

P-Channel -30V (D-S) Power MOSFET

Features

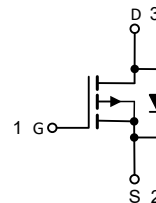
- 100% Avalanche Tested
- Halogen Free, Pb-Free
- RoHS Compliant



SOT-23

Applications

- Relay driver
- Switching circuits
- High-side load switch
- High-speed line driver



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain Source Voltage	V_{DS}	-30	V
Gate Source Voltage	V_{GS}	± 12	V
Drain Current, Continuous $V_{GS}=10\text{V}$ (Note 1)	I_D	$T_C=25^\circ\text{C}$ -4.2	A
		$T_C=70^\circ\text{C}$ -3.5	
Drain Current, Pulsed (Note 2)	I_{DM}	-30	A
Power Dissipation (Note 3)	P_D	$T_C=25^\circ\text{C}$ 1.4	W
Operating Junction/ Storage Temperature Range	T_J / T_{STG}	-55 to +150	$^\circ\text{C}$

Note 1: Calculated continuous current based on maximum allowable junction temperature.

Note 2: Repetitive rating; pulse width limited by max. junction temperature.

Note 3: The power dissipation P_D is based on max. junction temperature, using junction-to-case thermal resistance.

Thermal Characteristics

Parameter	Symbol	Max	Unit
Thermal Resistance Junction to Ambient (Note 4)	R_{thJA}	90	$^\circ\text{C/W}$

Note 4: The value of R_{thJA} is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$

Electrical Characteristics (T_A =25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-30	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V	--	--	-1	uA
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _{DS} =-250uA	-0.7	--	-1.3	V
Gate Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	--	--	±100	nA
Drain-Source On-state Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-4.2A	--	39	50	mΩ
		V _{GS} =-4.5V, I _D =-4A	--	48	65	
Total Gate Charge	Q _g	V _{DS} =-25V, V _{GS} =-10V, I _D =-4A	--	18	--	nC
Gate-Source Charge	Q _{gs}		--	2.1	--	
Gate-Drain Charge	Q _{gd}		--	2.7	--	
Turn-on Delay Time	t _{d(on)}	V _{GS} =-10V, V _{DD} =-15V, R _G =3Ω	--	7.5	--	ns
Turn-on Rise Time	t _r		--	15	--	
Turn-off Delay Time	t _{d(off)}		--	26	--	
Turn-off Fall Time	t _f		--	3.7	--	
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-15V, f=1MHz	--	712	--	pF
Output Capacitance	C _{oss}		--	82	--	
Reverse Transfer Capacitance	C _{rss}		--	67	--	

Reverse Diode Characteristics (T_A =25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Continuous Source Current (Body Diode)	I _S	T _C =25°C	--	--	-4.2	A
Pulsed Source Current (Body Diode)	I _{SM}	T _C =25°C	--	--	-30	A
Diode Forward Voltage)	V _{SD}	I _F =-1A, V _{GS} =0V	--	-0.78	-1.0	V

Typical Characteristics Curves ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 - Typical Output Characteristics

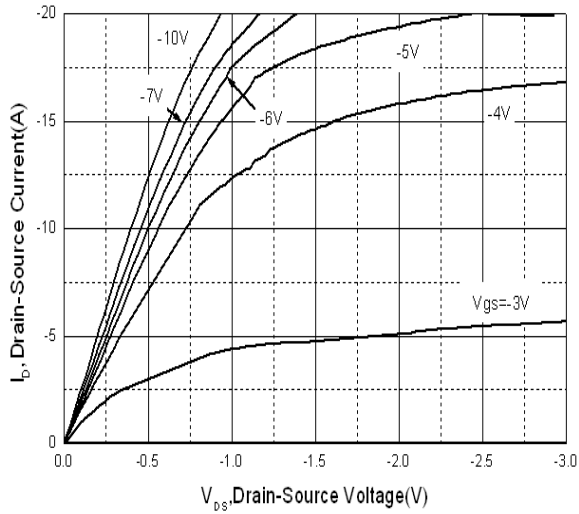


Fig.2 - Gate to Source Cut-off Voltage

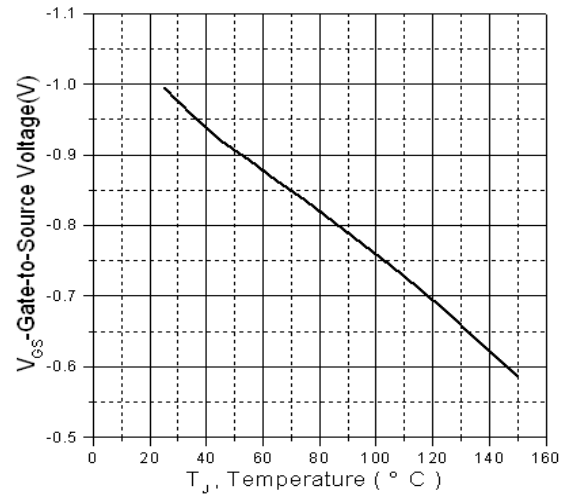


Fig.3 - Drain-to-Source Breakdown Voltage vs. Junction Temperature

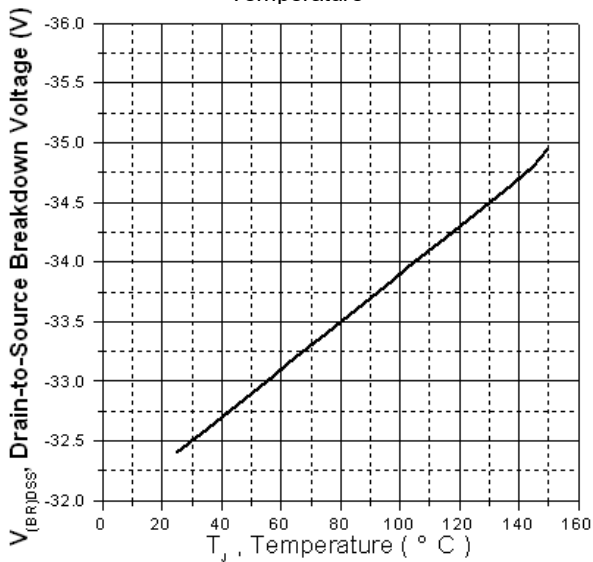


Fig.4 - Normalized On-Resistance vs. Junction Temperature

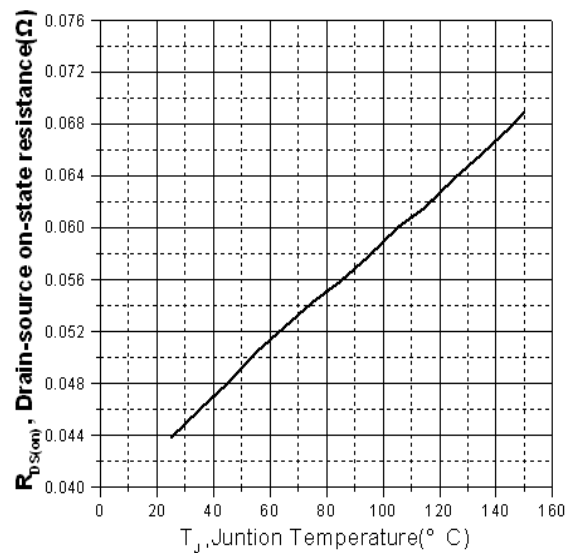


Fig.5 - Maximum Drain Current vs. Case Temperature

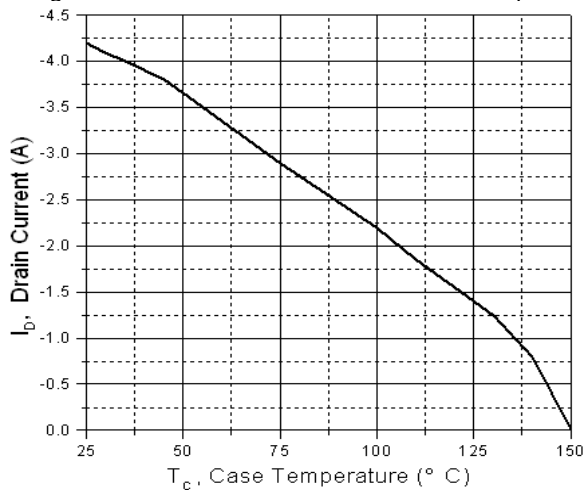
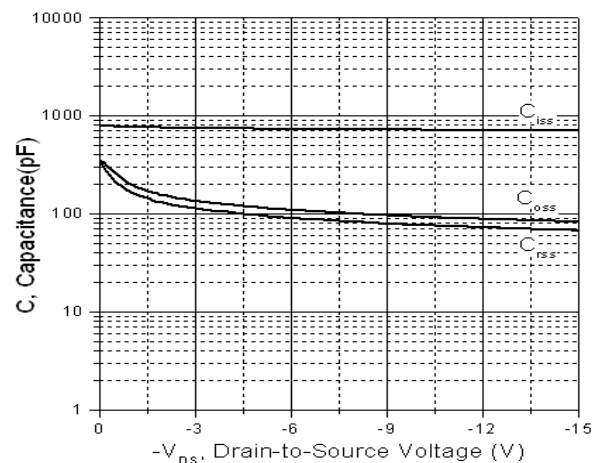
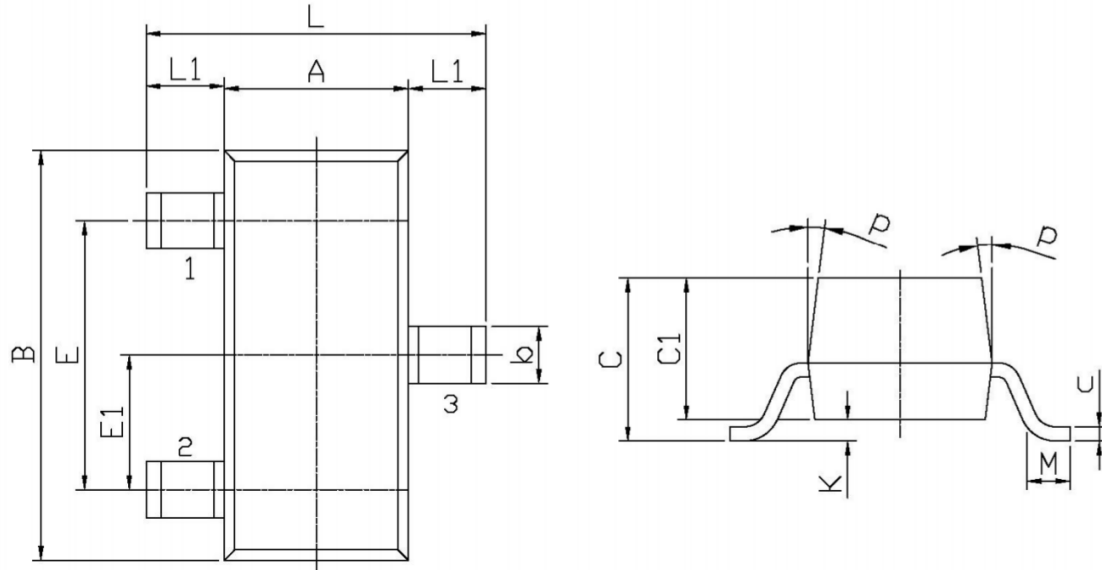


Fig.6 - Typical Capacitance vs. Drain-to-Source Voltage



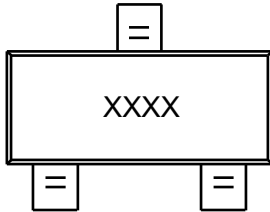
Package Outline Dimensions (Unit: millimeters)

SOT-23



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
L	2.2	2.7	C	1.30Max	
L1	0.45	0.65	C1	0.90	1.20
A	1.15	1.50	c	0.05	0.20
B	2.70	3.10	K	0	0.10
E	1.70	2.10	M	0.20MIN	
E1	0.85	1.05	P	7°	
b	0.35	0.55			

Marking Outline



Part Name: SSF3341

1. P/N Mark: 3341

Revision History

Version	Date	Major Changes
Rev.A	2025.07.03	Official Release

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