

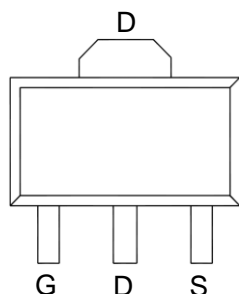
100V/5A N-Channel MOSFET

Features

- Low $R_{DS(on)}$ & FOM
- Extremely low switching loss
- Excellent stability and uniformity
- Fast switching and soft recovery

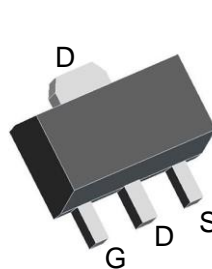
Application

- Consumer electronic power supply
- Motor control
- Synchronous-rectification
- Isolated DC/DC convertor

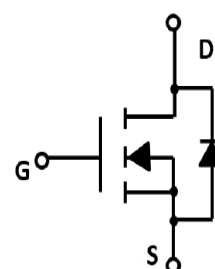


Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
100V	140mΩ@10V	5A
	300mΩ@4.5V	



SOT-89-3L top view



Schematic diagram

Absolute Maximum Ratings (TA=25°C unless otherwise noted)				
Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V_{DS}	Drain-Source Breakdown Voltage		100	V
V_{GS}	Gate-Source Voltage		±20	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-50 to 155	°C
I_S	Diode Continuous Forward Current	$T_c=25^\circ\text{C}$	5	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$	15	A
I_D	Continuous Drain Current	$T_c=25^\circ\text{C}$	5	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$	0.5	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		85	°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)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	100	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, 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	1.8	2.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =3A	--	95	140	mΩ
		V _{GS} =4.5V, I _D =2A	--	125	300	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=1MHz	--	200	--	pF
C _{OSS}	Output Capacitance		--	30	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	2	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =50V, I _D =3A, V _{GS} =10V	--	4	--	nC
Q _{gs}	Gate Source Charge		--	0.5	--	nC
Q _{gd}	Gate Drain Charge		--	1.4	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =50V, I _D =3A, V _{GS} =10V, R _G =2Ω	--	12.5	--	nS
t _r	Turn-on Rise Time		--	19.3	--	nS
t _{d(off)}	Turn-Off Delay Time		--	20	--	nS
t _f	Turn-Off Fall Time		--	28	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25°C, I _S =3A,	--	--	1.2	V

Typical Operating Characteristics

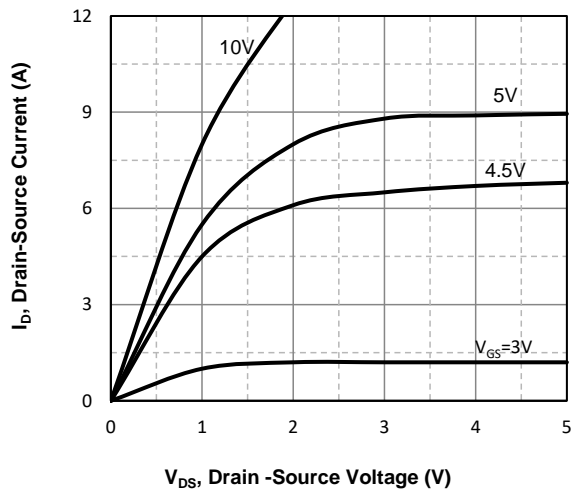


Fig1. Typical Output Characteristics

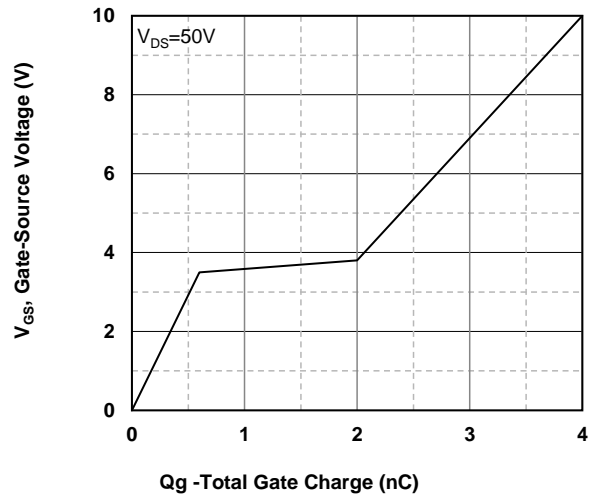


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

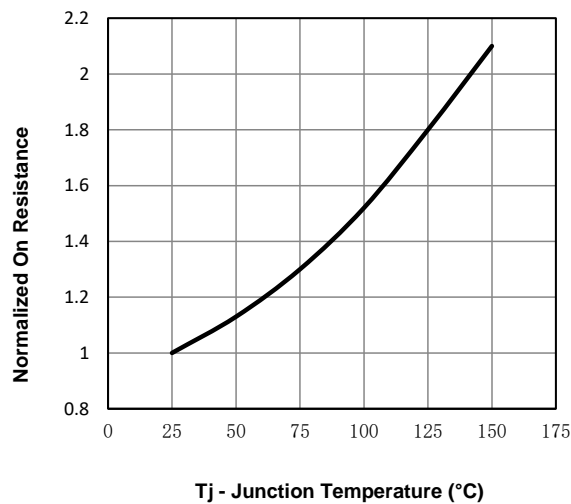


Fig3. Normalized On-Resistance Vs. Temperature

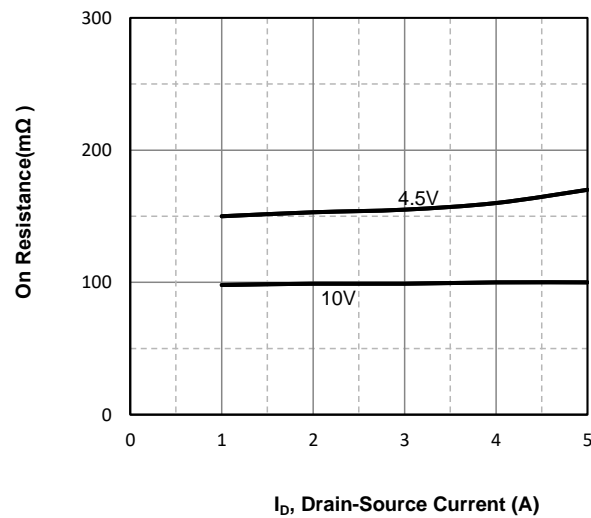


Fig4. On-Resistance Vs. Drain-Source Current

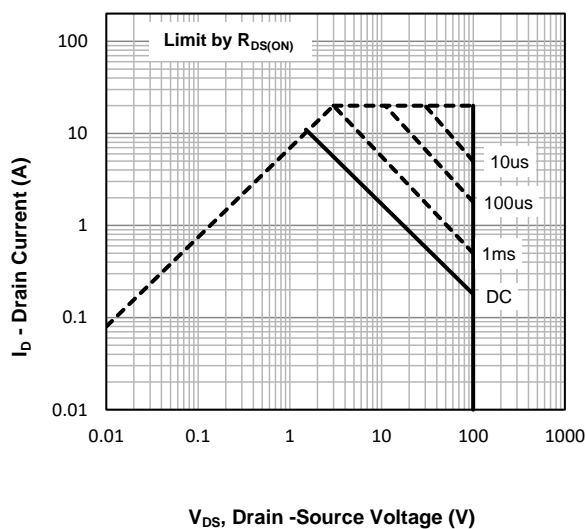


Fig5. Maximum Safe Operating Area

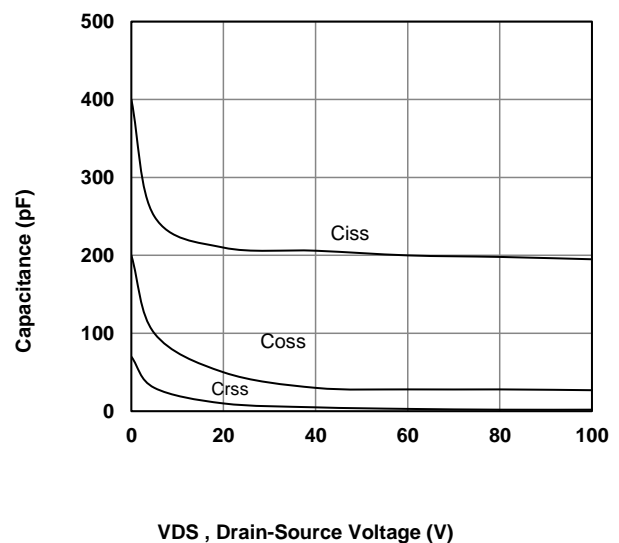
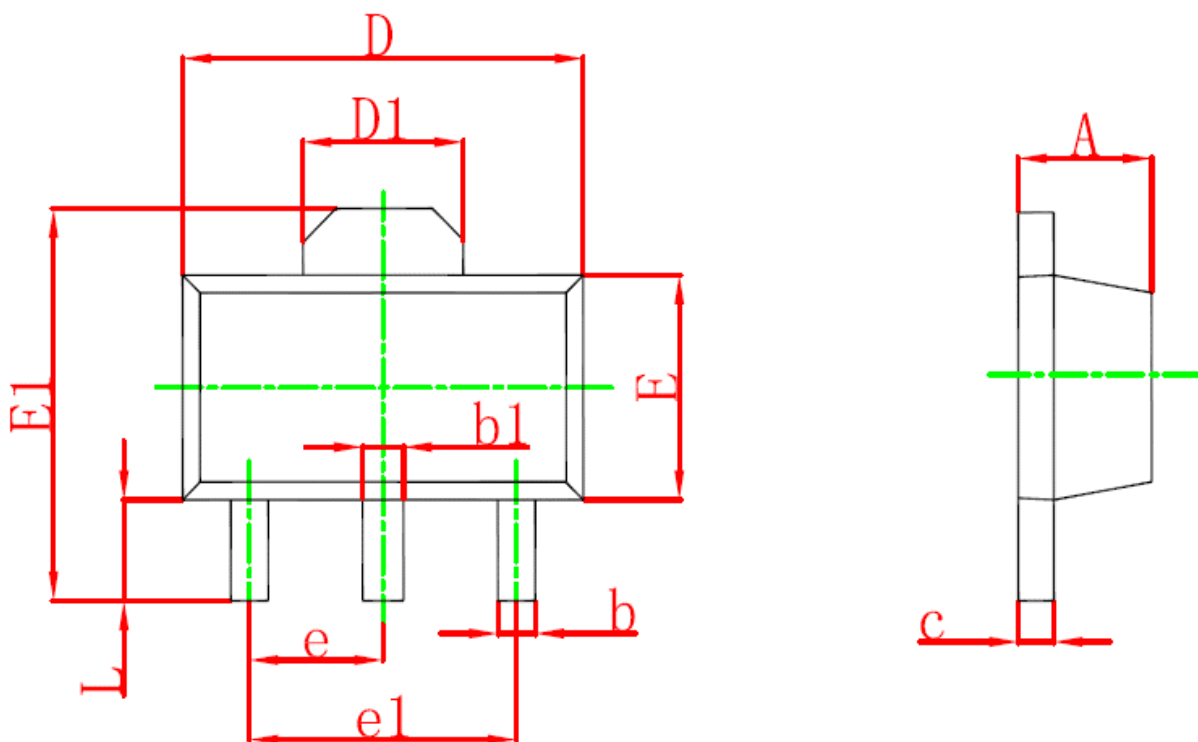


Fig6 Typical Capacitance Vs. Drain-Source Voltage

SOT-89-3L Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions in Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060 TYP	
e1	3.000 TYP		0.118 TYP	
L	0.900	1.200	0.035	0.047

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