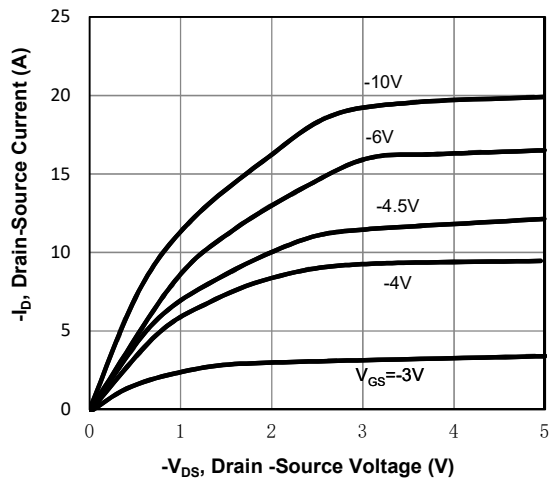


Fig1. Typical Output Characteristics

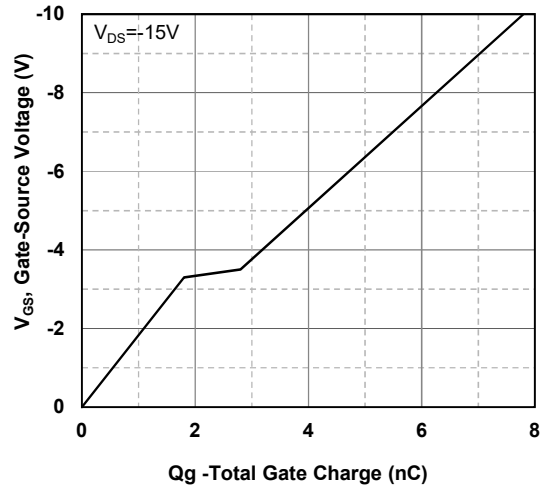


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

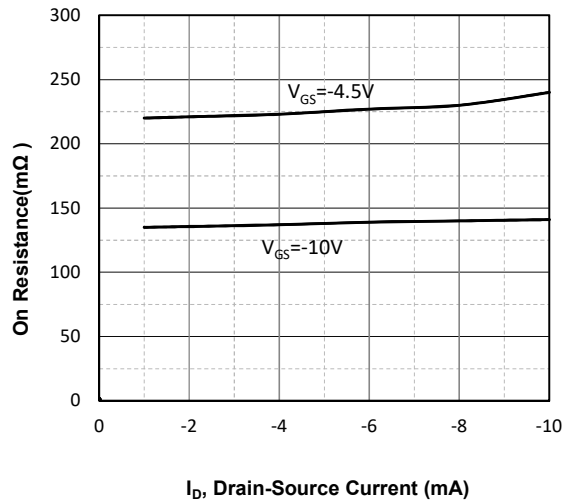


Fig3. Drain-Source on Resistance

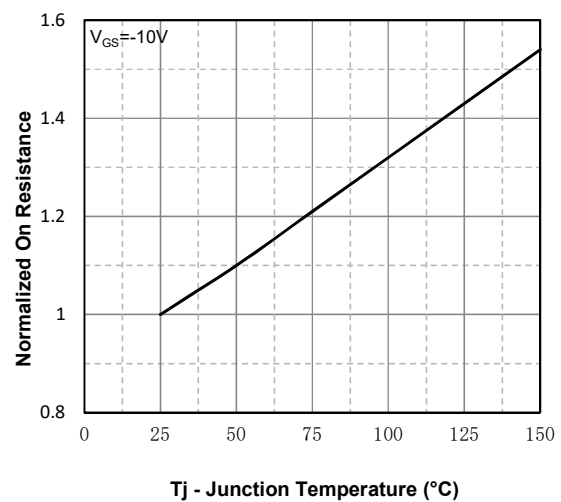


Fig4. Normalized On-Resistance Vs. Temperature

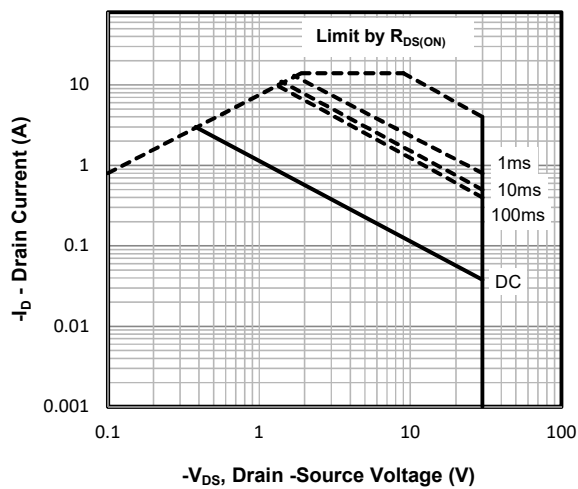


Fig5. Maximum Safe Operating Area

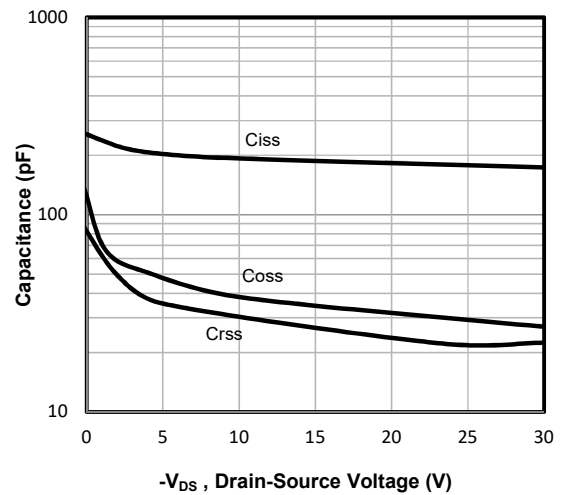
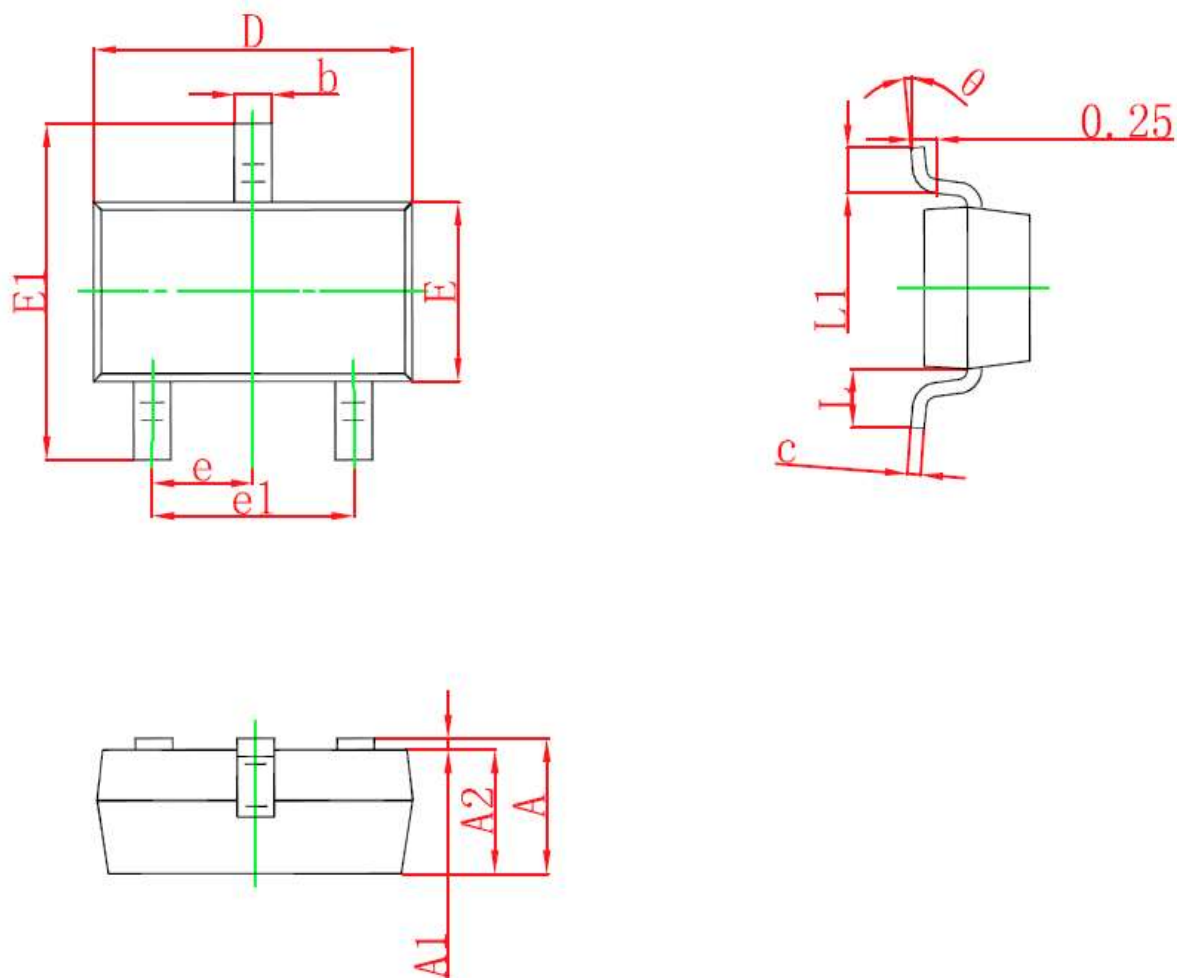


Fig6. Typical Capacitance Vs. Drain-Source Voltage

SOT-23 Package information


Symbol	Dimensions in Millimeters(mm)		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		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°