

Features

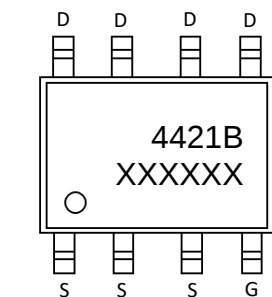
- Excellent package for good heat dissipation
- Ultra low gate charge
- Low reverse transfer capacitance
- Fast switching capability
- Avalanche energy specified

Application

- Power switching application

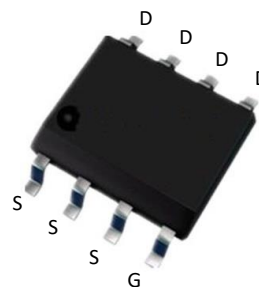
-60V/-5.0A P-Channel MOSFET Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-60V	90mΩ@10V	-5A
	150mΩ@4.5V	

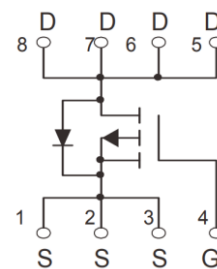


Marking and pin assignment

4421B : Device code
XXXXXX : Code



SOP-8 top view



Schematic diagram



Pb-Free



RoHS



Halogen-Free

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		-60	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	Tc=25°C	-4	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested	Tc=25°C	-21	A
I _D	Continuous Drain Current@GS=10V	Tc=25°C	-5	A
P _D	Maximum Power Dissipation	Tc=25°C	3	W
R _{θJA}	Thermal Resistance Junction-Ambient((1 in2 Pad of 2-oz Copper), Max.)		40	°C/W

Electrical Characteristics (TJ=25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	VGS=0V, ID=-250μA	-60	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	VDS=-60V, VGS=0V	--	--	-1	uA
I _{GSS}	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	VDS=VGS, ID=-250μA	-1	-1.8	-3	V
R _{DS(on)}	Drain-Source On-State Resistance	VGS=-10V, ID=-6.2A	--	70	90	mΩ
		VGS=-4.5V, ID=-5A	--	105	150	
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	VDS=-30V, VGS=0V, f=1MHz	--	987	--	pF
C _{OSS}	Output Capacitance		--	114	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	46	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	VDS=-30V, ID=-5A, VGS=-10V	--	15.8	--	nC
Q _{gs}	Gate Source Charge		--	3	--	nC
Q _{gd}	Gate Drain Charge		--	3.5	--	nC
t _{d(on)}	Turn-on Delay Time	VDS=-30V, ID=-5A, VGS=-10V, RG=3Ω	--	9	--	nS
t _r	Turn-on Rise Time		--	10	--	nS
t _{d(off)}	Turn-Off Delay Time		--	25	--	nS
t _f	Turn-Off Fall Time		--	11	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=-1A,	--	-0.8	-1.2	V

Typical Operating Characteristics

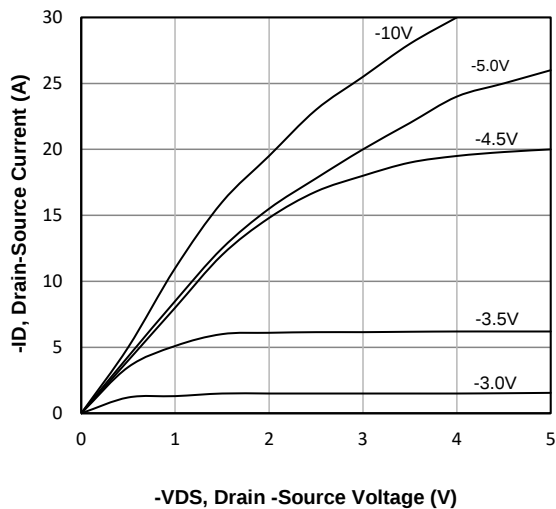


Fig1. Typical Output Characteristics

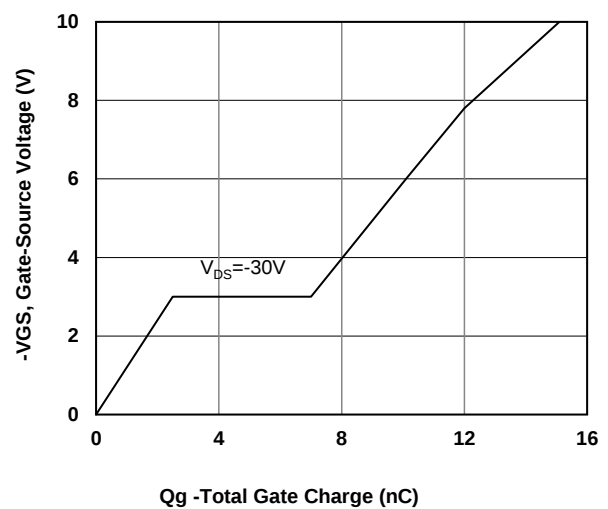


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

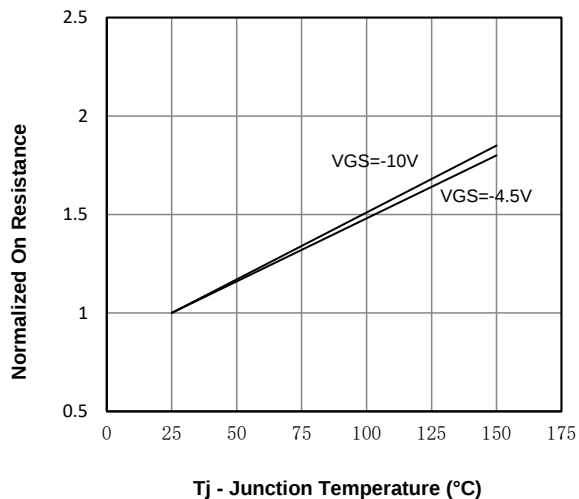


Fig3. Normalized On-Resistance Vs. Temperature

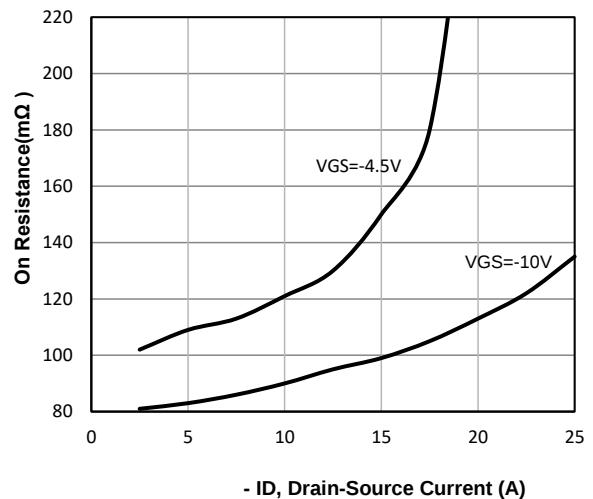


Fig4. On-Resistance Vs. Drain-Source Current

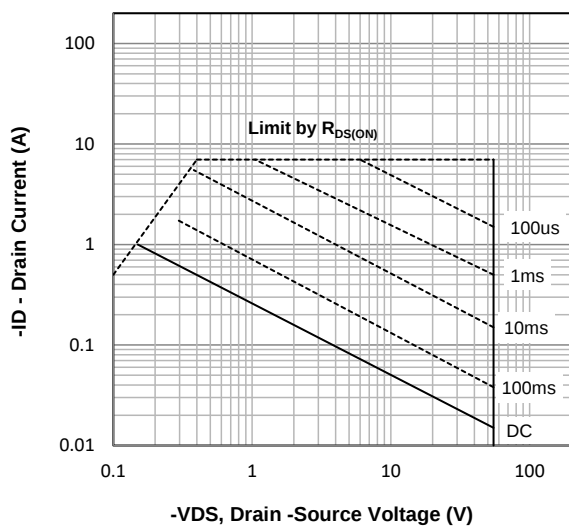


Fig5. Maximum Safe Operating Area

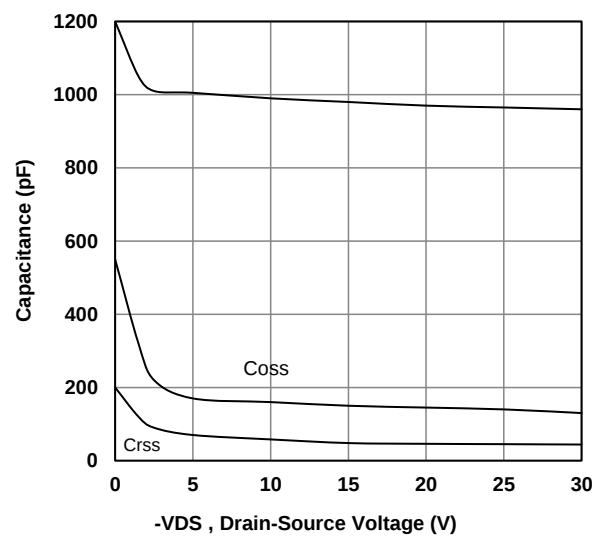
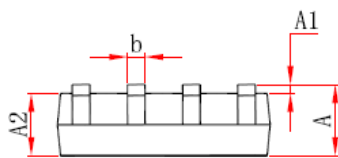
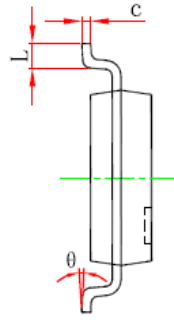
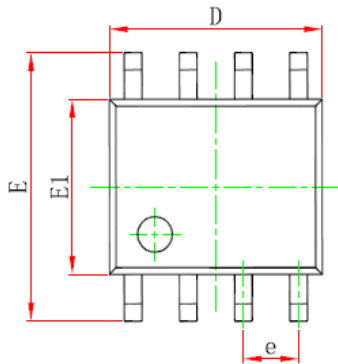


Fig6. Typical Capacitance Vs. Drain-Source Voltage

SOP-8 Package information



Symbol	Dimensions In Millimeters		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	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°