SSC8L40PN6

N-Channel Enhancement Mode MOSFET

➢ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
40V	±20V	1.2mΩ@10V	222A
		1.8mΩ@4V5	

➢ Description

This device is N-Channel enhancement MOSFET. Uses SGT technology and design to provide excellent RDSON with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit.

100% UIS + ΔVDS + Rg Tested!

➢ Applications

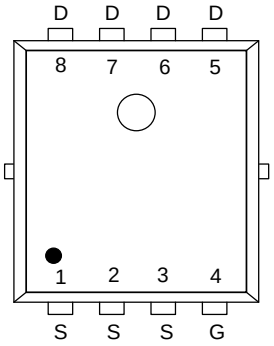
- DC/DC converters
- Power supplies
- Motor Drive Control
- Synchronous rectification

➢ Ordering Information

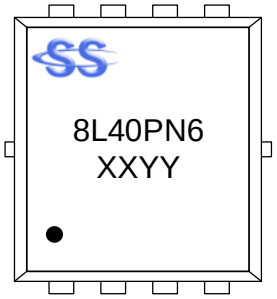
Device	Package	Shipping
SSC8L40PN6	PDFN5X6-8L	5000/Reel

➢ Pin Configuration

PDFN5X6-8L



Pin Configuration (Top View)



Marking

(XXYY: Internal Traceability Code)

➢ Absolute Maximum Ratings (T_A=25℃ unless otherwise noted)

Symbol	Parameter		Ratings	Unit
V_{DSS}	Drain-to-Source Voltage		40	V
V_{GSS}	Gate-to-Source Voltage		±20	V
I_D	Continuous Drain Current [d]	T_C=25℃	222	A
		T_C=100℃	123	
I_{DSM}	Continuous Drain Current [a]	T_A=25℃	36	A
		T_A=70℃	26	
I_{DM}	Pulsed Drain Current [b]		888	A
P_D	Power Dissipation [c]	T_C=25℃	96	W
		T_C=100℃	39	
P_{DSM}	Power Dissipation [a]	T_A=25℃	2.5	W
		T_A=70℃	1.6	
I_{AS}	Avalanche Current [b] L=0.5mH Single Pulse		26	A
E_{AS}	Avalanche Energy [b] L=0.5mH Single Pulse		169	mJ
T_J	Operation junction temperature		-55~150	℃
T_{STG}	Storage temperature range		-55~150	

➢ Thermal Resistance Ratings (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]	50	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	1.3	

Note:

a. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in^2 FR-4 board with 2oz.copper, in a still air environment with T_A=25℃.The value in any given application depends on the user is specific board design. The power dissipation is based on the t≤10s thermal resistance rating.

b. Repetitive rating, pulse width limited by junction temperature.

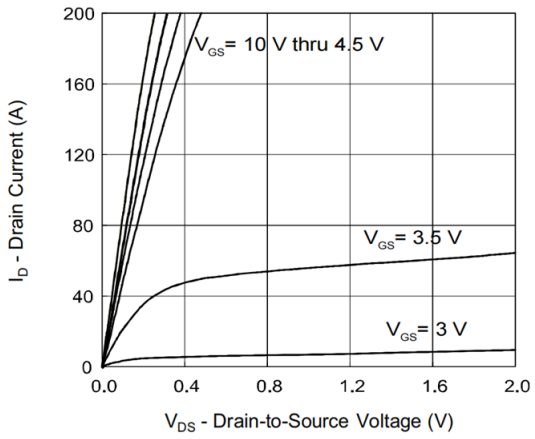
c. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

d. The maximum current rating is package limited.

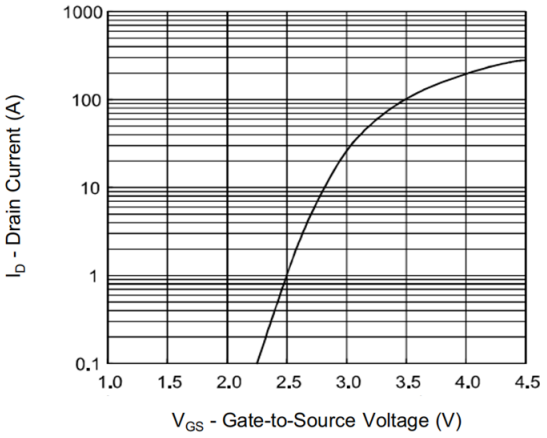
➢ Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	40			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	1.4	1.8	2.4	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 30A		1.2	1.7	mΩ
		V_{GS} = 4.5V, I_D = 20A		1.8	2.8	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 40V, V_{GS} = 0V			1	μA
Gate-Source Leak Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = 10A		0.76	1.4	V
Gate Resistance	R_G	V_{DS} = 0V, f = 1MHz		1.2		Ω
Input Capacitance	C_{ISS}	V_{DS} = 20V, V_{GS} = 0V, f = 1MHz		4275		pF
Output Capacitance	C_{OSS}			1751		
Reverse Transfer Capacitance	C_{RSS}			136		
Total Gate Charge	Q_G	V_{GS} = 10V, V_{DS} = 20V, I_D = 20A		72		nC
Gate to Source Charge	Q_{GS}			24		
Gate to Drain Charge	Q_{GD}			8		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = 10V, V_{DS} = 20V, R_L = 1Ω, R_G = 3Ω		20		ns
Rise Time	T_r			63		
Turn-off Delay Time	$T_{D(OFF)}$			58		
Fall Time	T_f			16		
Diode Recovery Time	T_{rr}	I_F=20A, di/dt=500A/us		58		ns
Diode Recovery Charge	Q_{rr}	I_F=20A, di/dt=500A/us		67		nC

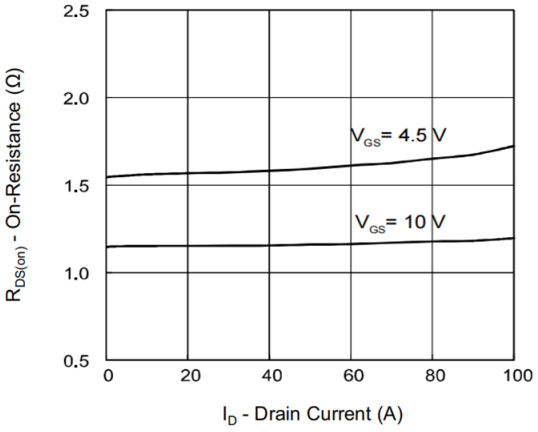
➢ Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



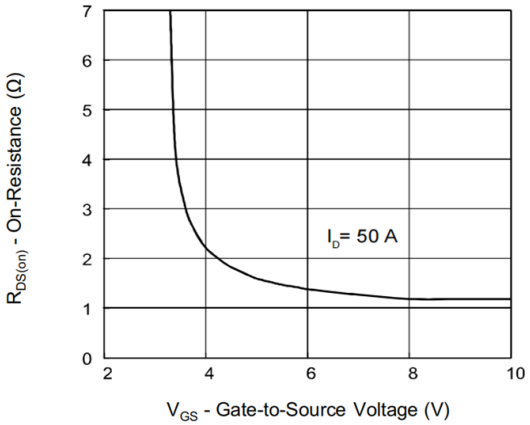
Output Characteristics



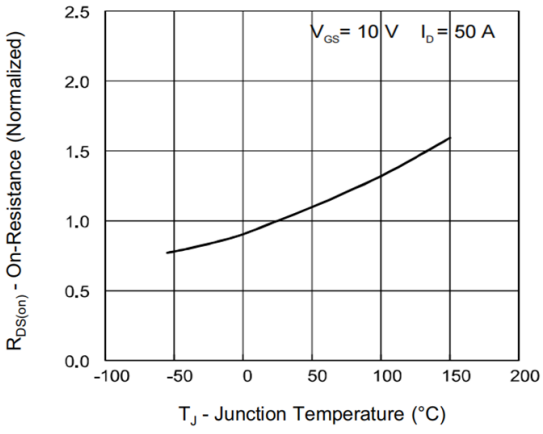
Transfer Characteristics



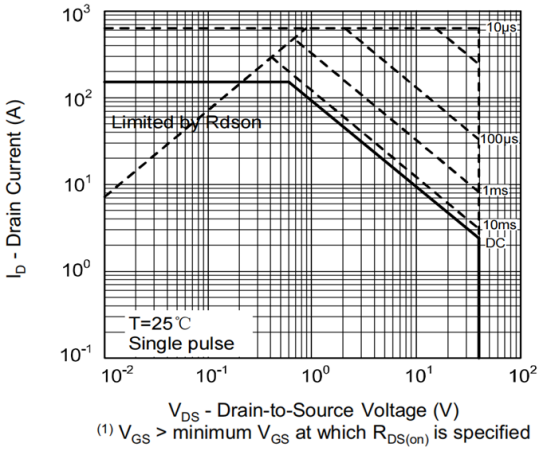
On-Resistance vs. Drain Current



On-Resistance vs. Gate-to-Source Voltage



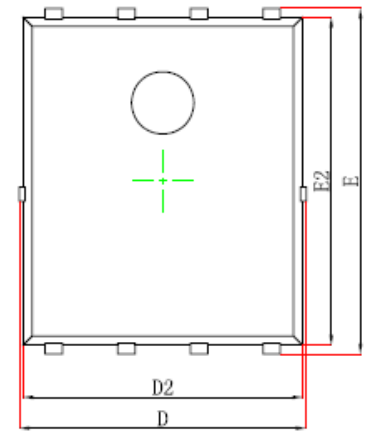
On-Resistance vs. Junction Temperature



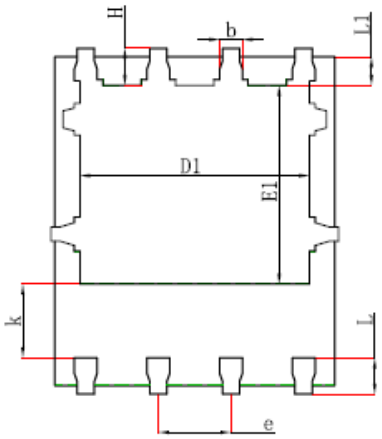
(1) V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area

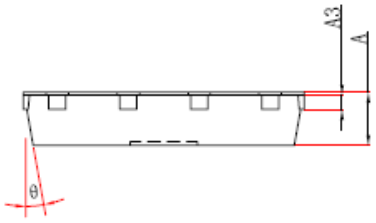
➢ Package Information



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Package：PDNF5X6-8L

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF		0.010REF	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP		0.050TYP	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°

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