



# SSC8039HN6

## P-Channel Enhanced MOSFET

### ➤ Features

VDS	VGS	RDSON Typ.	ID
-30V	±20V	7mΩ@-10V	-64A
		8.5mΩ@-4V5	

### ➤ Description

The SSC8039HN6 is P-Channel enhancement MOSFET. Uses advanced trench 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 + DVDS Tested.

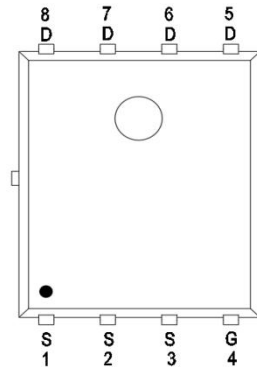
### ➤ Applications

- DC/DC conversion
- Power management in portable
- Load/Power Switching for portable device

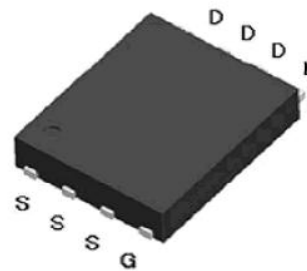
### ➤ Ordering Information

Device	Package	Shipping
SSC8039HN6	PDFN5X6-8L	5000/Reel

### ➤ Pin configuration



Top View



PDFN5X6-8L



Marking

(XXYY: Traceability Code)

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

Symbol	Parameter	Ratings	Unit	
$V_{DSS}$	Drain-to-Source Voltage	30	V	
$V_{GSS}$	Gate-to-Source Voltage	$\pm 20$	V	
$I_D$	Continuous Drain Current	$T_C=25^{\circ}\text{C}$	-64	A
		$T_C=100^{\circ}\text{C}$	-34	
$I_{DSM}$	Continuous Drain Current <sup>a</sup>	$T_A=25^{\circ}\text{C}$	-18.5	A
		$T_A=70^{\circ}\text{C}$	-13	
$I_{DM}$	Pulsed Drain Current <sup>b</sup>	-120	A	
$P_D$	Power Dissipation <sup>c</sup>	$T_C=25^{\circ}\text{C}$	29	W
		$T_C=100^{\circ}\text{C}$	11.6	
$P_{DSM}$	Power Dissipation <sup>a</sup>	$T_A=25^{\circ}\text{C}$	2.4	W
		$T_A=70^{\circ}\text{C}$	1.5	
$I_{AS}$	Avalanche Current <sup>b</sup> L=0.5mH Single Pulse	-22.5	A	
$E_{AS}$	Avalanche Energy <sup>b</sup> L=0.5mH Single Pulse	126	mJ	
$T_J$	Operation junction temperature	-55~150	$^{\circ}\text{C}$	
$T_{STG}$	Storage temperature range	-55~150		
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance <sup>a</sup>	52	$^{\circ}\text{C}/\text{W}$	
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	4.3		

**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 current rating 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.

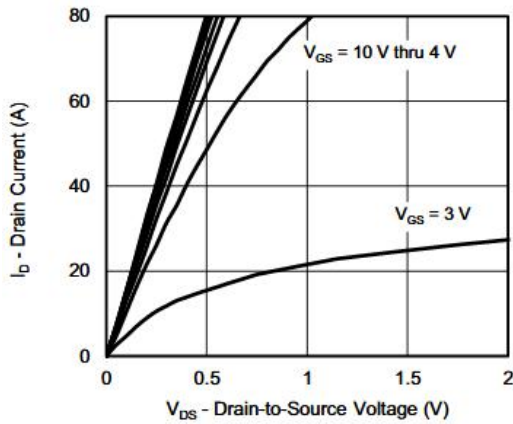


➤ **Electronics Characteristics (T<sub>A</sub>=25°C unless otherwise noted)**

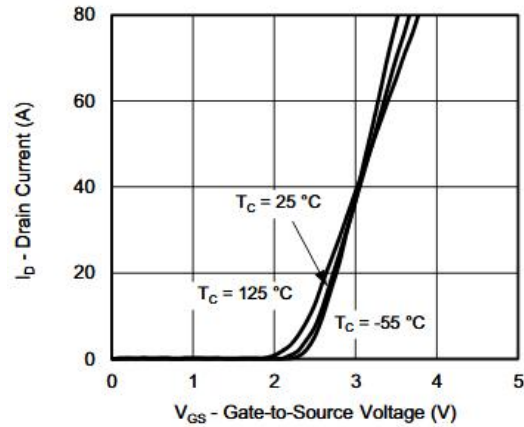
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	VGS=0V, ID=-250uA	-30			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	VDS=VGS, ID=-250uA	-1	-1.6	-2	V
R <sub>DS(on)</sub>	Drain-Source On-Resistance	VGS=-10V, ID=-20A		7	8.5	mΩ
		VGS=-4.5V, ID=-12A		8.5	12	
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	VDS=-24V, VGS=0V			-1	μA
I <sub>GSS</sub>	Gate-Source leak current	VGS=±20V, VDS=0V			±100	nA
G <sub>FS</sub>	Transconductance	VDS=-10V, ID=-5A		38		S
V <sub>SD</sub>	Forward Voltage	VGS=0V, IS=-2A		-0.7	-1.3	V
C <sub>iss</sub>	Input Capacitance	VDS=-15V, VGS=0V, f=1MHz		4900		pF
C <sub>oss</sub>	Output Capacitance			440		
C <sub>rss</sub>	Reverse Transfer Capacitance			330		
T <sub>D(ON)</sub>	Turn-on delay time	VGS=-10V, RL=15Ω VDS=-15V, RG=6Ω, ID=-2A		44		ns
T <sub>r</sub>	Rise time			31		
T <sub>D(OFF)</sub>	Turn-off delay time			188		
T <sub>f</sub>	Fall time			111		
Q <sub>G</sub>	Total Gate Charge	VGS=-10V, VDS=-15V ID=-20A		66		nC
Q <sub>GS</sub>	Gate to Source Charge			9		
Q <sub>GD</sub>	Gate to Drain Charge			15		



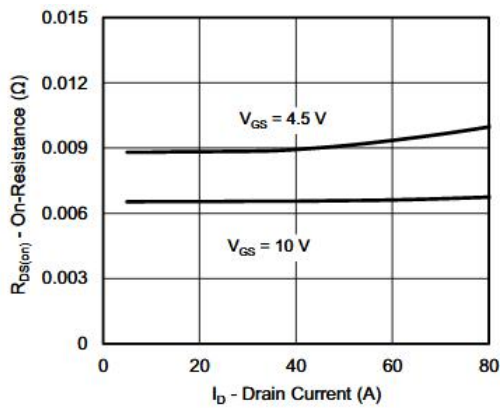
➤ Typical Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise noted)



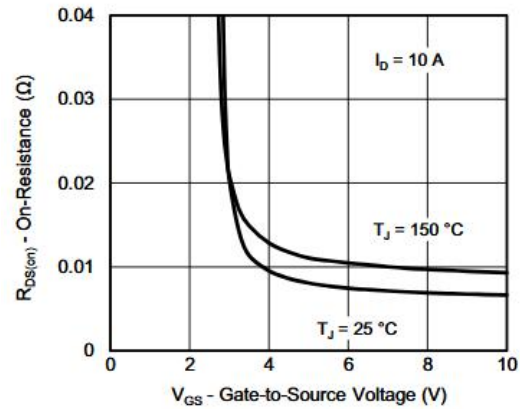
Output Characteristics



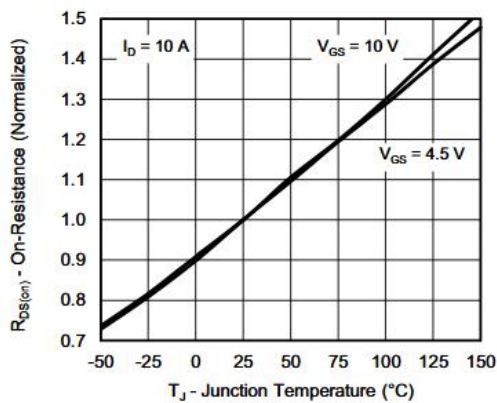
Transfer Characteristics



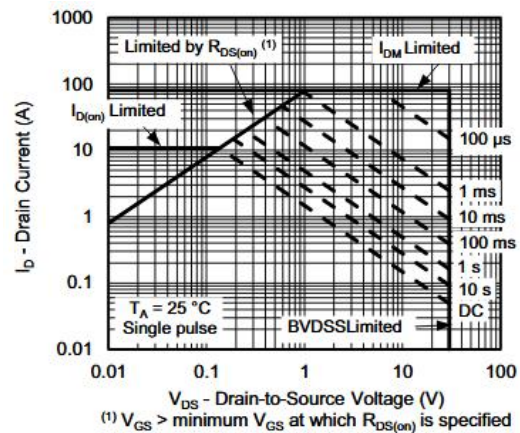
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage



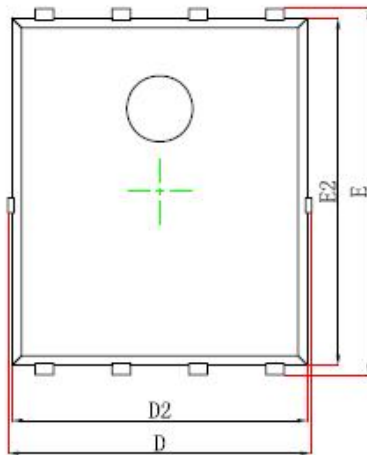
On-Resistance vs. Junction Temperature



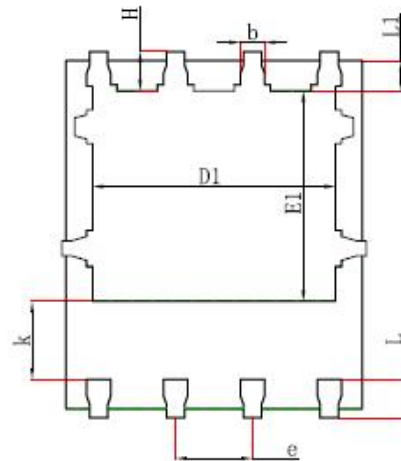
Safe Operating Area, Junction-to-Ambient



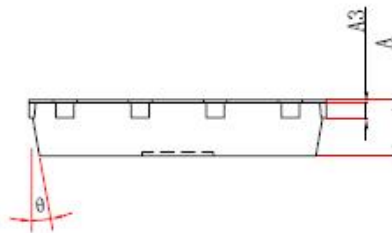
➤ Package Information



Top View  
[顶视图]



Bottom View  
[背视图]



Side View  
[侧视图]

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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