SSC8L332GQ6

Dual Asymmetric N-Channel Enhancement Mode MOSFET

➢ Features

	V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
Q1	30V	±20V	7.3 mΩ@10V	44A
			9.4 mΩ@4.5V	
Q2	30V	±20V	3.2 mΩ@10V	88A
			4.3 mΩ@4.5V	

➢ Description

This device is N-Channel enhancement MOSFET. Uses SGT 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.

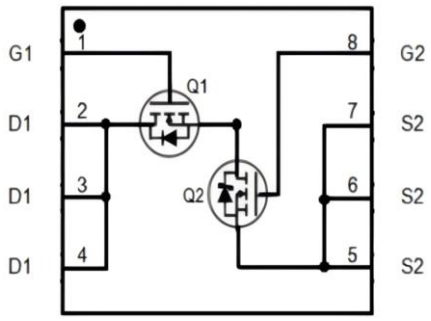
➢ Applications

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

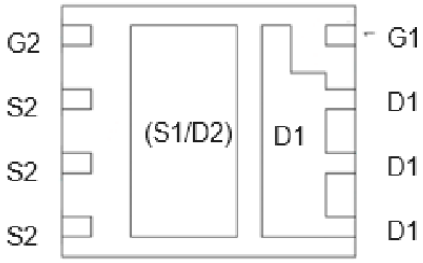
➢ Ordering Information

Device	Package	Shipping
SSC8L332GQ6	DFN5X6-8L	5000/Reel

➢ Pin Configuration



Top View



Bottom View

Marking

(XXYY: Internal Traceability Code)

➢ 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℃	44	88	A
		T_C=100℃	24	49	
I_{DSM}	Continuous Drain Current [a]	T_A=25℃	17	28	A
		T_A=70℃	12	20	
I_{DM}	Pulsed Drain Current [b]		176	352	A
P_D	Power Dissipation [c]	T_C=25℃	22.7	56.8	W
		T_C=100℃	9.1	40.3	
P_{DSM}	Power Dissipation [a]	T_A=25℃	3.6	4.0	W
		T_A=70℃	2.3	2.6	
I_{AS}	Avalanche Current [b] L=0.5mH Single Pulse		14	20	A
E_{AS}	Avalanche Energy [b] L=0.5mH Single Pulse		49	100	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]	35	31	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	5.5	3.1	

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 power dissipation 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.

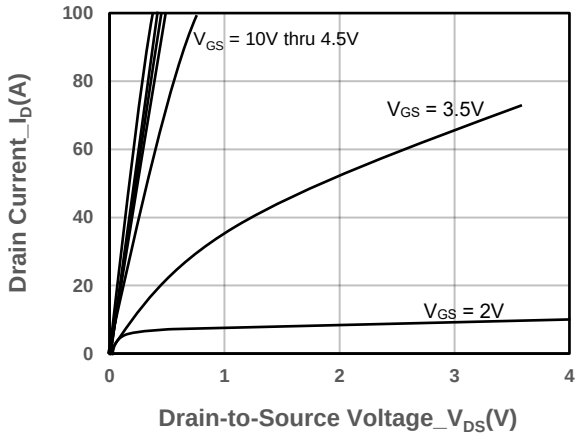
➢ Q1 Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	1.0	1.7	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A		7.3	9.5	mΩ
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 10A		9.4	12.2	mΩ
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 30V, V_{GS} = 0V			1	μA
Gate-Source Leak Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = 10A		0.7	1.3	V
Gate Resistance	R_G	V_{DS} = 0V, f = 1MHz		3.5		Ω
Input Capacitance	C_{ISS}	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		1000		pF
Output Capacitance	C_{OSS}			150		
Reverse Transfer Capacitance	C_{RSS}			120		
Total Gate Charge	Q_G	V_{GS} = 10V, V_{DS} = 15V, I_D = 20A		17.8		nC
Gate to Source Charge	Q_{GS}			2.1		
Gate to Drain Charge	Q_{GD}			2.9		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = 10V, V_{DS} = 15V, R_L = 1Ω, R_G = 3Ω		10		ns
Rise Time	T_r			10		
Turn-off Delay Time	$T_{D(OFF)}$			22		
Fall Time	T_f			10		
Diode Recovery Time	T_{rr}	I_F=20A, di/dt=500A/us		20		ns
Diode Recovery Charge	Q_{rr}	I_F=20A, di/dt=500A/us		15		nC

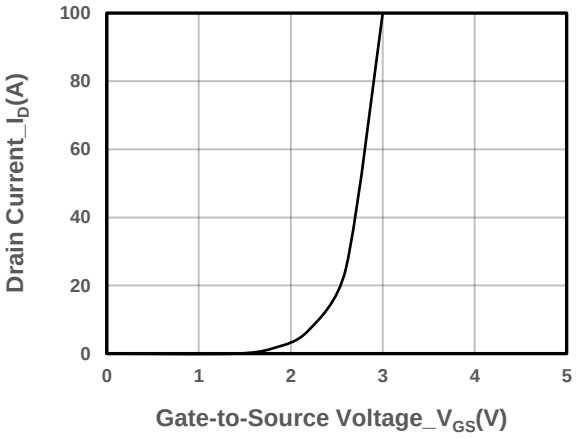
➢ Q2 Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	1.0	1.7	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A		3.2	4.2	mΩ
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 10A		4.3	5.6	mΩ
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 30V, V_{GS} = 0V			1	μA
Gate-Source Leak Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = 10A		0.7	1.3	V
Gate Resistance	R_G	V_{DS} = 0V, f = 1MHz		2.9		Ω
Input Capacitance	C_{ISS}	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		1500		pF
Output Capacitance	C_{OSS}			950		
Reverse Transfer Capacitance	C_{RSS}			50		
Total Gate Charge	Q_G	V_{GS} = 10V, V_{DS} = 15V, I_D = 20A		45.8		nC
Gate to Source Charge	Q_{GS}			9.1		
Gate to Drain Charge	Q_{GD}			5.2		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = 10V, V_{DS} = 15V, R_L = 0.75Ω, R_G = 3Ω		5.2		ns
Rise Time	T_r			5.6		
Turn-off Delay Time	$T_{D(OFF)}$			24.7		
Fall Time	T_f			20.9		
Diode Recovery Time	T_{rr}	I_F=20A, di/dt=500A/us		34		ns
Diode Recovery Charge	Q_{rr}	I_F=20A, di/dt=500A/us		18		nC

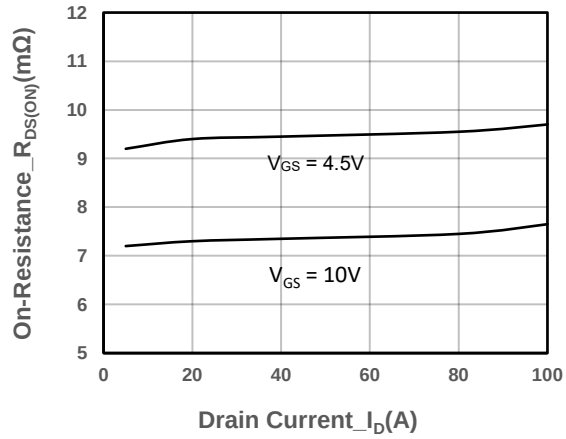
➢ Q1 Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



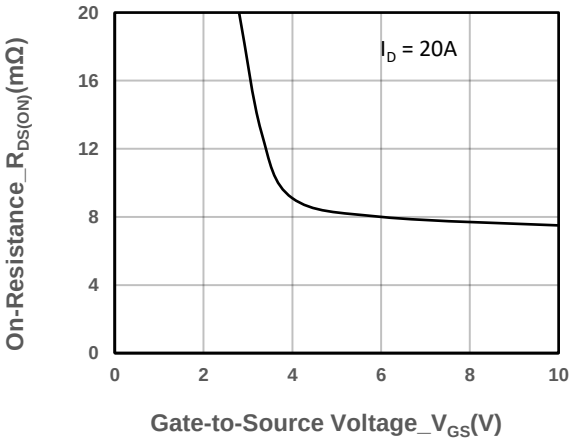
Output Characteristics



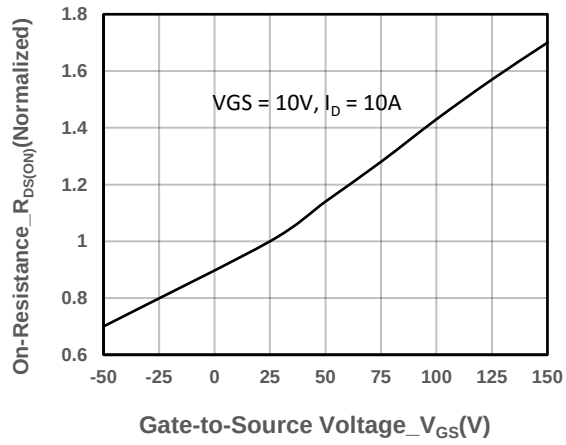
Transfer Characteristics



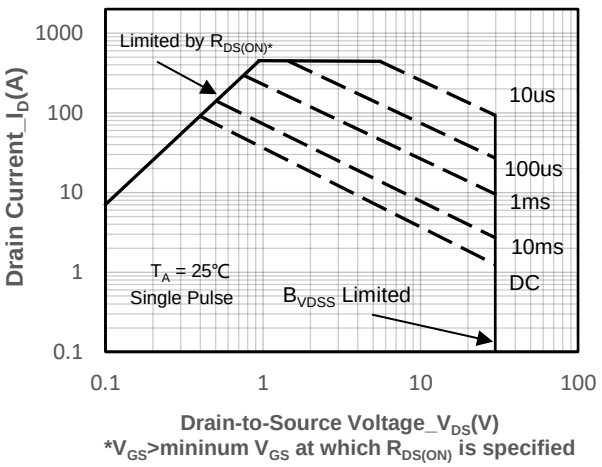
On-Resistance vs. Drain Current and Gate Voltag



On-Resistance vs. Gate-to-Source Voltage

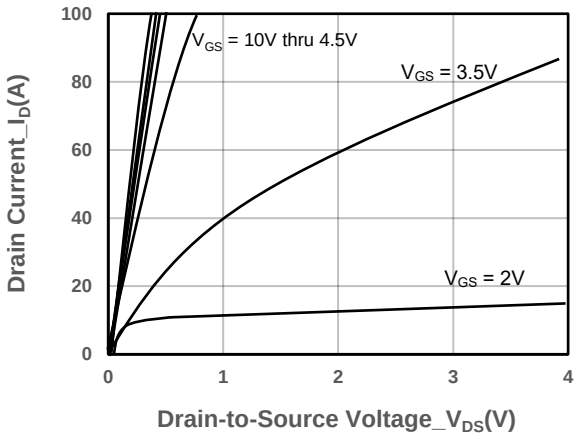


On-Resistance vs. Junction Temperature

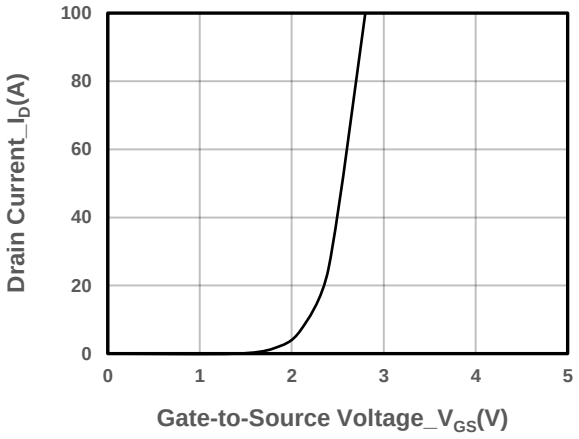


Safe Operating Area vs. Junction-to-Ambient

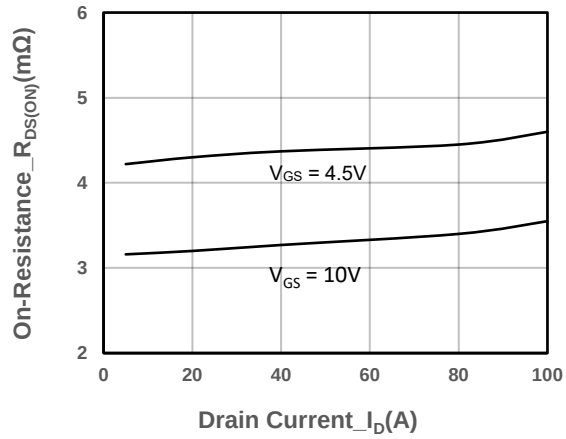
➢ Q2 Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



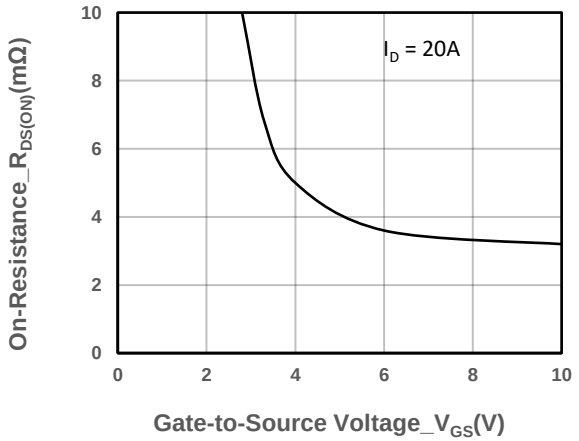
Output Characteristics



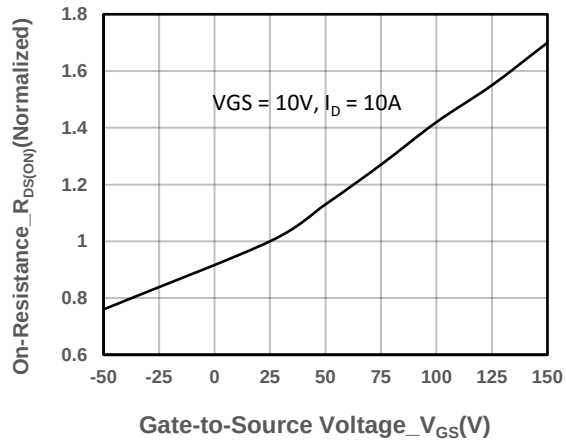
Transfer Characteristics



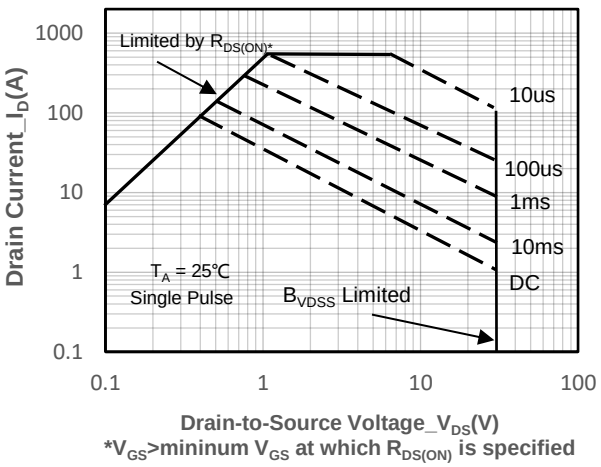
On-Resistance vs. Drain Current and Gate Voltag



On-Resistance vs. Gate-to-Source Voltage



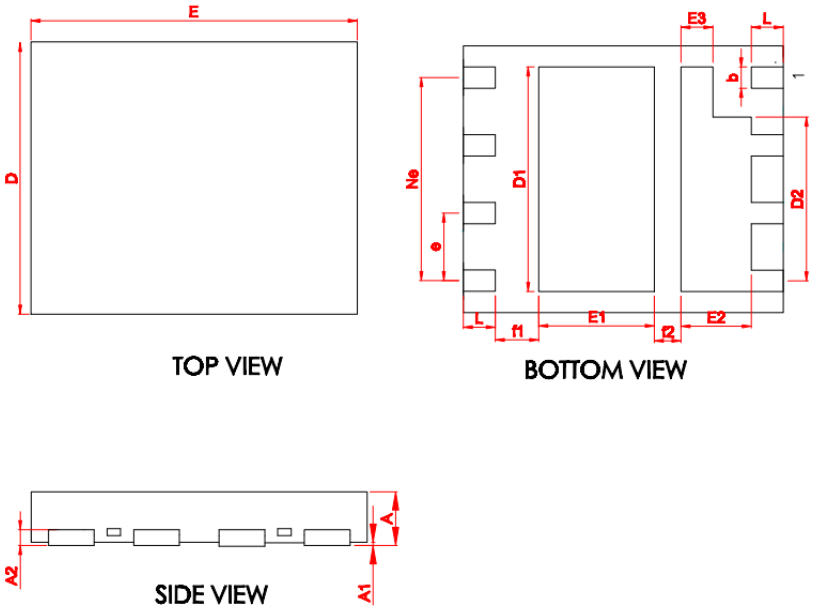
On-Resistance vs. Junction Temperature



Safe Operating Area vs. 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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