

P-Channel Enhancement Mode MOSFET with Schottky Diode

- Features**

P-MOSFET

VDS	VGS	RDSon TYP	ID
-20V	±8V	135mR@-4V5	-2A
		180mR@-2V5	
		240mR@-1V8	

Schottky

VR	IR	VF	IO
20V	35uA	410mV@0.5A	1A

- General Description**

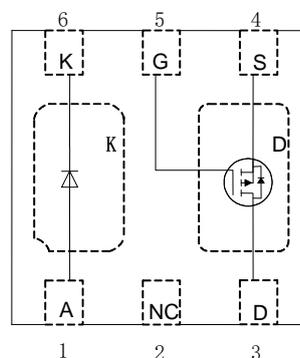
SSC8K23GN2 combines a P-Channel enhancement mode power MOSFET which is produced with high cell density and DMOS trench technology and a low forward voltage schottky diode. the tiny and thin outline saves PCB consumption.

- Applications**

- Bidirectional blocking switch;
- DC-DC conversion applications;
- Li-battery charging;

- Pin configuration**

Top View



- Package Information**

Mechanical drawing of the SSC8K23GN2 package showing dimensions A through L. The drawing includes a top view and a side view. Dimensions A, B, C, D, E, G, H, I, J, K, and L are indicated with arrows and labels.

ackage:DFN2x2			
Unit:mm			
Dim	Min	Typ	Max
A	1.95	2	2.08
B	1.95	2	2.08
C	0.5	0.6	0.7
D	0.9	1	1.1
E	0.545	0.575	0.605
F	-	0.13	-
G	0.2	0.25	0.3
H	0.25	0.3	0.35
I	-	0.65	-
J	-	0.45	-
K	-	0.15	-
L	-	0.23	-



SSC8K23GN2

● **Absolute Maximum Ratings** @ $T_A=25^\circ\text{C}$ unless otherwise noted

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	± 8	
Drain Current (Note 1)	Continuous	I_D	-2	A
	Pulsed		-8	
Schottky Reverse Voltage		V_R	20	V
Schottky Continuous Forward Current		I_F	1	A
Power Dissipation Derating above $T_A = 25^\circ\text{C}$ (Note 2)		P_d	1.1	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Note1: Devices mounted on FR4 PCB with minima soldering pad;

Note2: For a single chip.

● **Electrical Characteristics** @ $T_A=25^\circ\text{C}$ unless otherwise noted

Parameter (Note 3)	Symbol	Test Conditions	Min	Typ	Max	Unit
P-channel MOSFET						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu\text{A}$	-20	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$	--	--	1	μA
Gate-Body Leakage	I_{GSS}	$V_{GS} = \pm 8V, V_{DS} = 0V$	--	--	± 100	nA
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	-0.50	-0.70	-1.20	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$I_D = -1A, V_{GS} = -4.5V$	--	135	190	mR
		$I_D = -1A, V_{GS} = -2.5V$	--	180	250	
		$I_D = -1A, V_{GS} = -1.8V$	--	240	500	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -6V, R_L = 6R, I_D = -1A,$ $V_{GEN} = -4.5V, R_G = 6R$	--	20	--	ns
Turn-On Rise Time	t_r		--	18	--	
Turn-Off Delay Time	$t_{d(off)}$		--	300	--	
Turn-Off Fall Time	t_f		--	120	--	
Input Capacitance	C_{ISS}	$V_{DS} = -6V, V_{GS} = 0V,$ $f = 1.0\text{ MHz}$	--	450	--	pF
Output Capacitance	C_{OSS}		--	180	--	
Reverse Transfer Capacitance	C_{RSS}		--	90	--	
Schottky Diode						
Forward Voltage Drop	V_F	$I_F=1A$	--	0.41	0.45	V
Maximum reverse leakage current	I_R	$V_R=20V$	--	35	200	μA

Note3: Short duration test pulse used to minimize self-heating effect.

● Typical Performance Characteristics of P-Channel MOSFET

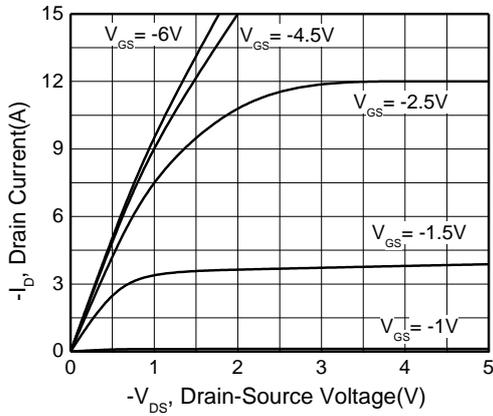


Fig 1. Output Characteristics

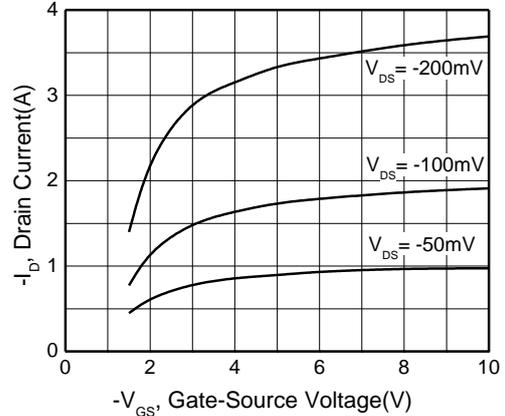


Fig 2. Transfer Characteristics

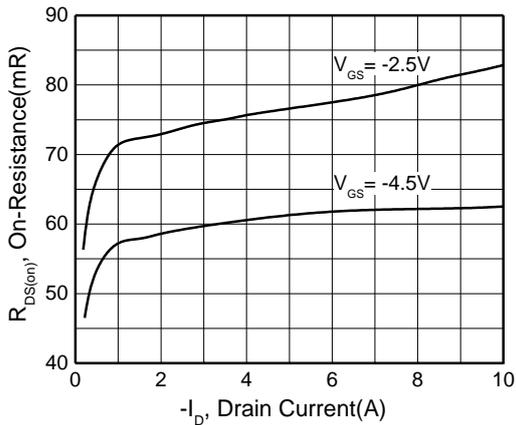


Fig 3. On-Resistance vs. Drain Current

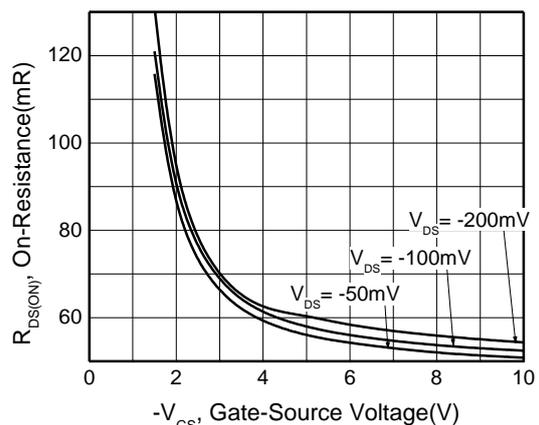


Fig 4. On-Resistance vs. Gate-Source Voltage

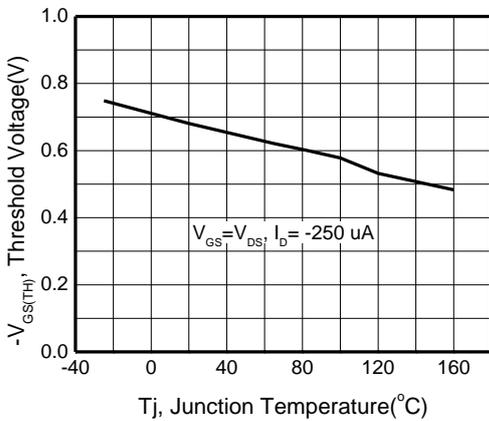


Fig 5. Threshold Voltage

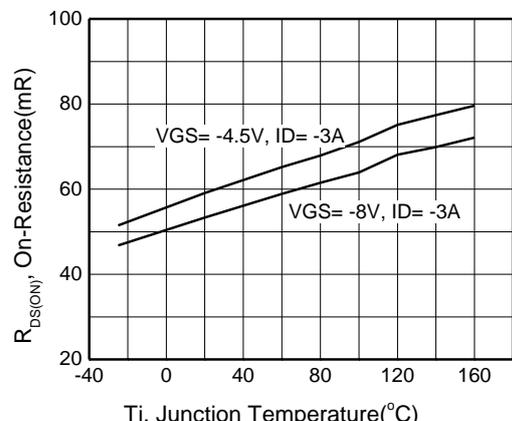


Fig 6. On-Resistance Temperature Coefficient

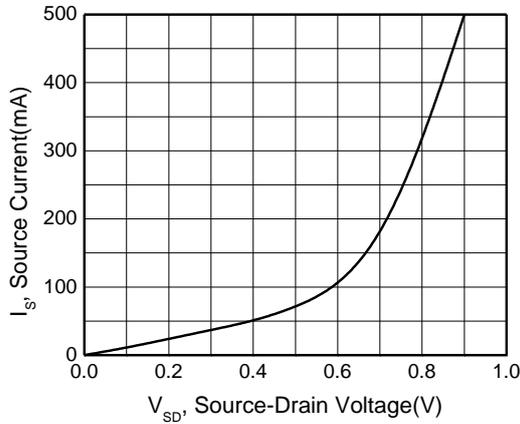


Fig 7. Body Diode Forward Characteristics

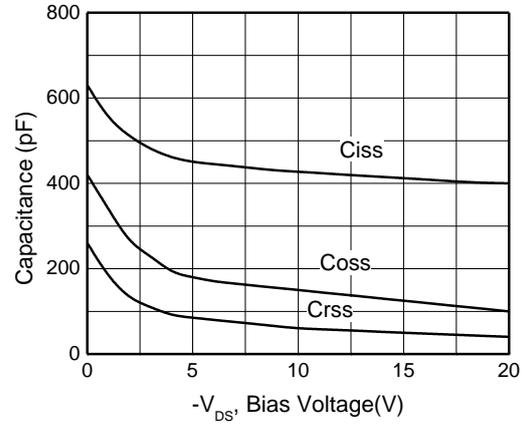


Fig 8. Capacitance

● **Typical Performance Characteristics of Schottky**

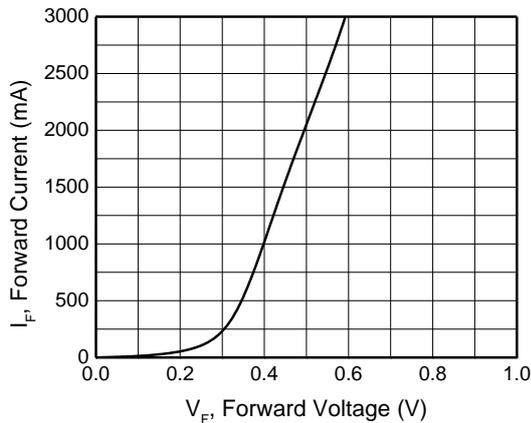


Figure 9. Schottky Forward Characteristics

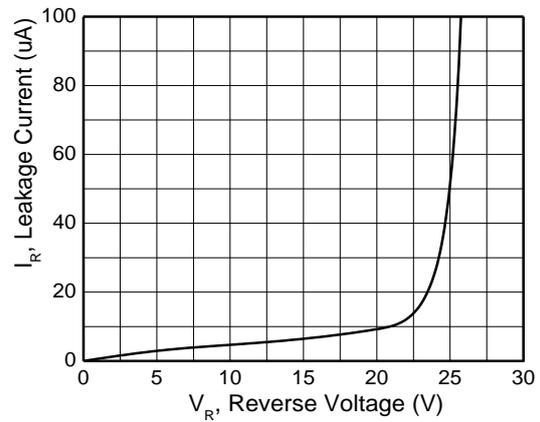


Figure 10. Schottky Reverse Characteristics

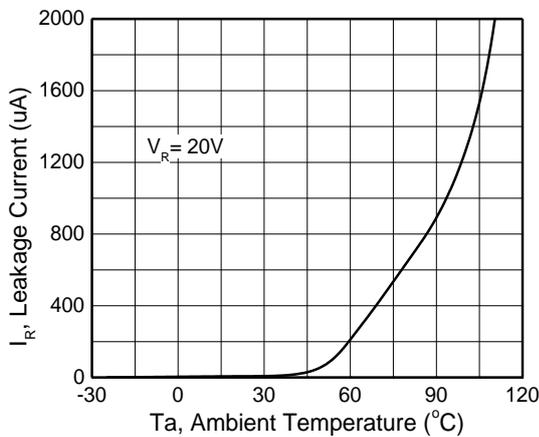


Figure 11. Leakage Current Vs. Temperature



SSC8K23GN2

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