

P-Channel -20V (D-S) Power MOSFET

Features

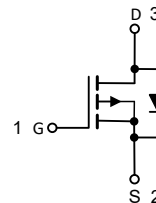
- 100% Avalanche Tested
- Halogen Free, Pb-Free
- RoHS Compliant



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}	-20	V
Gate Source Voltage	V_{GS}	± 8	V
Drain Current, Continuous	I_D	$T_C=25^\circ\text{C}$ -4	A
		$T_C=70^\circ\text{C}$ -2.4	
Drain Current, Pulsed (Note 1)	I_{DM}	-30	A
Power Dissipation	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: Single pulse; $t_p \leq 1\mu\text{s}$.

Thermal Characteristics

Parameter	Symbol	Max	Unit
Thermal Resistance Junction to Ambient (Note 2)	R_{thJA}	90	$^\circ\text{C/W}$

Note 2: Device mounted on 1 square inch FR4 PCB board, with 2oz single-sided copper, in a 25°C still air environment.

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	-20	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V	--	--	-1	uA
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _{DS} =-250uA	-0.3	--	-0.9	V
Gate Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V	--	--	±10	uA
Drain-Source On-state Resistance (Note 3)	R _{DS(on)}	V _{GS} =-4.5V, I _D =-4A	--	31	38	mΩ
		V _{GS} =-2.5V, I _D =-4A	--	37	48	
Total Gate Charge	Q _g	V _{GS(off)} =0V, V _{GS(on)} =-4.5V, V _{DS} =-10V, I _D =-4A	--	9.8	--	nC
Gate-Source Charge	Q _{gs}		--	0.72	--	
Gate-Drain Charge	Q _{gd}		--	3.3	--	
Turn-on Delay Time	t _{d(on)}	V _{GS} =-4.5V, V _{DD} =-10V, R _G =3Ω	--	9.7	--	ns
Turn-on Rise Time	t _r		--	8.4	--	
Turn-off Delay Time	t _{d(off)}		--	27	--	
Turn-off Fall Time	t _f		--	12	--	
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-10V, f=1MHz	--	837	--	pF
Output Capacitance	C _{oss}		--	117	--	
Reverse Transfer Capacitance	C _{rss}		--	86	--	

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Forward Current, Continuous	I _{SD}	T _C =25°C	--	--	-4	A
Diode Forward Voltage (Note 3)	V _{SD}	I _F =-1A, V _{GS} =0V	--	-0.76	-1	V
Reverse Recovery Time	T _{rr}	V _R =-20V, I _F =-4A, di/dt = 100 A/μs	--	8.7	--	ns
Reverse Recovery Charge	Q _{rr}		--	2.3	--	nC

Note 2: Pulse test; pulse width ≤ 380μs, duty cycle ≤ 1%.

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

Fig.1 - Output Characteristics

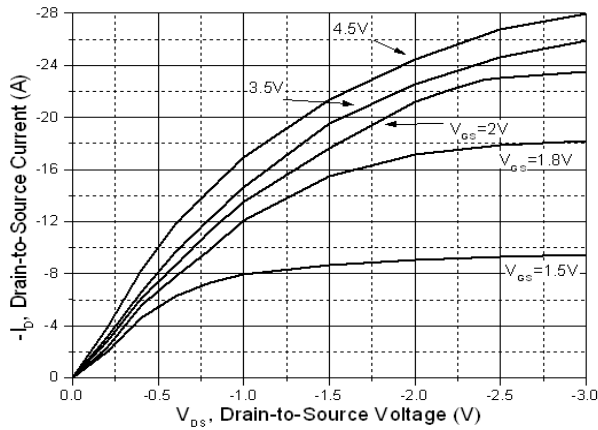


Fig.2 - Transfer Characteristics

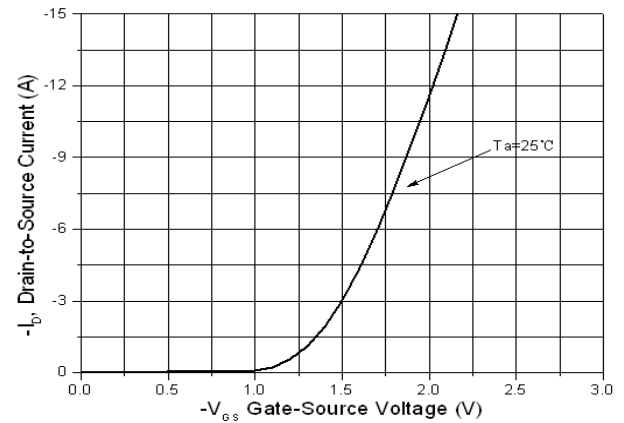


Fig.3 - V_{th} vs. Junction Temperature

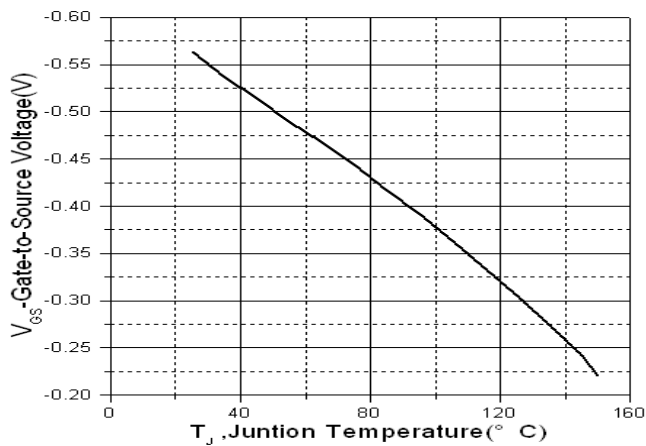


Fig.4 - $V_{BR(DSS)}$ vs. Junction Temperature

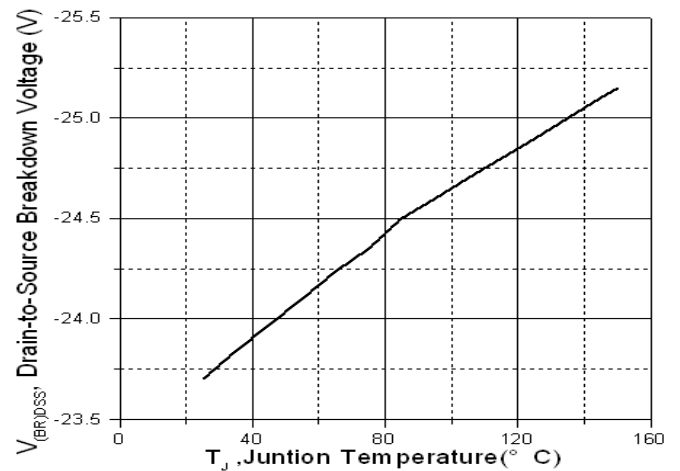


Fig.5 - Normalized On-Resistance vs. Junction Temperature

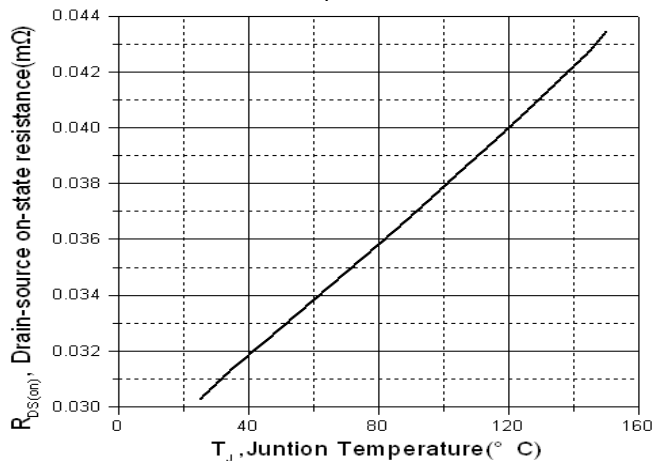
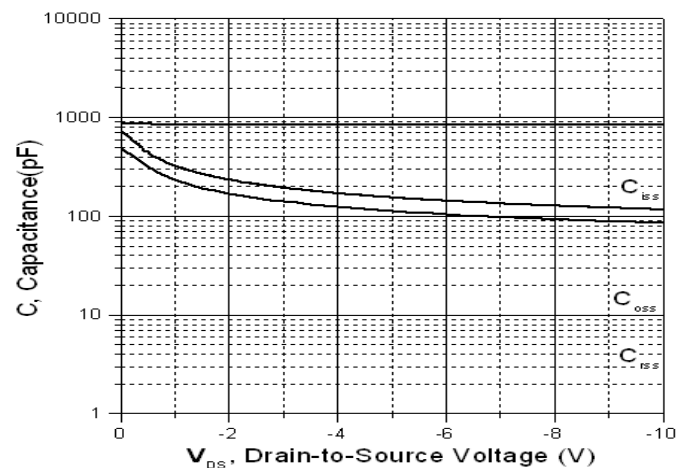
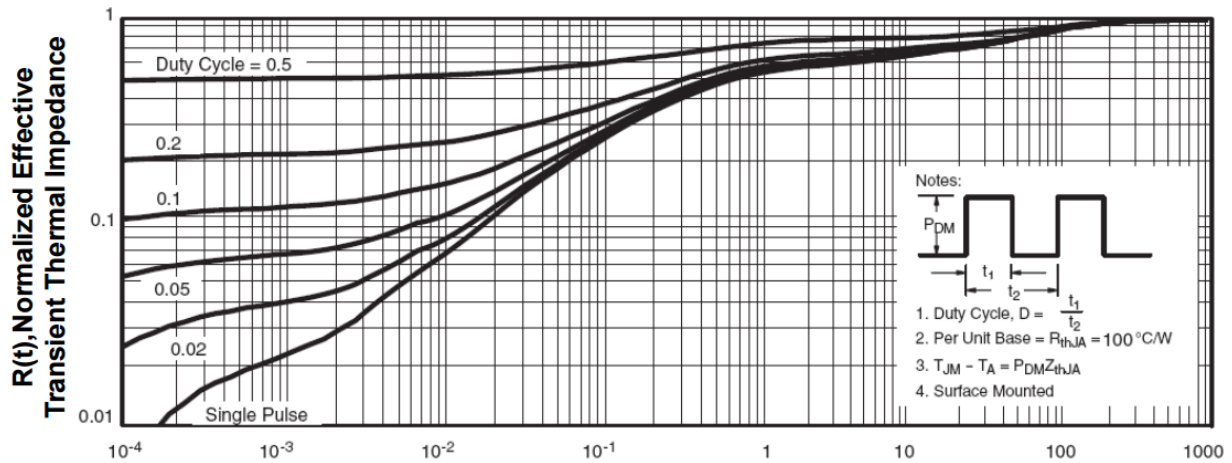


Fig.6 - Capacitance



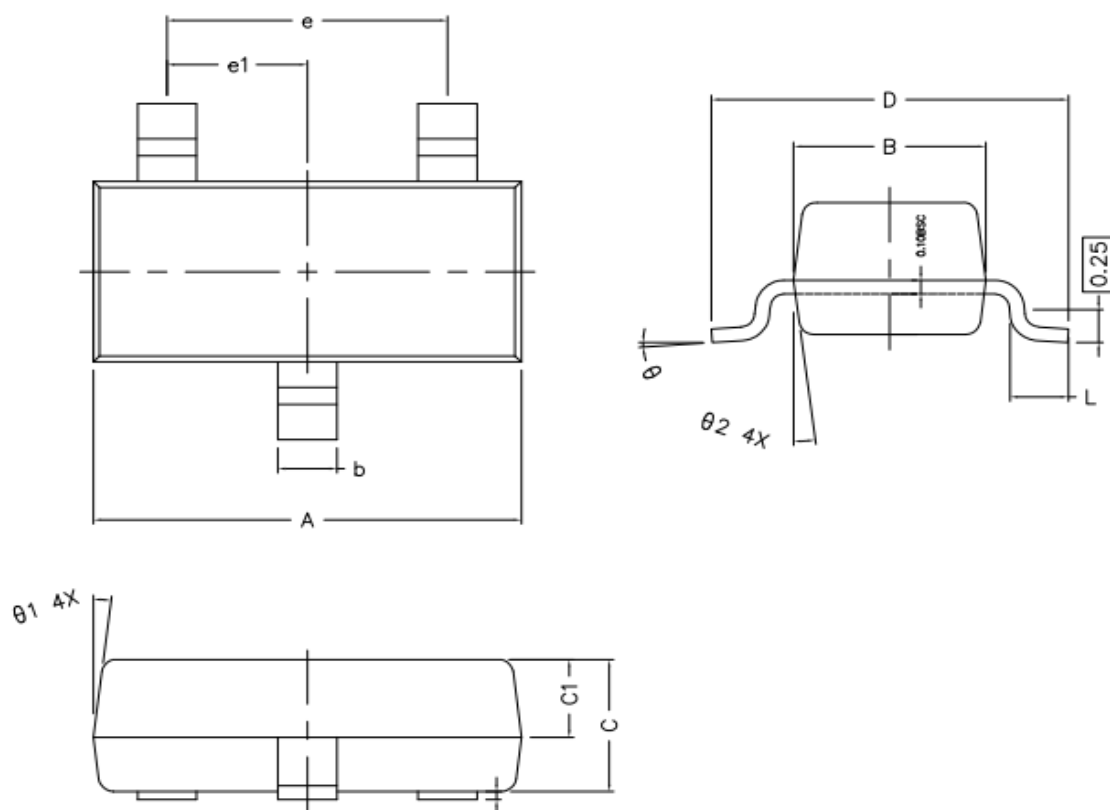
Typical Characteristics Curves ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.7 - Normalized Thermal Impedance, Junction-Case



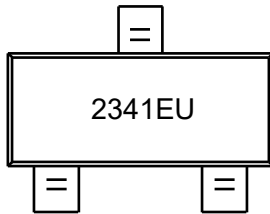
Package Outline Dimensions (Unit: millimeters)

SOT-23



COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A	2.800	2.900	3.000
B	1.200	1.300	1.400
C	0.900	1.000	1.100
C1	0.500	0.550	0.600
D	2.300	2.400	2.500
L	0.300	0.400	0.500
h	0.010	0.050	0.100
b	0.350	0.400	0.450
e	1.90 TYPE		
e1	0.95 TYPE		
θ_1	7° TYPE		
θ_2	7° TYPE		
θ	0° ~ 7°		

Marking Outline



Part Name: SSF2341EU

1. P/N Mark: 2341EU

Revision History

Version	Date	Major Changes
Rev.A	2025.08.04	Official Release

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