



SSC8K21GN3

P-Channel Enhancement Mode MOSFET with Schottky Diode

➤ **Features**

P-Channel

VDS	VGS	RDS(on) Typ.	ID
-20V	±8V	130mR@-4V5	-2A
		170mR@-2V5	
		230mR@-1V8	

Schottky

VR	IR	VF Typ.	IO
20V	15uA	410mV @0.5A	1A

➤ **Description**

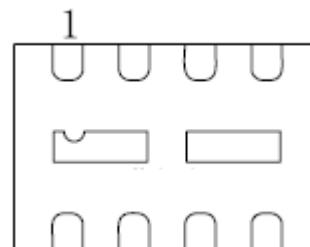
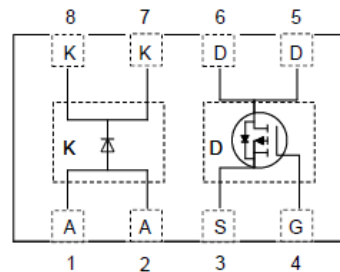
SSC8K21GN3 combines an P-Channel enhancement mode power MOSFET which is produced with high cell density and DMOS trench technology and a low forward voltage schottky diode. The tiny and thin outline saves PCB consumption.

➤ **Applications**

- Li-Battery Charging
- High Side DC/DC Converter
- High Side Driver for Brushless DC motor
- Power Management in Portable, Battery Powered Devices

➤ **Pin configuration**

Top view



Bottom View



Marking

➤ **Ordering Information**

Device	Package	Shipping
SSC8K21GN3	DFN3X2	3000/Reel



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

Symbol	Parameter	Ratings	Unit
P-MOS			
V_{DSS}	Drain-to-Source Voltage	-20	V
V_{GSS}	Gate-to-Source Voltage	± 8	V
I_D	Continuous Drain Current	-2	A
I_{DM}	Pulsed Drain Current	-8	A
Schottky Diode			
V_R	Schottky Reverse Voltage	20	V
I_F	Schottky Continuous Forward Current	1	A
Power Dissipation and Temperature			
P_D	Power Dissipation	2.2	W
T_J	Operation junction temperature	-55 to 150	$^{\circ}\text{C}$
T_{STG}	Storage temperature range	-55 to 150	$^{\circ}\text{C}$

➤ **Thermal Resistance Ratings**($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance	59	$^{\circ}\text{C}/\text{W}$

➤ **Electronics Characteristics**($T_A=25^{\circ}\text{C}$ unless otherwise noted)

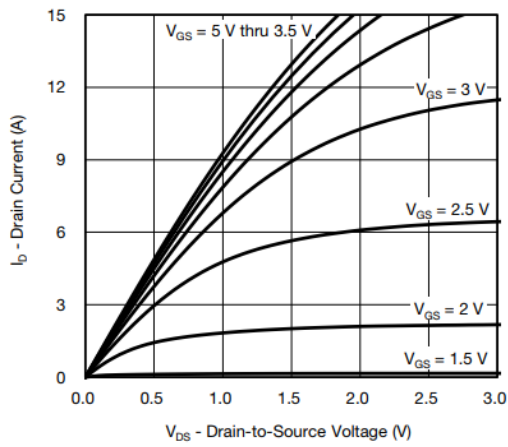
Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
Schottky						
BV	Reverse Breakdown Voltage	$I_R=100\mu\text{A}$	20			V
VF	Forward Voltage Drop	$I_F=0.5\text{A}$		0.41	0.45	V
IR	Maximum reverse leakage current	$V_R=20\text{V}$		15	200	μA



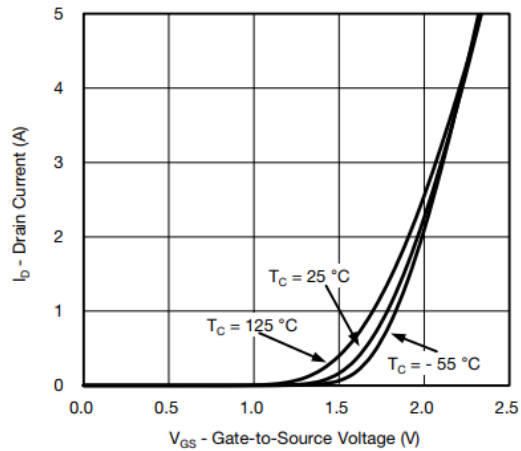
Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
P-Channel Enhancement Mode MOSFET						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-20			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.5	-0.6	-1.2	V
$R_{DS(on)}$	Drain-Source On- Resistance	$V_{GS}=-4.5V, I_D=-0.5A$		130	190	mR
		$V_{GS}=-2.5V, I_D=-0.5A$		170	250	
		$V_{GS}=-1.8V, I_D=-0.5A$		230	500	
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-20V, V_{GS}=0V$			-1	μA
I_{GSS}	Gate-Source leak current	$V_{GS}=\pm 8V, V_{DS}=0V$			± 100	nA
G_{FS}	Transconductance	$V_{DS}=-10V, I_D=-1.7A$		7		S
V_{SD}	Forward Voltage	$V_{GS}=0V, I_S=-1A$			1.3	V
C_{iss}	Input Capacitance	$V_{DS}=-10V, V_{GS}=0V,$ $f=1MHz$		476		pF
C_{oss}	Output Capacitance			187		
C_{rss}	Reverse Transfer Capacitance			78		
$T_{D(ON)}$	Turn-on delay time	$V_{DS}=-6V, V_{GS}=-4.5V,$ $R_L=6R, R_G=6R, I_D=-1A$		19		ns
T_r	Turn-on rise time			31		
$T_{D(OFF)}$	Turn-off delay time			168		
T_f	Turn-off fall time			102		



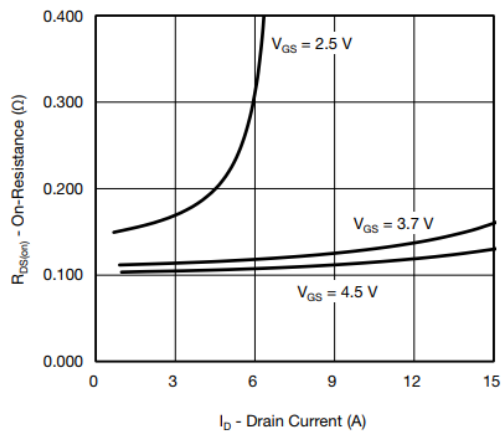
➤ **Typical Characteristics** ($T_A=25^\circ\text{C}$ unless otherwise noted)



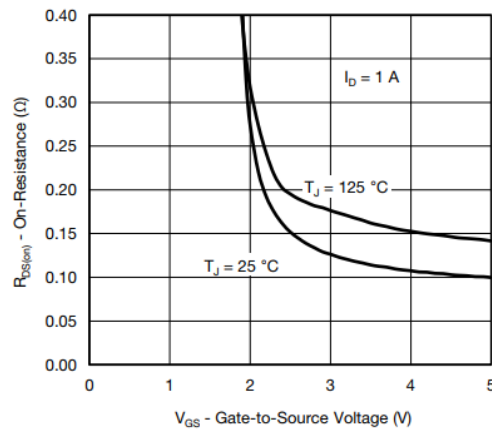
Output Characteristics



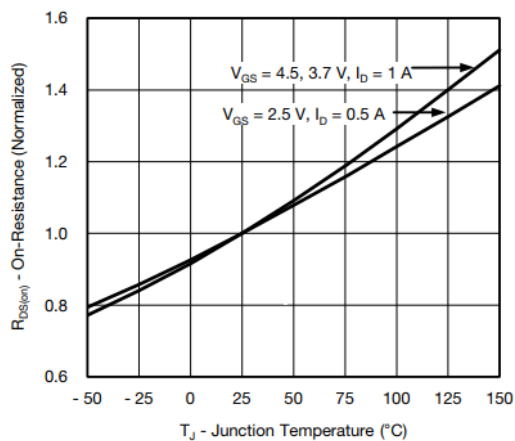
Transfer Characteristics



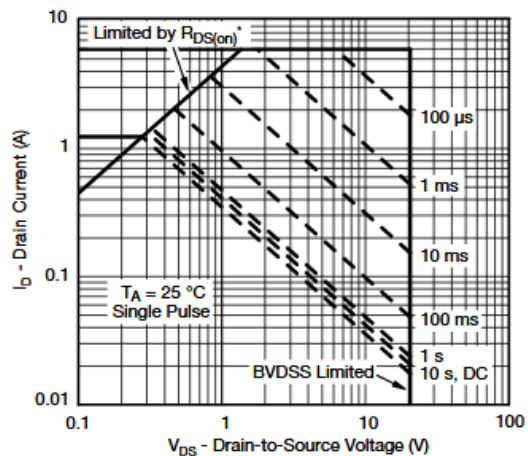
On-Resistance vs. Drain Current and Gate Voltage



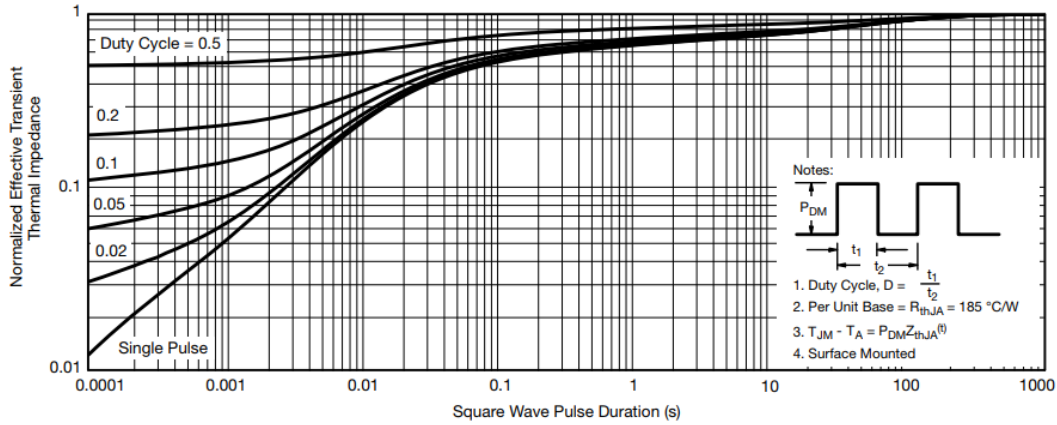
On-Resistance vs. Gate-to-Source Voltage



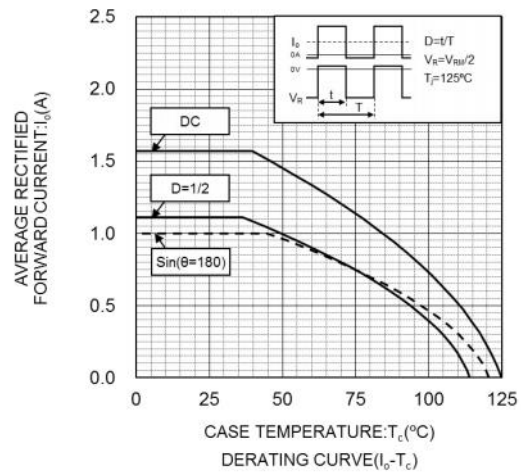
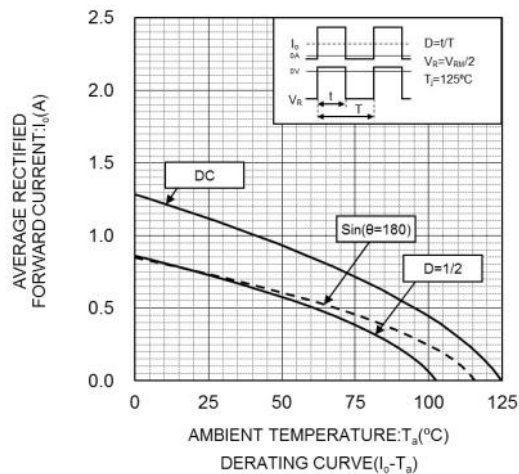
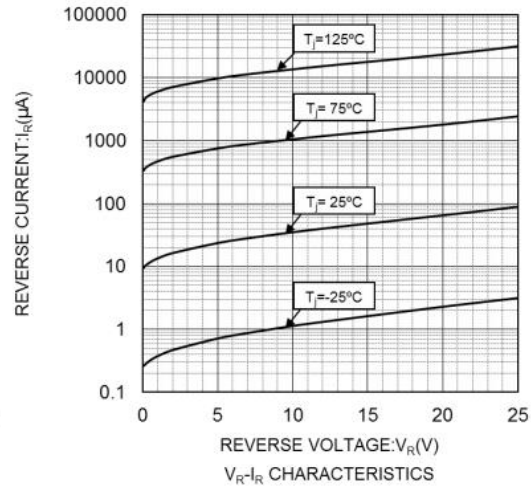
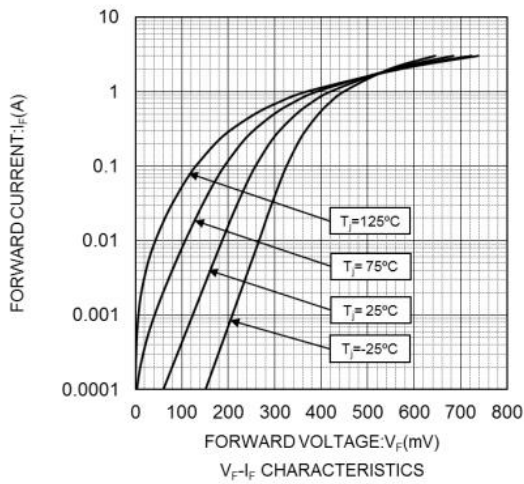
On-Resistance vs. Junction Temperature



Safe Operating Area, Junction-to-Ambient

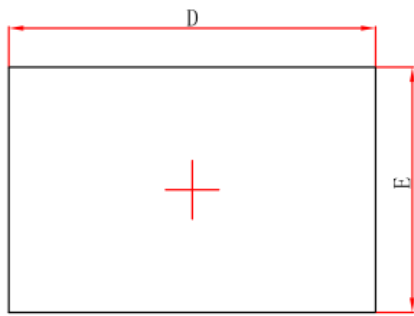


Normalized Thermal Transient Impedance, Junction-to-Ambient

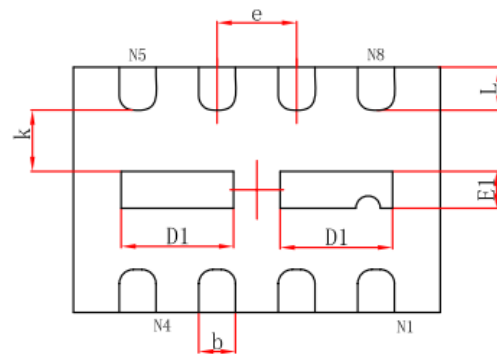




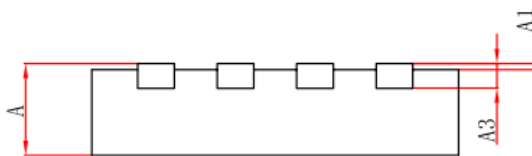
➤ Package Information



Top View



Bottom View



Side View

DFN3X2-8L

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700/0.800	0.800/0.900	0.028/0.031	0.031/0.035
A1	0.000	0.050	0.000	0.002
A3	0.153	0.253	0.006	0.010
D	2.9	3.1	0.114	0.122
E	1.9	2.1	0.075	0.083
D1	0.82	1.020	0.032	0.040
E1	0.200	0.400	0.008	0.016
k	0.300MIN.		0.010MIN.	
b	0.250	0.350	0.010	0.014
e	0.650TYP.		0.026TYP.	
L	0.250	0.350	0.010	0.014



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