



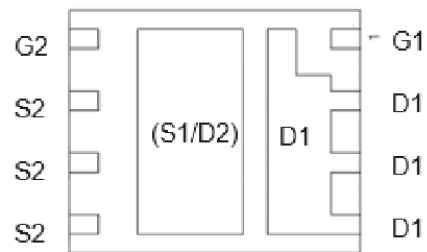
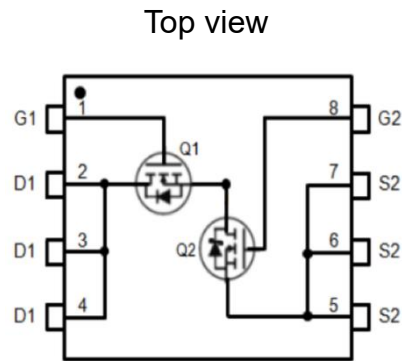
SSC8L330GQ6

Dual Asymmetric N-Channel Enhancement Mode MOSFET

➤ **Features**

	VDS	VGS	RDS(on) Typ.	ID
Q1	30V	±20V	4.7mR@10V	50A
			6mR@4V5	
Q2	30V	±20V	2.7mR@10V	80A
			3mR@4V5	

➤ **Pin configuration**



Bottom View

➤ **Description**

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

➤ **Applications**

- DCDC converters
- Power supplies
- Motor Drive Control
- Synchronous rectification



(XX: year/YY: week)

Marking

➤ **Ordering Information**

Device	Package	shipping
SSC8L330GQ6	DFN5x6	5000/Reel



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

Symbol	Parameter	Ratings		Unit	
		Q1	Q2		
V_{DSS}	Drain-to-Source Voltage	30	30	V	
V_{GSS}	Gate-to-Source Voltage	± 20	± 20	V	
I_D	Continuous Drain Current ^d	$T_C=25^{\circ}\text{C}$	50	80	A
		$T_C=100^{\circ}\text{C}$	24	38	
I_{DSM}	Continuous Drain Current ^a	$T_A=25^{\circ}\text{C}$	20	27	A
		$T_A=70^{\circ}\text{C}$	14	7	
I_{DM}	Pulsed Drain Current ^b	200	320	A	
P_D	Power Dissipation ^c	$T_C=25^{\circ}\text{C}$	17.6	27.2	W
		$T_C=100^{\circ}\text{C}$	7.1	10.9	
P_{DSM}	Power Dissipation ^a	$T_A=25^{\circ}\text{C}$	3.1	3.1	W
		$T_A=70^{\circ}\text{C}$	2	2	
I_{AS}	Avalanche Current ^b L=0.5mH Single Pulse	20	31	A	
E_{AS}	Avalanche Energy ^b L=0.5mH Single Pulse	100	240	mJ	
T_J	Operation junction temperature	-55~150	- 55~150	$^{\circ}\text{C}$	
T_{STG}	Storage temperature range	-55~150	- 55~150		

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

Symbol	Parameter	Ratings		Unit
		Q1	Q2	
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance ^a	40	40	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	7.1	4.6	

Note:

- The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² 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.
- The maximum current rating is package limited.



➤ **Q1 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	$V_{GS}=0V, I_D=250\mu A$	30			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.5	2.2	V
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=20A$		4.7	6	mR
		$V_{GS}=4.5V, I_D=10A$		6	9	
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=24V, V_{GS}=0V$			1	μA
I_{GSS}	Gate-Source leak current	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
G_{FS}	Transconductance	$V_{DS}=5V, I_D=20A$		40		S
V_{SD}	Forward Voltage	$V_{GS}=0V, I_S=10A$		0.8	1.3	V
R_g	Gate Resistance	$V_{DS}=0V, f=1MHz$		2.6		R
C_{iss}	Input Capacitance	$V_{DS}=15V, V_{GS}=0V, f=1MHz$		1060		pF
C_{oss}	Output Capacitance			410		
C_{rss}	Reverse Capacitance			50		
$T_{D(ON)}$	Turn-on delay time	$V_{GS}=10V, R_L=1R, V_{DS}=15V, R_G=3R$		7		ns
T_r	Rise time			17		
$T_{D(OFF)}$	Turn-off delay time			18		
T_f	Fall time			3		
Q_G	Total Gate Charge	$V_{GS}=15V, V_{DS}=20V, I_D=20A$		17.4		nC
Q_{GS}	Gate Source Charge			3.8		
Q_{GD}	Gate Drain Charge			1.3		
T_{rr}	Diode Recovery Time	$I_F=20A, di/dt=500A/\mu s$		11		ns
Q_{rr}	Diode Recovery Charge	$I_F=20A, di/dt=500A/\mu s$		19		nC

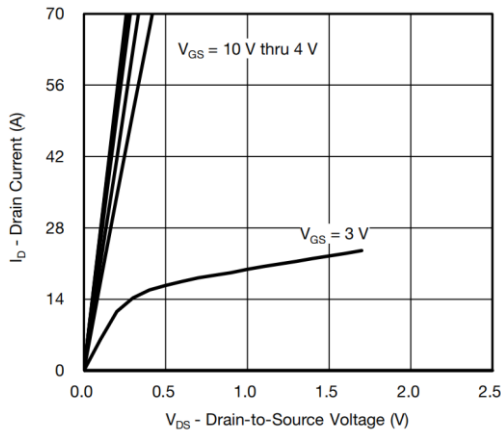


➤ **Q2 Electronics Characteristics**($T_A=25^{\circ}\text{C}$ unless otherwise noted)

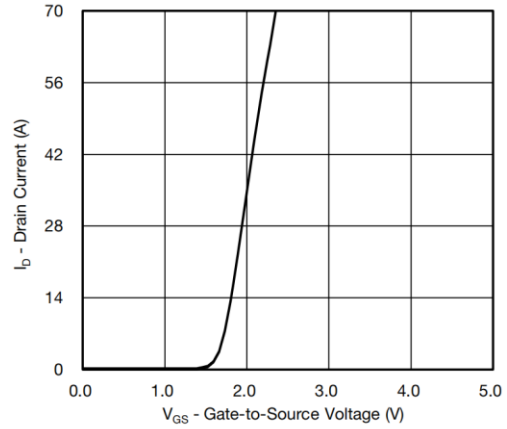
Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.4	2.2	V
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=20A$		2.7	4	mR
		$V_{GS}=4.5V, I_D=10A$		3	5.5	
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=24V, V_{GS}=0V$			1	μA
I_{GSS}	Gate-Source leak current	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
G_{FS}	Transconductance	$V_{DS}=5V, I_D=20A$		40		S
V_{SD}	Forward Voltage	$V_{GS}=0V, I_S=10A$		0.7	1.3	V
R_g	Gate Resistance	$V_{DS}=0V, f=1MHz$		3.2		R
C_{iss}	Input Capacitance	$V_{DS}=15V, V_{GS}=0V, f=1MHz$		2150		pF
C_{oss}	Output Capacitance			910		
C_{rss}	Reverse Capacitance			83		
$T_{D(ON)}$	Turn-on delay time	$V_{GS}=10V, R_L=1R, V_{DS}=15V, R_G=3R$		7		ns
T_r	Rise time			3		
$T_{D(OFF)}$	Turn-off delay time			27		
T_f	Fall time			4		
Q_G	Total Gate Charge	$V_{GS}=15V, V_{DS}=20V, I_D=20A$		35.7		nC
Q_{GS}	Gate Source Charge			6.1		
Q_{GD}	Gate Drain Charge			3.5		
T_{rr}	Diode Recovery Time	$I_F=20A, di/dt=500A/\mu s$		13		ns
Q_{rr}	Diode Recovery Charge	$I_F=20A, di/dt=500A/\mu s$		22		nC



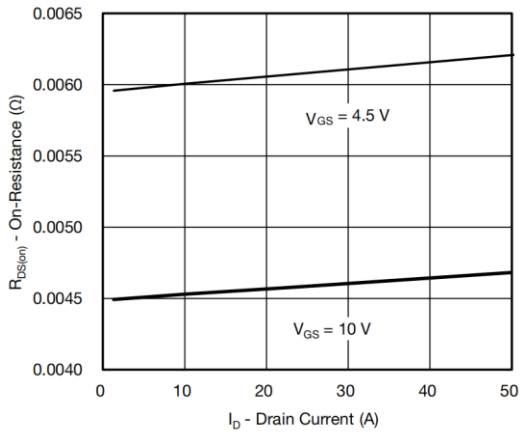
➤ Q1 Typical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



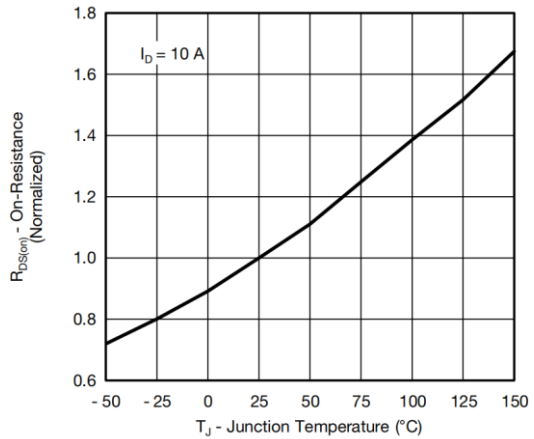
Output Characteristics



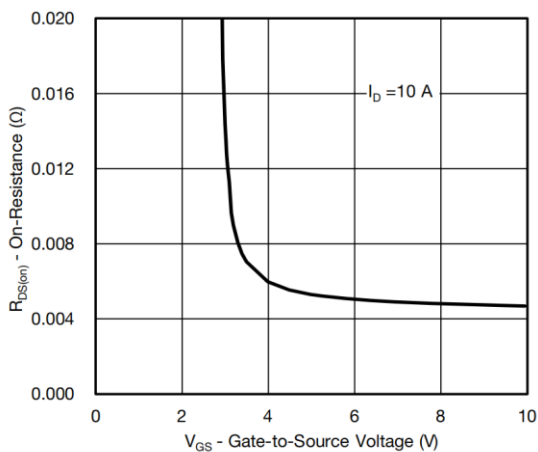
Transfer Characteristics



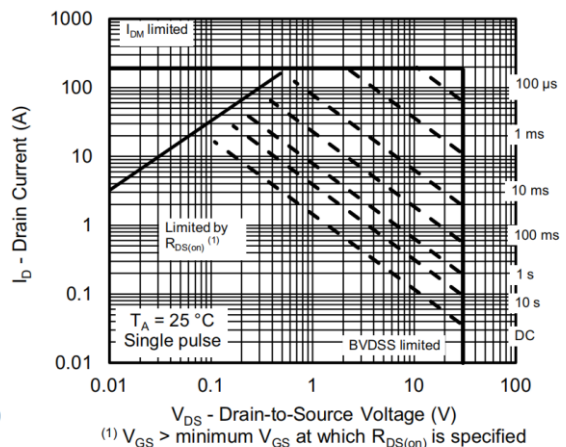
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Junction Temperature



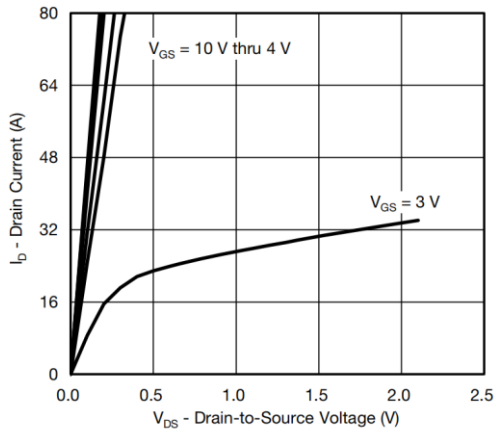
On-Resistance vs. Gate-to-Source Voltage



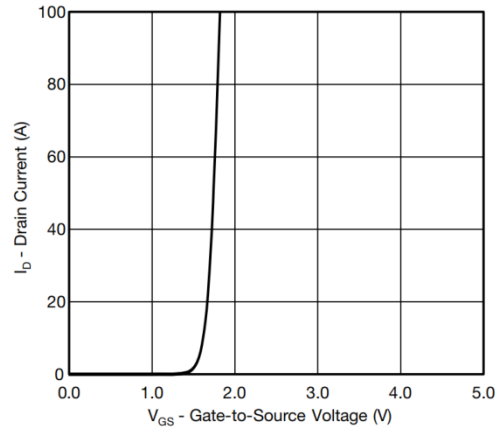
Safe Operating Area, Junction-to-Ambient



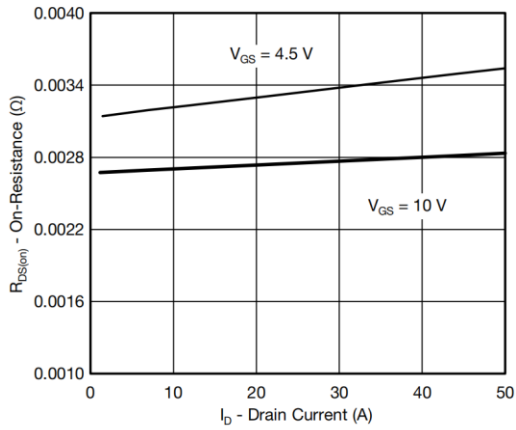
➤ **Q2 Typical Characteristics**($T_A=25^\circ\text{C}$ unless otherwise noted)



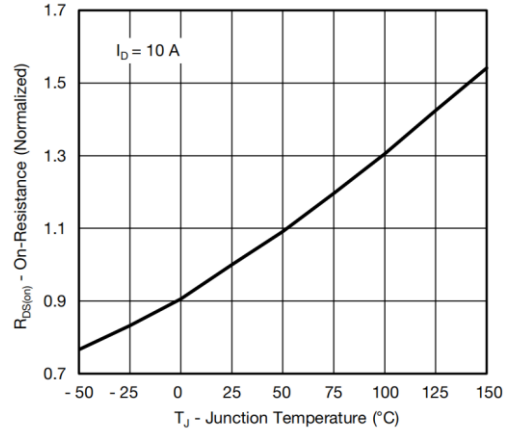
Output Characteristics



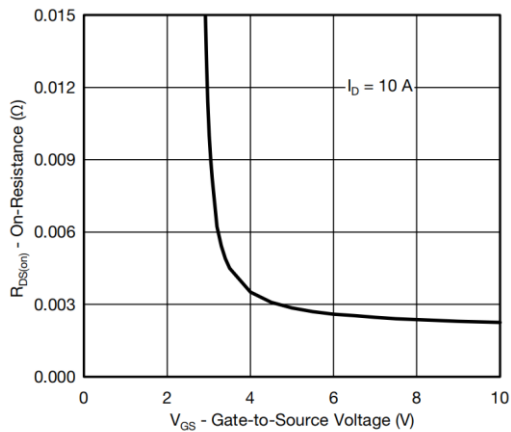
Transfer Characteristics



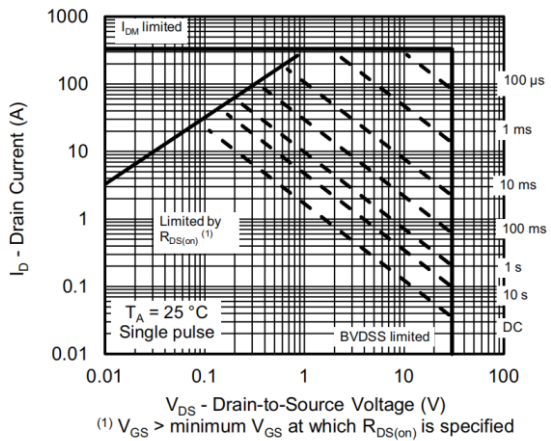
On-Resistance vs. Drain Current



On-Resistance vs. Junction Temperature



On-Resistance vs. Gate-to-Source Voltage

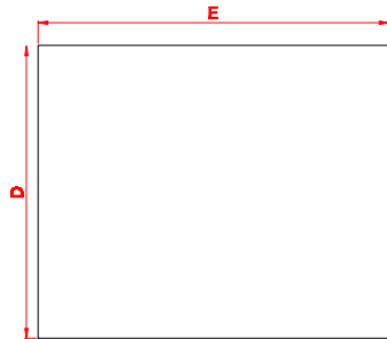


Safe Operating Area, Junction-to-Ambient

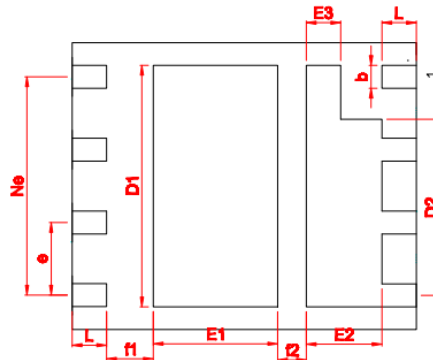


➤ Package Information

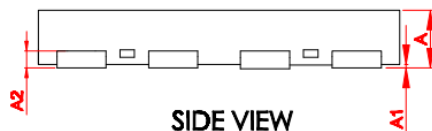
Package: DNF5X6-8L



TOP VIEW



BOTTOM VIEW



SIDE VIEW

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.700	0.750	0.800
* A1	0.000	0.020	0.050
* b	0.360	0.410	0.460
* A2	0.190	0.210	0.250
* D	4.900	5.000	5.100
* D1	4.150	4.200	4.250
* D2	2.870	3.070	3.270
* E	5.900	6.000	6.100
* E1	2.020	2.170	2.320
* E2	1.220	1.320	1.420
* E3	0.550	0.600	0.650
* e	1.220	1.270	1.320
Ne	BSC 3.810		
* f1	0.71	0.810	0.910
* f2	0.400	0.500	0.600
* L	0.550	0.600	0.650

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