SSC8L330GQ6

Dual Asymmetric N-Channel Enhancement Mode MOSFET

➢ Features

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

➢ Description

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

➢ Applications

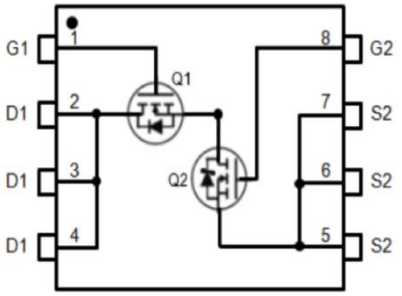
- DCDC converters
- Power supplies
- Motor Drive Control
- Synchronous rectification

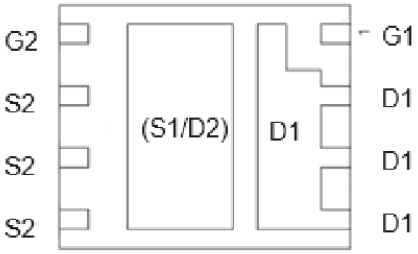
➢ Ordering Information

Device	Package	shipping
SSC8L330GQ6	DFN5x6	5000/Reel

➢ Pin configuration

Top view





Bottom View

(XX: year/YY: week)

Marking

➢ Absolute Maximum Ratings(T_A=25℃ 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℃	50	80	A
		T_C=100℃	24	38	
I_{DSM}	Continuous Drain Current [a]	T_A=25℃	20	27	A
		T_A=70℃	14	7	
I_{DM}	Pulsed Drain Current [b]		200	320	A
P_D	Power Dissipation [c]	T_C=25℃	17.6	27.2	W
		T_C=100℃	7.1	10.9	
P_{DSM}	Power Dissipation [a]	T_A=25℃	3.1	3.1	W
		T_A=70℃	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	℃
T_{STG}	Storage temperature range		-55~150	-55~150	

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

Symbol	Parameter	Ratings		Unit
		Q1	Q2	
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]	40	40	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	7.1	4.6	

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 current rating 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.

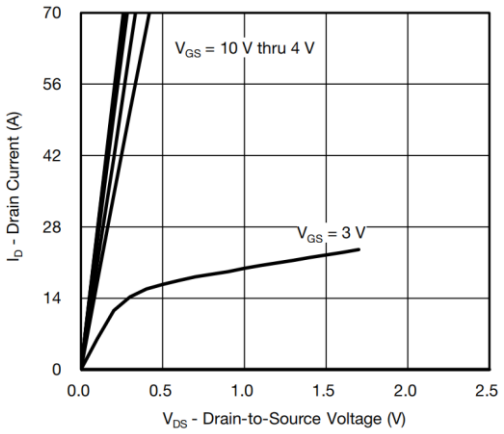
➢ **Q1 Electronics Characteristics**(T_A=25℃ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	VGS=0V, ID=250uA	30			V
$V_{GS\ (th)}$	Gate Threshold Voltage	VDS=VGS, ID=250uA	1	1.5	2.2	V
$R_{DS(on)}$	Drain-Source On-Resistance	VGS=10V , ID=20A		4.7	6	mR
		VGS=4.5V , ID=10A		6	9	
I_{DSS}	Zero Gate Voltage Drain Current	VDS=24V, VGS=0V			1	uA
I_{GSS}	Gate-Source leak current	VGS=±20V, VDS=0V			±100	nA
G_{FS}	Transconductance	VDS=5V, ID=20A		40		S
V_{SD}	Forward Voltage	VGS=0V, IS=10A		0.8	1.3	V
Rg	Gate Resistance	VDS=0V, f=1MHz		2.6		R
Ciss	Input Capacitance	VDS=15V, VGS=0V, f=1MHz		1060		pF
Coss	Output Capacitance			410		
Crss	Reverse Capacitance			50		
$T_{D(ON)}$	Turn-on delay time	VGS=10V, RL=1R VDS=15V , RG=3R		7		ns
Tr	Rise time			17		
$T_{D(OFF)}$	Turn-off delay time			18		
Tf	Fall time			3		
Q_G	Total Gate Charge	VGS=15V, VDS=20V ID=20A		17.4		nC
Q_{GS}	Gate Source Charge			3.8		
Q_{GD}	Gate Drain Charge			1.3		
Trr	Diode Recovery Time	IF=20A , di/dt=500A/us		11		ns
Qrr	Diode Recovery Charge	IF=20A , di/dt=500A/us		19		nC

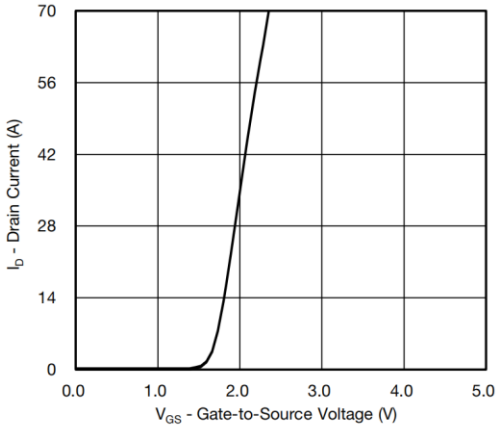
➢ **Q2 Electronics Characteristics**(T_A=25℃ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	VGS=0V, ID=250uA	30			V
$V_{GS\ (th)}$	Gate Threshold Voltage	VDS=VGS, ID=250uA	1	1.4	2.2	V
$R_{DS(on)}$	Drain-Source On-Resistance	VGS=10V , ID=20A		2.7	4	mR
		VGS=4.5V , ID=10A		3	5.5	
I_{DSS}	Zero Gate Voltage Drain Current	VDS=24V, VGS=0V			1	uA
I_{GSS}	Gate-Source leak current	VGS=±20V, VDS=0V			±100	nA
G_{FS}	Transconductance	VDS=5V, ID=20A		40		S
V_{SD}	Forward Voltage	VGS=0V, IS=10A		0.7	1.3	V
Rg	Gate Resistance	VDS=0V, f=1MHz		3.2		R
Ciss	Input Capacitance	VDS=15V, VGS=0V, f=1MHz		2150		pF
Coss	Output Capacitance			910		
Crss	Reverse Capacitance			83		
$T_{D(ON)}$	Turn-on delay time	VGS=10V, RL=1R VDS=15V , RG=3R		7		ns
Tr	Rise time			3		
$T_{D(OFF)}$	Turn-off delay time			27		
Tf	Fall time			4		
Q_G	Total Gate Charge	VGS=15V, VDS=20V ID=20A		35.7		nC
Q_{GS}	Gate Source Charge			6.1		
Q_{GD}	Gate Drain Charge			3.5		
Trr	Diode Recovery Time	IF=20A , di/dt=500A/us		13		ns
Qrr	Diode Recovery Charge	IF=20A , di/dt=500A/us		22		nC

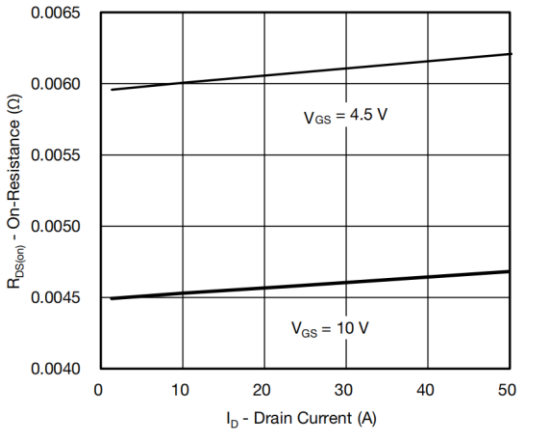
➢ Q1 Typical Characteristics(T_A=25℃ unless otherwise noted)



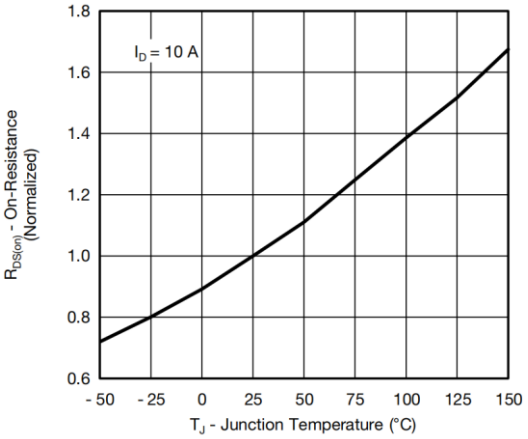
Output Characteristics



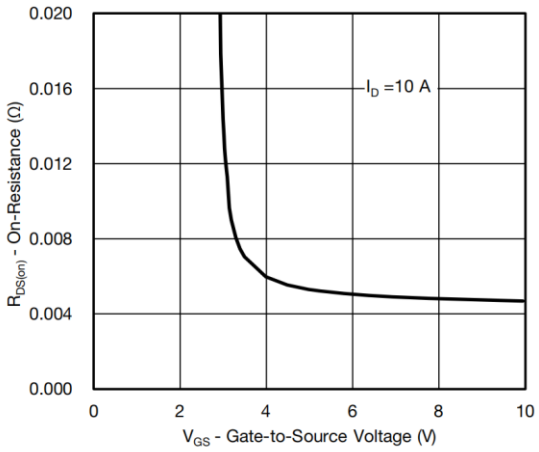
Transfer Characteristics



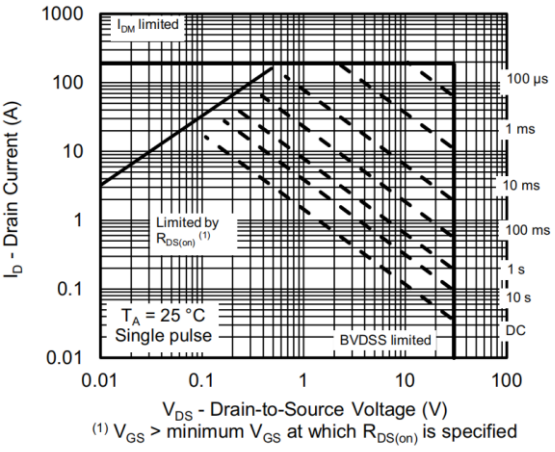
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Junction Temperature

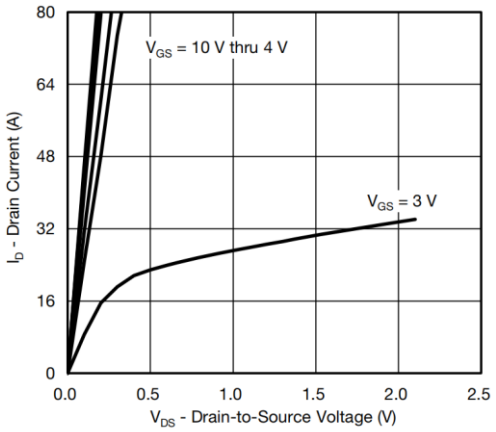


On-Resistance vs. Gate-to-Source Voltage

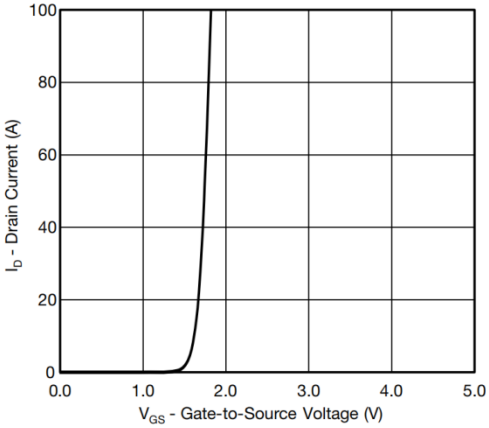


Safe Operating Area, Junction-to-Ambient

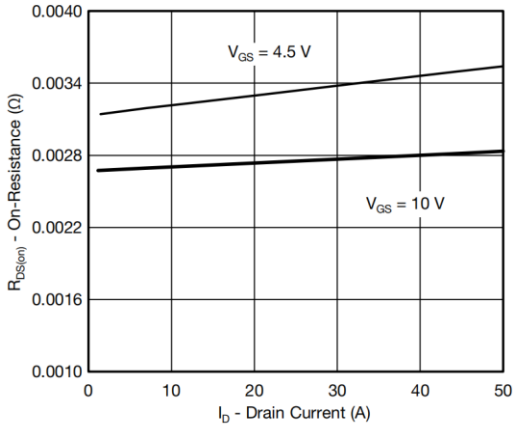
➢ Q2 Typical Characteristics(T_A=25℃ unless otherwise noted)



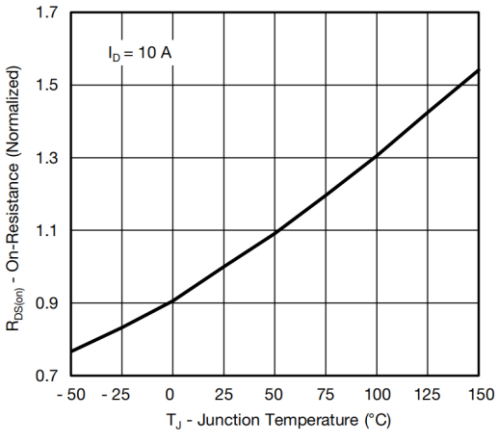
Output Characteristics



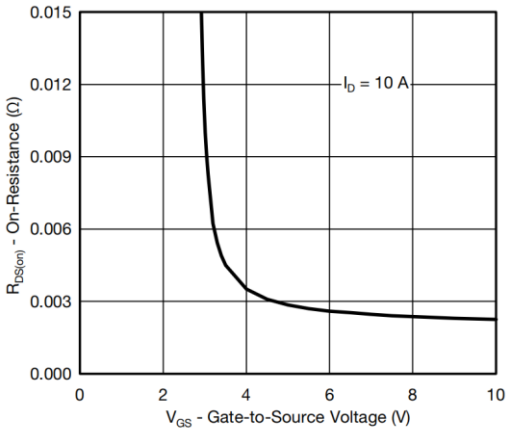
Transfer Characteristics



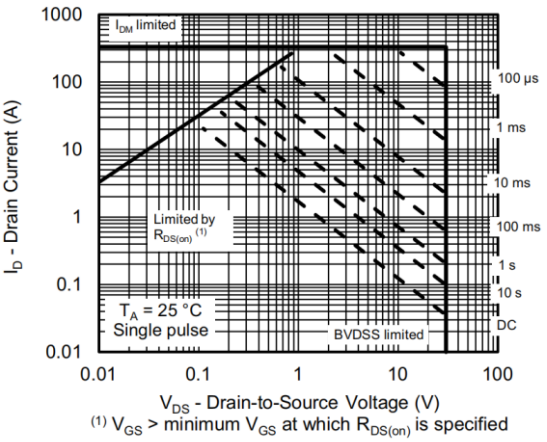
On-Resistance vs. Drain Current



On-Resistance vs. Junction Temperature



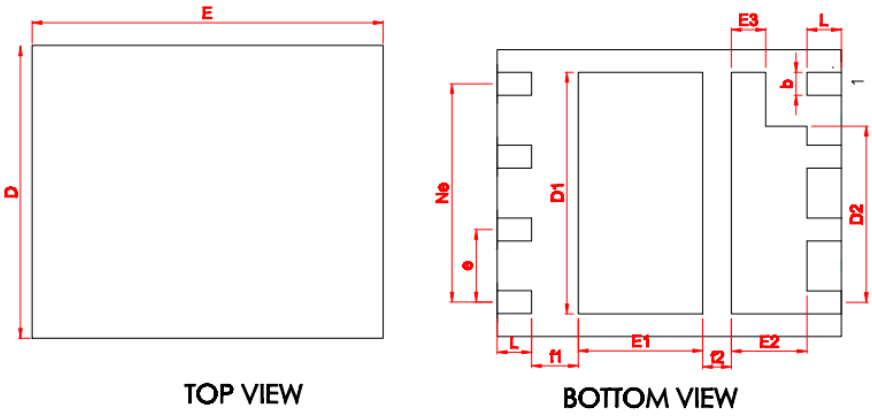
On-Resistance vs. Gate-to-Source Voltage

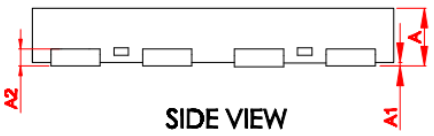


Safe Operating Area, Junction-to-Ambient

➢ Package Information

Package：DNF5X6-8L





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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