



## SSC8140GN6

### N-Channel Enhanced MOSFET

#### ➤ Features

VDS	VGS	RDS(on) Typ.	ID
40V	±20V	4mR@10V	78A
		5.5mR@4V5	

#### ➤ Description

This device is N-Channel enhancement MOSFET. Uses advanced trench technology and design to provide excellent RDS(on) with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit. 100% UIS Tested.

#### ➤ Applications

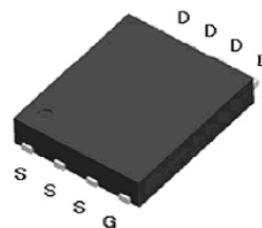
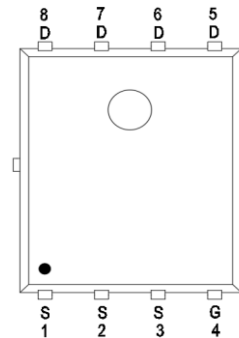
- DC/DC converters
- Power supplies
- Motor Drive Control
- Synchronous rectification

#### ➤ Ordering Information

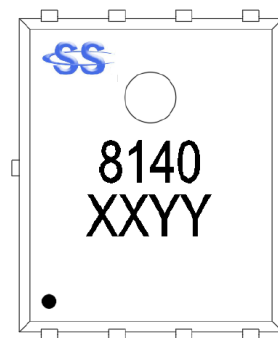
Device	Package	Shipping
SSC8140GN6	PDFN5X6	5000/Reel

#### ➤ Pin configuration

Top view



PDFN5X6



Marking

(XX: product year / YY: product week)



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

Symbol	Parameter	Ratings	Unit	
$V_{DSS}$	Drain-to-Source Voltage	40	V	
$V_{GSS}$	Gate-to-Source Voltage	$\pm 20$	V	
$I_D$	Continuous Drain Current <sup>d</sup>	$T_C=25^{\circ}\text{C}$	78	A
		$T_C=100^{\circ}\text{C}$	33	
$I_{DSM}$	Continuous Drain Current <sup>a</sup>	$T_A=25^{\circ}\text{C}$	25	A
		$T_A=70^{\circ}\text{C}$	16	
$I_{DM}$	Pulsed Drain Current <sup>b</sup>	310	A	
$P_D$	Power Dissipation <sup>c</sup>	$T_C=25^{\circ}\text{C}$	46	W
		$T_C=100^{\circ}\text{C}$	18	
$P_{DSM}$	Power Dissipation <sup>a</sup>	$T_A=25^{\circ}\text{C}$	4.8	W
		$T_A=70^{\circ}\text{C}$	3	
$I_{AS}$	Avalanche Current <sup>b</sup> L=0.5mH Single Pulse	34	A	
$E_{AS}$	Avalanche Energy <sup>b</sup> L=0.5mH Single Pulse	289	mJ	
$T_J$	Operation junction temperature	-55~150	$^{\circ}\text{C}$	
$T_{STG}$	Storage temperature range	-55~150		

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

Symbol	Parameter	Ratings	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance <sup>a</sup>	26	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	2.7	

Note:

- The value of  $R_{\theta JA}$  is measured with the device mounted on 1 in<sup>2</sup> FR-4 board with 2oz.copper, in a still air environment with  $T_A=25^{\circ}\text{C}$ . The value in any given application depends on the user is specific board design. The power dissipation is based on the  $t \leq 10\text{s}$  thermal resistance rating.
- Repetitive rating, pulse width limited by junction temperature.
- The power dissipation  $P_D$  is based on  $T_{J(\text{MAX})}=150^{\circ}\text{C}$ , using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.
- The maximum current rating is package limited.

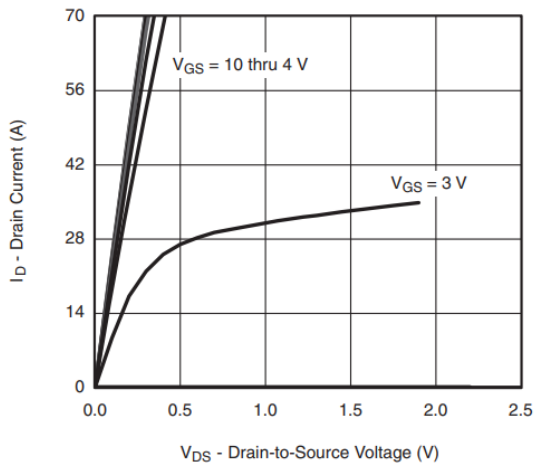


➤ **Electronics Characteristics**( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

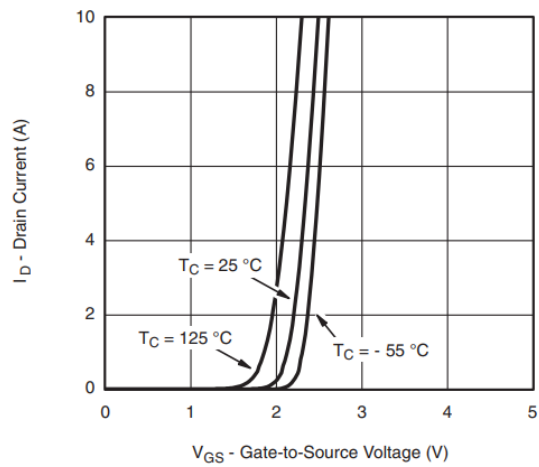
Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	40			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.1	1.5	2.2	V
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=30A$		4	5.4	mR
		$V_{GS}=4.5V, I_D=20A$		5.5	8	
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=32V, V_{GS}=0V$			1	$\mu A$
$I_{GSS}$	Gate-Source leak current	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 100$	nA
$G_{FS}$	Transconductance	$V_{DS}=5V, I_D=20A$		35		S
$V_{SD}$	Forward Voltage	$V_{GS}=0V, I_S=20A$		0.8	1.3	V
$R_g$	Gate Resistance	$V_{DS}=0V, f=1MHz$		2		R
$C_{iss}$	Input Capacitance	$V_{DS}=20V, V_{GS}=0V, f=1MHz$		3020		pF
$C_{oss}$	Output Capacitance			357		
$C_{rss}$	Reverse Capacitance			52		
$T_{D(ON)}$	Turn-on delay time	$V_{GS}=10V, R_L=2R$ $V_{DS}=20V, R_G=1R$		10		ns
$T_r$	Rise time			15		
$T_{D(OFF)}$	Turn-off delay time			24		
$T_f$	Fall time			7		
$Q_G$	Total Gate Charge	$V_{GS}=10V, V_{DS}=20V$ $I_D=20A$		41		nC
$Q_{GS}$	Gate Source Charge			8		
$Q_{GD}$	Gate Drain Charge			4		
$T_{rr}$	Diode Recovery Time	$I_F=10A, di/dt=100A/\mu s$		30		ns
$Q_{rr}$	Diode Recovery Charge	$I_F=10A, di/dt=100A/\mu s$		22		nC



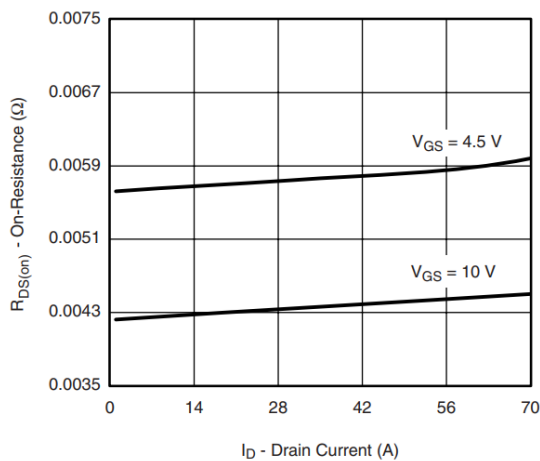
➤ **Typical Characteristics** ( $T_A=25^\circ\text{C}$  unless otherwise noted)



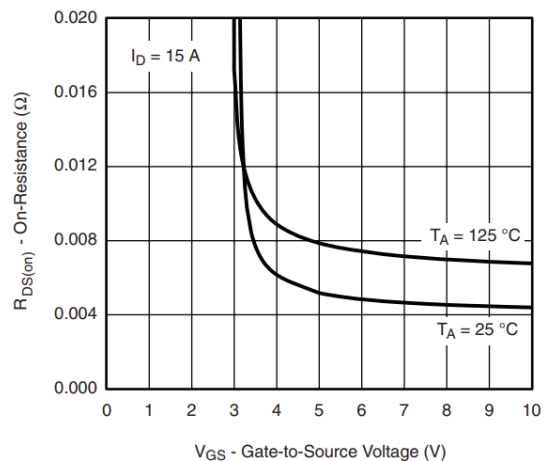
**Output Characteristics**



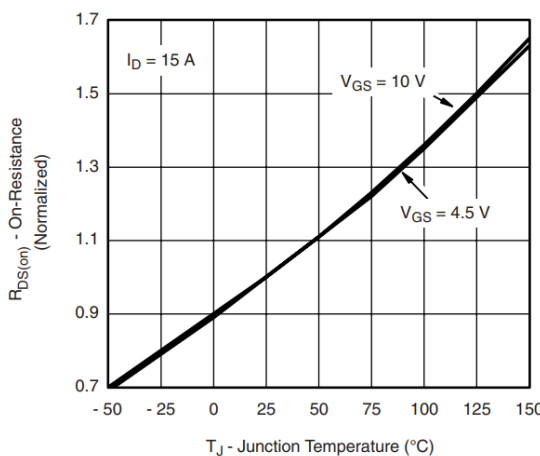
**Transfer Characteristics**



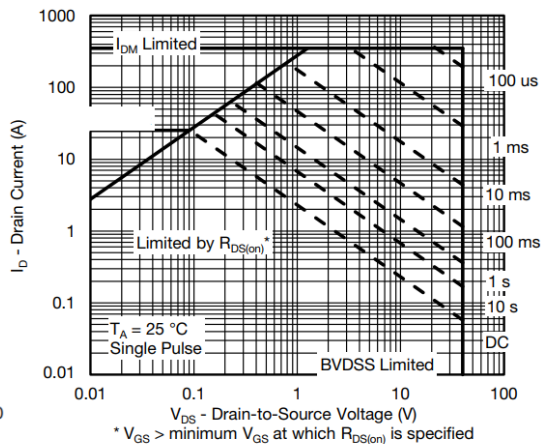
**On-Resistance vs. Drain Current and Gate Voltage**



**On-Resistance vs. Gate-to-Source Voltage**



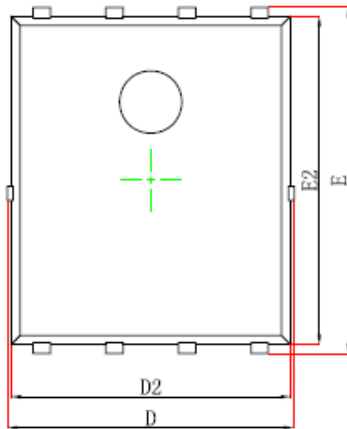
**On-Resistance vs. Junction Temperature**



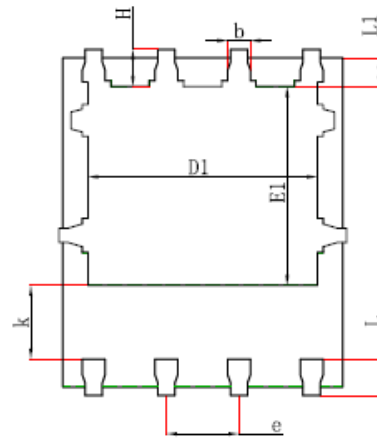
**Safe Operating Area, Junction-to-Ambient**



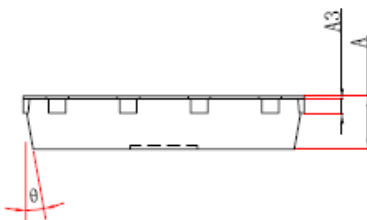
➤ Package Information



Top View  
[顶视图]



Bottom View  
[背视图]



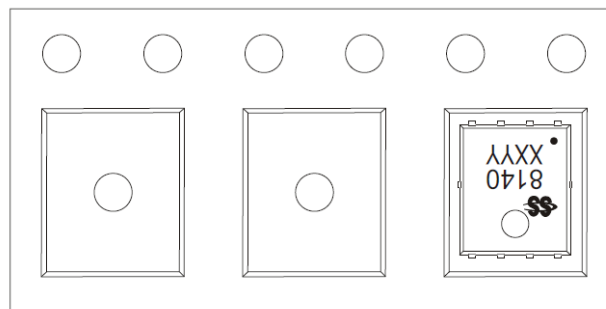
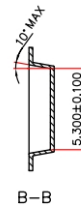
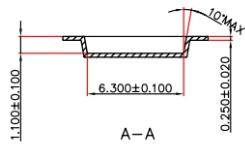
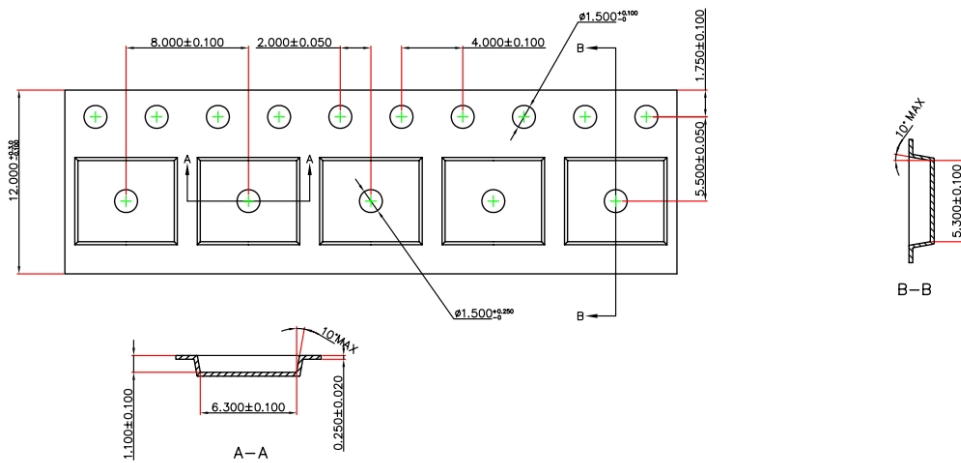
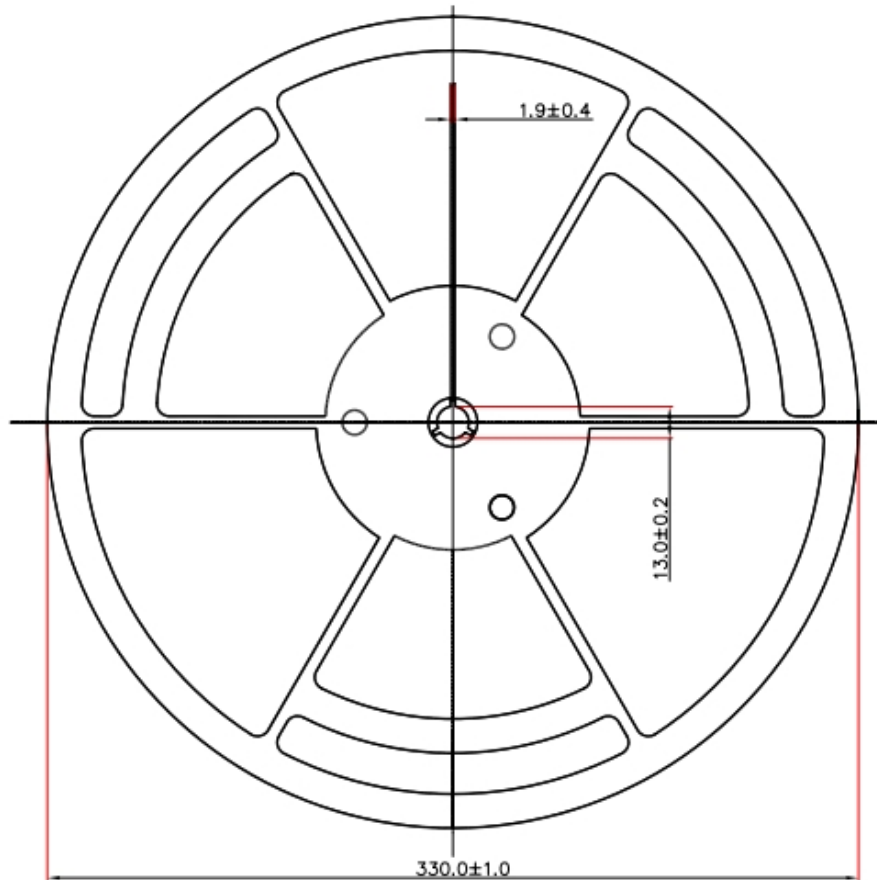
Side View  
[侧视图]

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°



➤ Tape and Reel





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