

30V/10.5A N-Channel MOSFET

Features

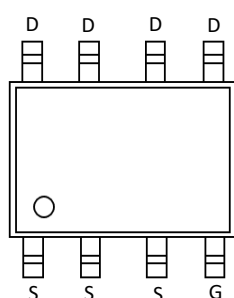
- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation

Product Summary

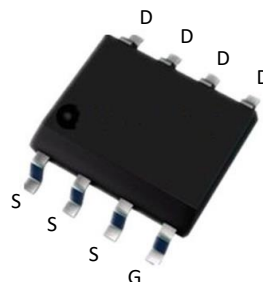
V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
30V	19mΩ@10V	10.5A
	27mΩ@4.5V	

Application

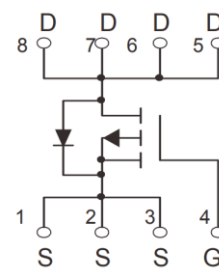
- Power switching application



Marking and pin assignment



SOP-8 top view



Schematic diagram



Pb-Free



RoHS



Halogen-Free

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

Symbol	Parameter	Rating	Unit
--------	-----------	--------	------

Common Ratings ($T_C=25^{\circ}\text{C}$ Unless Otherwise Noted)

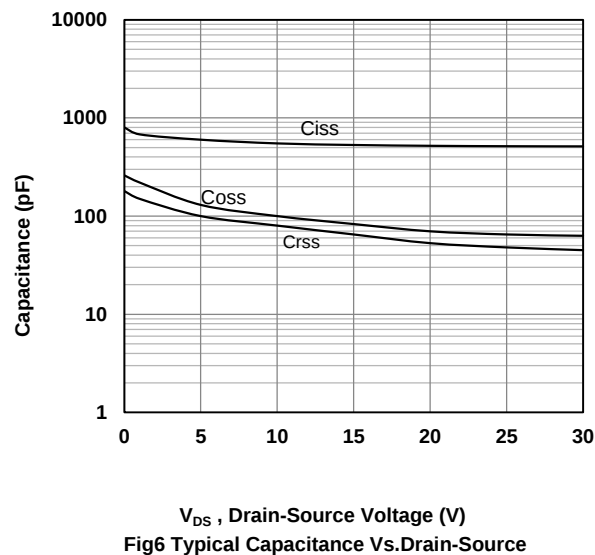
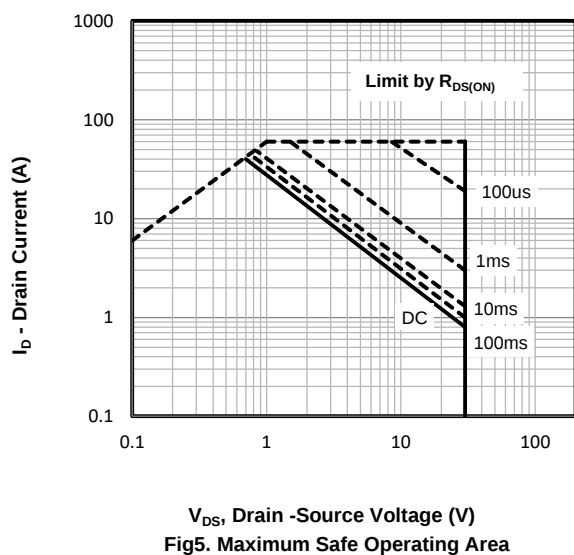
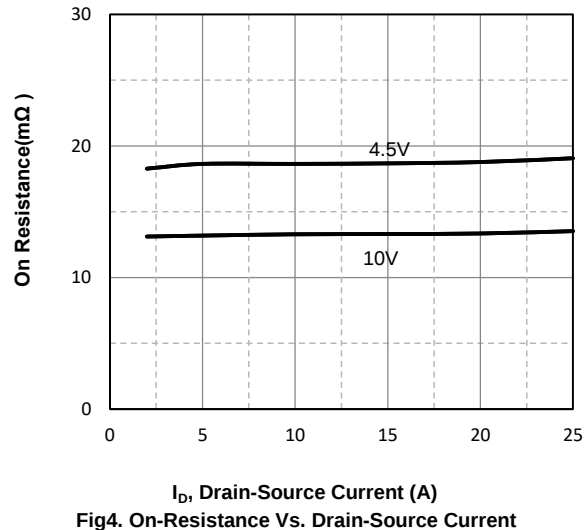
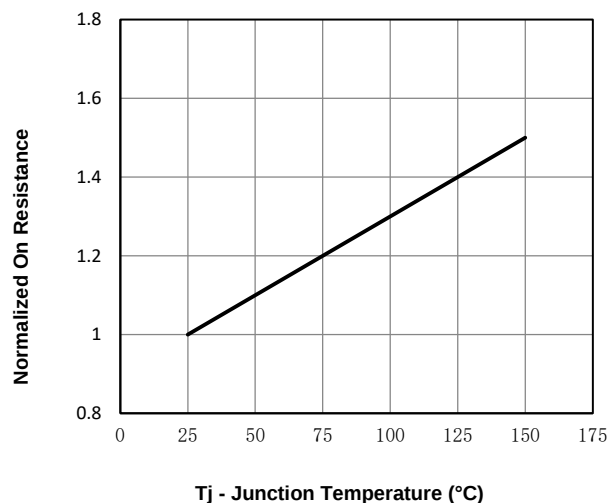
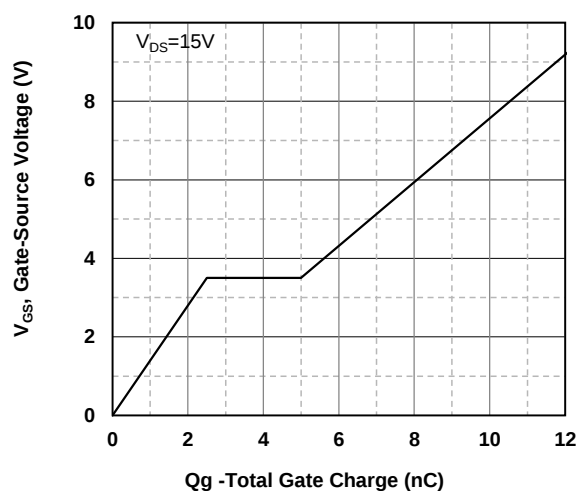
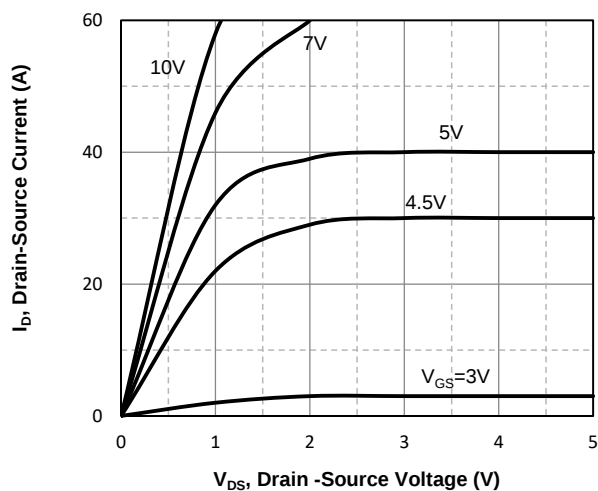
V_{DS}	Drain-Source Breakdown Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
T_J	Maximum Junction Temperature	150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range	-50 to 155	$^{\circ}\text{C}$
I_S	Diode Continuous Forward Current	$T_C=25^{\circ}\text{C}$ 10.5	A

Mounted on Large Heat Sink

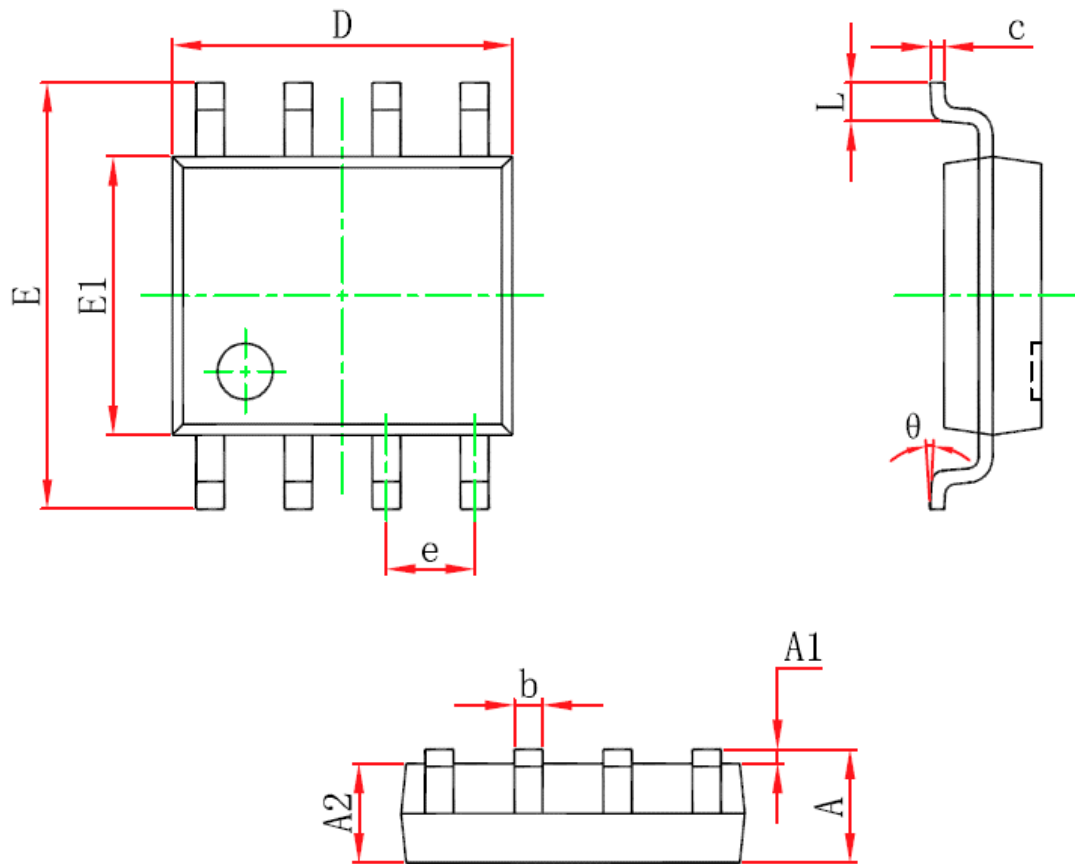
I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}\text{C}$ 50	A
I_D	Continuous Drain Current	$T_C=25^{\circ}\text{C}$ 10.5	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}\text{C}$ 2.5	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	75	$^{\circ}\text{C/W}$

Electrical Characteristics (TJ=25℃ unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
BV _{(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	--	--	1.0	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	1.0	1.5	2.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =10.5A	--	14	19	mΩ
		V _{GS} =4.5V, I _D =9A	--	20	27	mΩ
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	--	572	--	pF
C _{OSS}	Output Capacitance		--	81	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	65	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DD} =15V, I _D =10A, V _{GS} =10V	--	6.2	--	nC
Q _{gs}	Gate Source Charge		--	2.4	--	nC
Q _{gd}	Gate Drain Charge		--	2.5	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =30V, I _D =10A, V _{GS} =10V, R _G =3Ω	--	3	--	nS
t _r	Turn-on Rise Time		--	7.5	--	nS
t _{d(off)}	Turn-Off Delay Time		--	20	--	nS
t _f	Turn-Off Fall Time		--	4	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25℃, I _S =10.5A,	--	0.8	1.2	V

Typical Operating Characteristics



SOP-8 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	1.450	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.201
e	1.270(BSC)		0.050(BSC)	
E	5.800	6.200	0.028	0.035
E1	3.800	4.000	0.057	0.069
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°