

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

Features

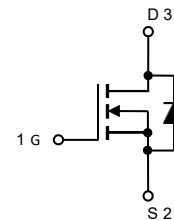
- 150°C operating temperature
- Halogen Free, Pb-Free
- RoHS Compliant



SOT-23

Applications

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



Absolute Maximum Ratings (T_A=25°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} =10V	I _D	5.8	A
		4.2	
Drain Current, Pulsed (Note 1)	I _{DM}	30	A
Power Dissipation	P _D	1.4	W
Operating Junction/ Storage Temperature Range	T _J / T _{STG}	-55 to +150	°C

Note 1: Single pulse; t_p ≤ 1us.

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance Junction to Ambient (Note 2)	R _{thJA}	145	°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	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	--	1.4	V
Gate Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	--	--	±100	nA
Drain-Source On-state Resistance (Note 3)	R _{DS(on)}	V _{GS} =10V, I _D =5.8A	--	26	30	mΩ
		V _{GS} =4.5V, I _D =5A	--	29	33	
Total Gate Charge	Q _g	V _{GS(off)} =0V, V _{GS(on)} =4.5V, V _{DD} =15V, I _D =5.8A	--	11	--	nC
Gate-Source Charge	Q _{gs}		--	2	--	
Gate-Drain Charge	Q _{gd}		--	3	--	
Turn-on Delay Time	t _{d(on)}	V _{GS} =10V, V _{DD} =15V, R _G =3Ω	--	7	--	ns
Turn-on Rise Time	t _r		--	15	--	
Turn-off Delay Time	t _{d(off)}		--	38	--	
Turn-off Fall Time	t _f		--	3	--	
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =15V, f=1MHz	--	495	--	pF
Output Capacitance	C _{oss}		--	48	--	
Reverse Transfer Capacitance	C _{rss}		--	43	--	

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	--	--	1.6	A
Diode Forward Voltage (Note 3)	V _{SD}	I _F =1A, V _{GS} =0V	--	--	1.2	V

Note 3: Pulse test; pulse width ≤ 380μs, duty cycle ≤ 1%.

Typical Characteristics Curves (TA = 25°C unless otherwise noted)

Fig.1 - Normalized On-Resistance vs. Case Temperature

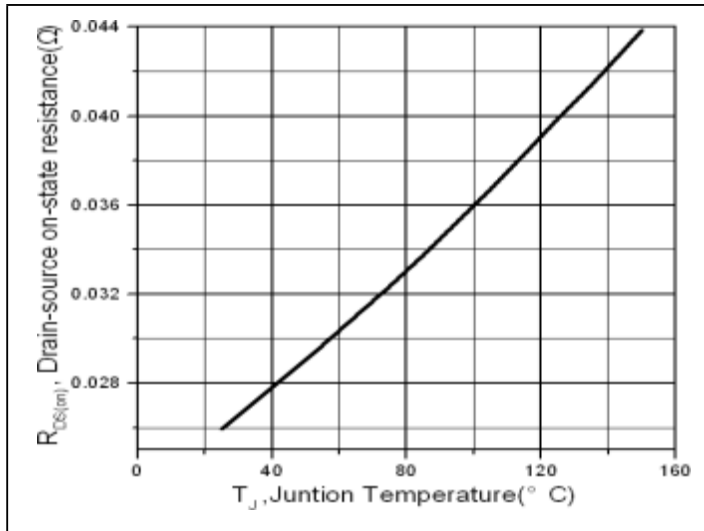


Fig.2 - Drain-to-Source Breakdown Voltage vs. Temperature

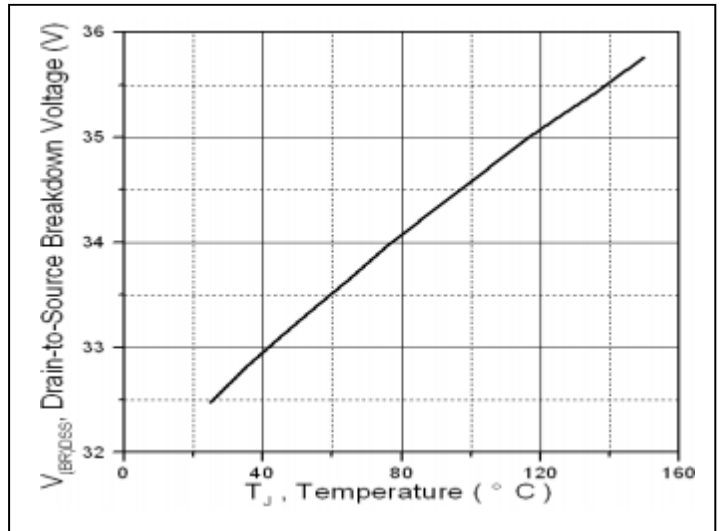


Fig.3 - Gate to Source Cut-off Voltage

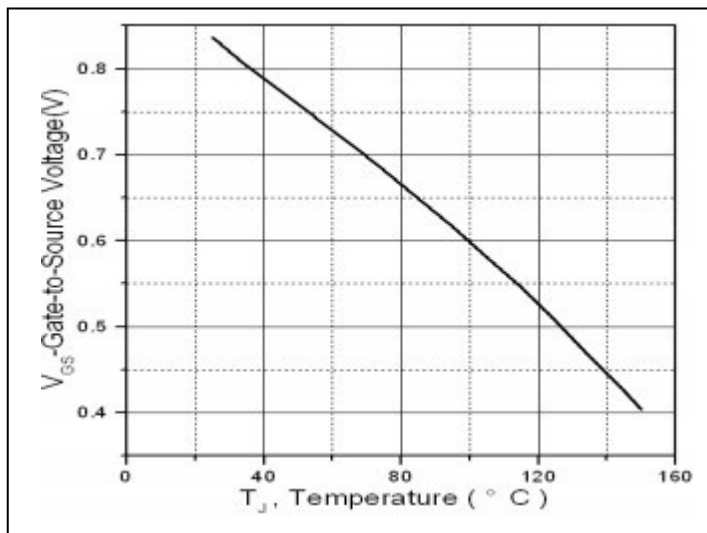
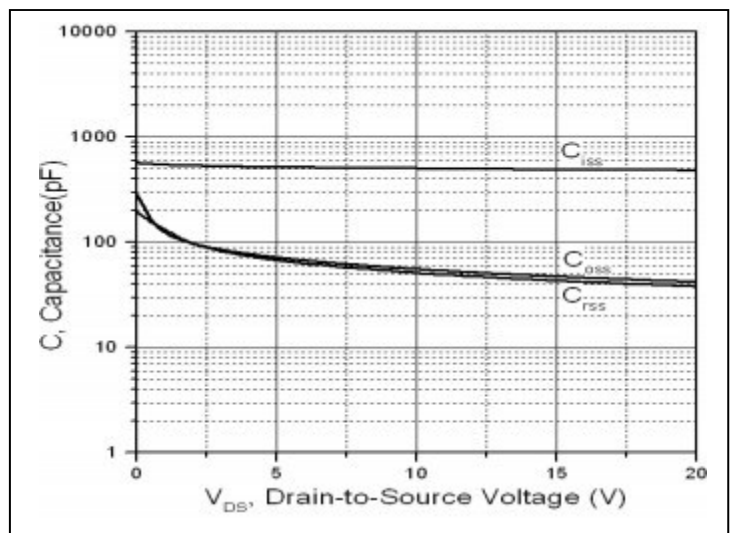
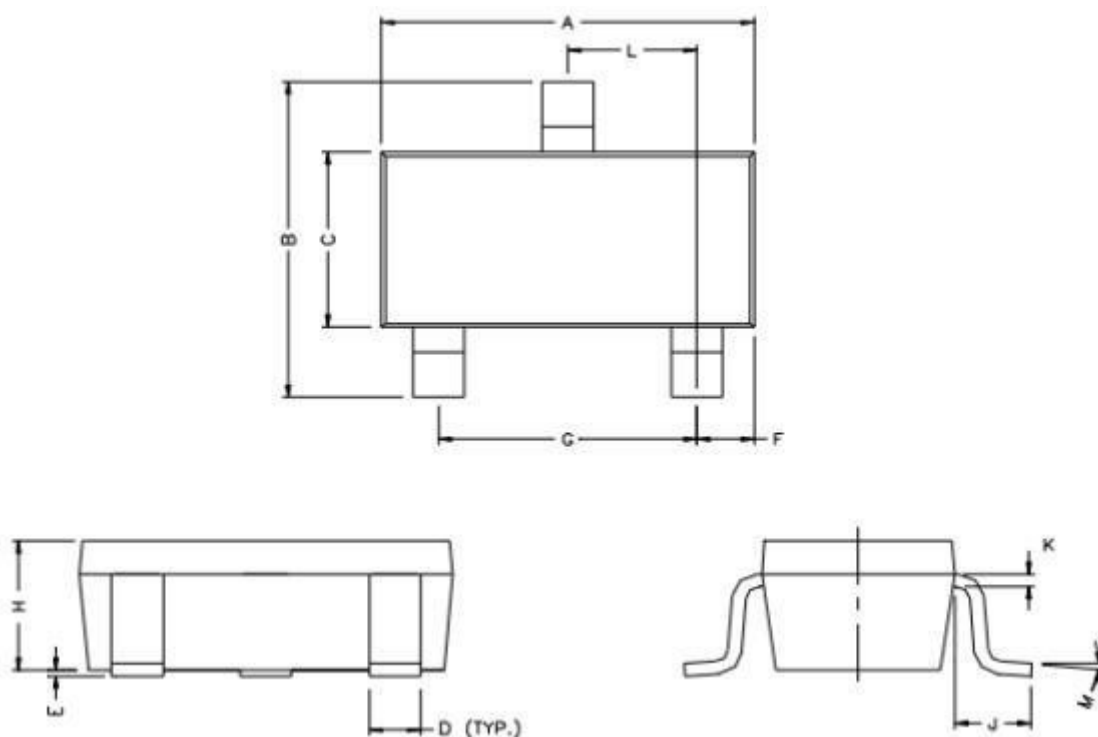


Fig.4 - Typical Capacitance vs. Drain-to-Source Voltage



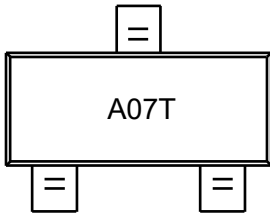
Package Outline Dimensions (Unit: millimeters)

SOT-23



SOT-23					
REF	Min.	Max.	REF	Min.	Max.
A	2.80	3.00	G	1.80	2.00
B	2.30	2.50	H	0.90	1.10
C	1.20	1.40	K	0.10	0.20
D	0.30	0.50	J	0.35	0.70
E	0.00	0.10	L	0.92	0.98
F	0.45	0.55	M	0°	10°

Marking Outline



Part Name: SSF3400K

1. P/N Mark: A07T

Revision History

Version	Date	Major Changes
Rev.A	2025.07.17	Official Release

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