



SSC8L612PN6

N-Channel Enhancement Mode MOSFET

➤ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$	I_D
60V	$\pm 20V$	$2.2m\Omega@10V$	160A

➤ Description

This device is N-Channel enhancement MOSFET. Uses SGT technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit.

100% UIS + ΔV_{DS} + R_g Tested!

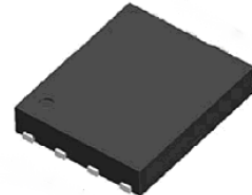
➤ Applications

- Motor Drive Control
- Portable Devices
- DCDC Conversion
- Power Supplies
- Synchronous Rectification

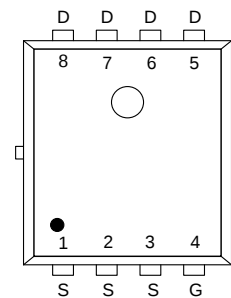
➤ Ordering Information

Device	Package	Shipping
SSC8L612PN6	PDFN5X6-8L	5000/Reel

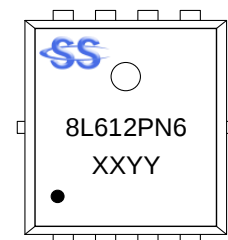
➤ Pin configuration



PDFN5X6-8L



Pin Configuration (Top View)



Marking

(XXYY: Internal Traceability Code)

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

Symbol	Parameter		Ratings	Unit
V_{DSS}	Drain-to-Source Voltage		60	V
V_{GSS}	Gate-to-Source Voltage		± 20	V
I_{D}	Continuous Drain Current ^d	$T_{\text{C}}=25^{\circ}\text{C}$	160	A
		$T_{\text{C}}=100^{\circ}\text{C}$	90	
I_{DSM}	Continuous Drain Current ^a	$T_{\text{A}}=25^{\circ}\text{C}$	39	A
		$T_{\text{A}}=70^{\circ}\text{C}$	28	
I_{DM}	Pulsed Drain Current ^b		640	A
P_{D}	Power Dissipation ^c	$T_{\text{C}}=25^{\circ}\text{C}$	96	W
		$T_{\text{C}}=100^{\circ}\text{C}$	38	
P_{DSM}	Power Dissipation ^a	$T_{\text{A}}=25^{\circ}\text{C}$	5.4	W
		$T_{\text{A}}=70^{\circ}\text{C}$	3.5	
I_{AS}	Avalanche Current ^b $L=0.5\text{mH}$ Single Pulse		38	A
E_{AS}	Avalanche Energy ^b $L=0.5\text{mH}$ Single Pulse		361	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
$R_{\theta\text{JA}}$	Junction-to-Ambient Thermal Resistance ^a	22	$^{\circ}\text{C}/\text{W}$
$R_{\theta\text{JC}}$	Junction-to-Case Thermal Resistance	1.3	

Note:

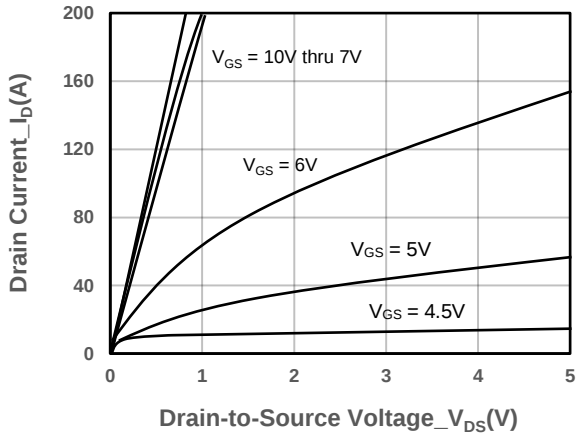
- The value of $R_{\theta\text{JA}}$ is measured with the device mounted on 1 in² FR-4 board with 2oz.copper, in a still air environment with $T_{\text{A}}=25^{\circ}\text{C}$. The value in any given application depends on the user is specific board design. The power dissipation is based on the $t \leq 10\text{s}$ thermal resistance rating.
- Repetitive rating, pulse width limited by junction temperature.
- The power dissipation P_{D} is based on $T_{\text{J(MAX)}}=150^{\circ}\text{C}$, 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.

**➤ Electrical Characteristics (T_A=25°C unless otherwise noted)**

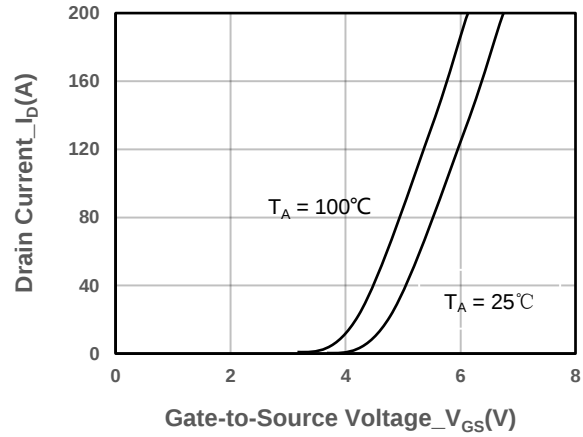
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	60			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	2	3	4	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 10A		2.2	2.9	mΩ
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0V			1	μA
Gate-Source Leak Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Transconductance	G _{FS}	V _{DS} = 10V, I _D = 10A		22		s
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 15A		0.8	1.3	V
Gate Resistance	R _G	V _{DS} = 0V, f = 1MHz		1	2.4	Ω
Input Capacitance	C _{ISS}	V _{DS} = 30V, V _{GS} = 0V, f = 1MHz		3200		pF
Output Capacitance	C _{OSS}			670		
Reverse Transfer Capacitance	C _{RSS}			655		
Total Gate Charge	Q _G	V _{GS} = 10V, V _{DS} = 30V, I _D = 15A		38		nC
Gate to Source Charge	Q _{GS}			15		
Gate to Drain Charge	Q _{GD}			10		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = 10V, V _{DS} = 30V, R _L = 10Ω, R _G = 2.5Ω		18		ns
Rise Time	T _r			29		
Turn-off Delay Time	T _{D(OFF)}			58		
Fall Time	T _f			21		
Diode Recovery Time	T _{rr}	I _F =20A, di/dt=500A/us		32		ns
Diode Recovery Charge	Q _{rr}	I _F =20A, di/dt=500A/us		65		nC



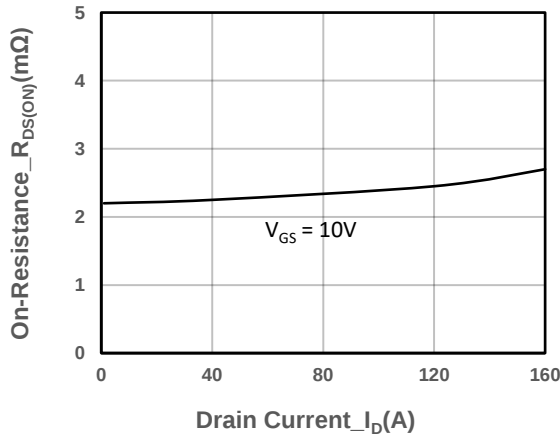
➤ Typical Performance Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)



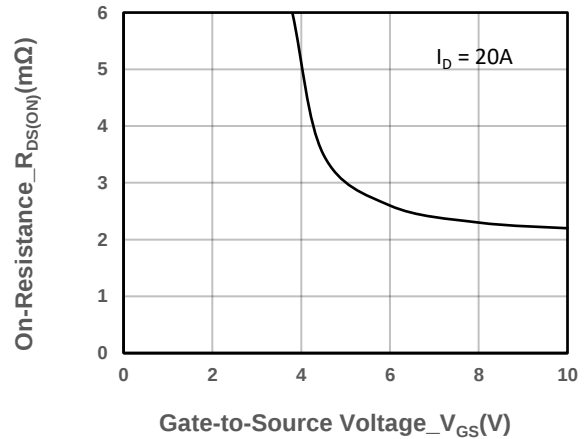
Output Characteristics



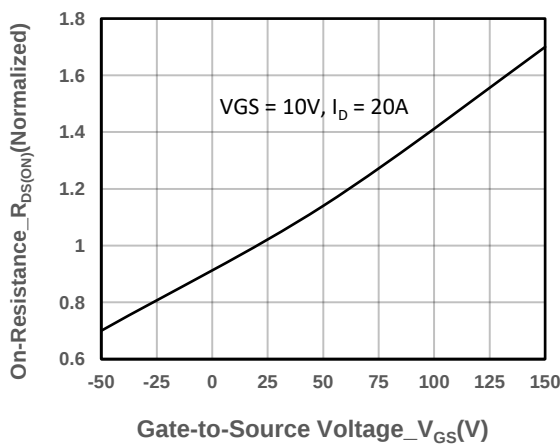
Transfer Characteristics



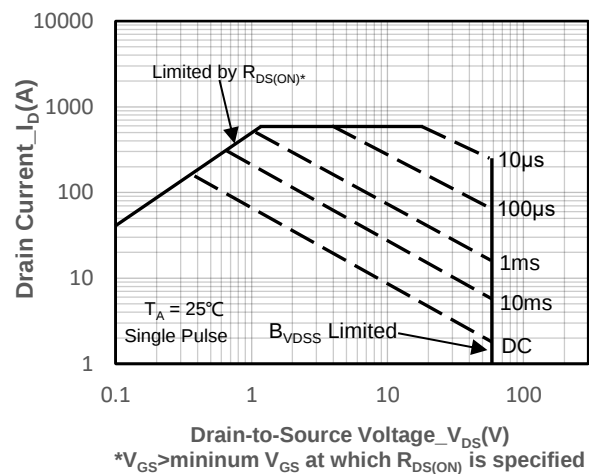
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage

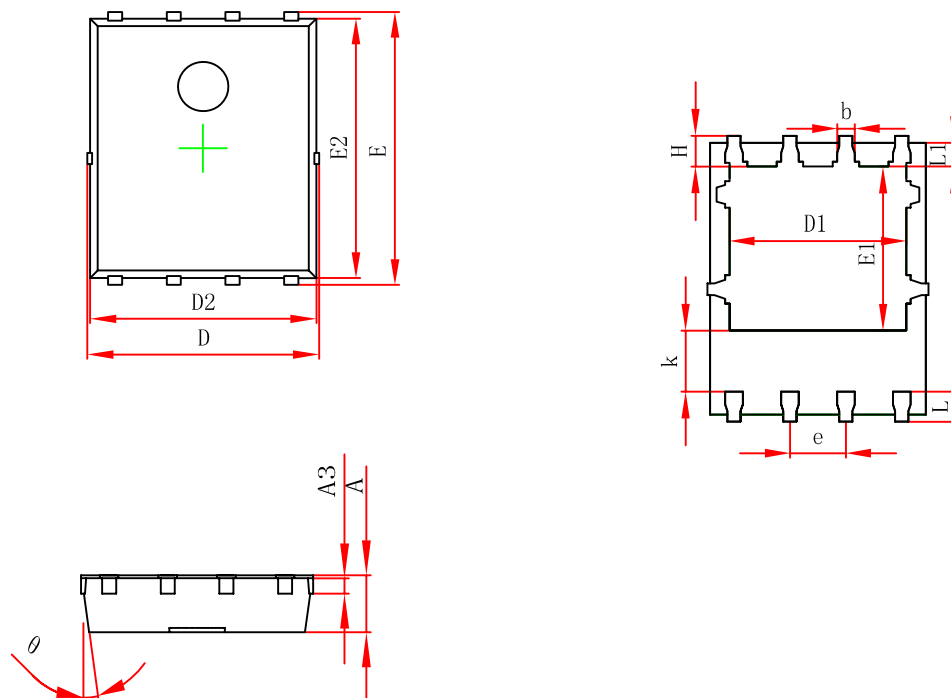


On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

➤ Package Information



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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