SSC8330GQ4

Dual Asymmetric N-Channel Enhancement Mode MOSFET

➢ Features

	VDS	VGS	RDSON Typ.	ID
Q1	30V	±20V	9.5mR@10V	15A
			12.5mR@4V5	
Q2	30V	±20V	8mR@10V	18A
			10mR@4V5	

➢ Description

This device uses advanced trench technology to provide excellent RDSON and low gate charge. This device is suitable for use as a load switch or in PWM applications.

➢ Applications

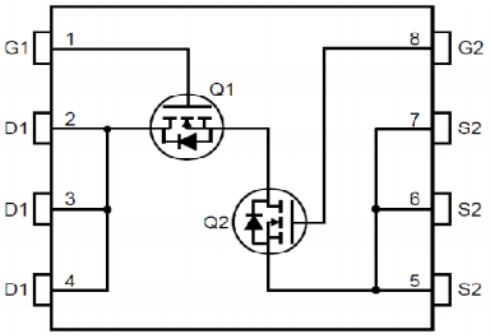
- Isolated DC/DC Converters
- DC/DC conversion in computing
- Load Switch

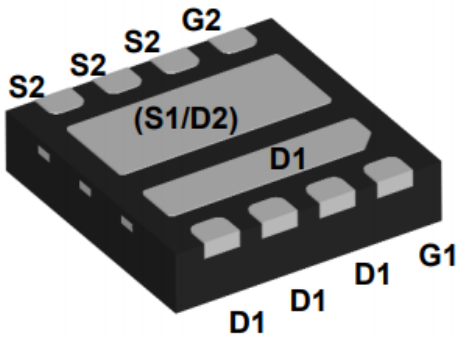
➢ Ordering Information

Device	Package	Shipping
SSC8330GQ4	DFN3X3	5000/Reel

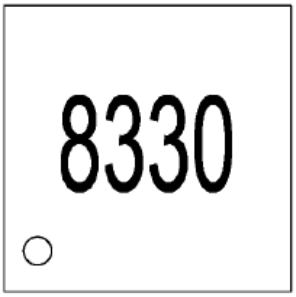
➢ Pin configuration

Top view





Bottom View



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	TC=25C°	15	18	A
		TC=100C°	11	14	A
I_{DM}	Pulsed Drain Current [b]		60	70	A
I_{DSM}	Continuous Drain Current [a]	TA=25C°	12	15	A
		TA=70C°	8	9	A
P_D	Power Dissipation [c]	TC=25C°	22	25	W
		TC=100C°	9	10	W
P_{DSM}	Power Dissipation [a]	TA=25C°	2.5	2.5	W
		TA=70C°	0.9	0.9	W
I_{AS}	Avalanche Current		19	25	A
E_{AS}	Avalanche Energy, L=0.05mH		9	16	mJ
T_J	Operation junction temperature		-55 to 150		℃
T_{STG}	Storage temperature range		-55 to 150		℃

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

Symbol	Parameter	Typical	Maximum		Unit
			Q1	Q2	
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]		55	55	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance		6.5	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=25C°.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.

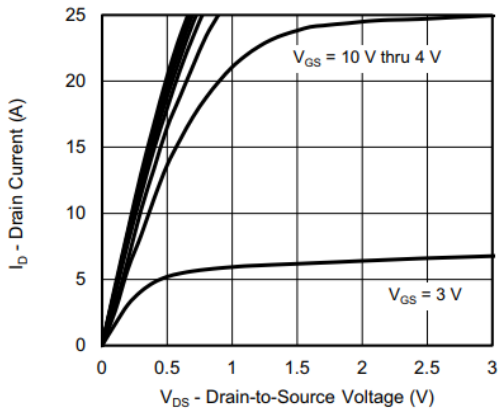
➢ Q1 Electronics Characteristics(T_A=25℃ unless otherwise noted)

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	1.65	2.1	V
$R_{DS(on)}$	Drain-Source On-Resistance	VGS=10V,ID=15A		9.5	13	mR
		VGS=4.5V,ID=12A		12.5	16	
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
V_{SD}	Forward Voltage	VGS=0V,IS=0.5A		0.8	1.3	V
G_{FS}	Transconductance	VDS=15V,ID=10A		50		S
Ciss	Input Capacitance	VDS=15V, VGS=0V, f=1MHz		800		pF
Coss	Output Capacitance			255		
Crss	Reverse Transfer Capacitance			75		
$T_{D(ON)}$	Turn-on delay time	VGS=10V, VDS=15V, RG=3R,RL=2.3R		15		ns
Tr	Rise time			9		
$T_{D(OFF)}$	Turn-off delay time			55		
Tf	Fall time			16		
Qg	Total Gate charge	VGS=10V, VDS=15V, ID=13A		8		nC
Qgs	Gate to Source charge			1.1		
Qgd	Gate to Drain charge			2.2		

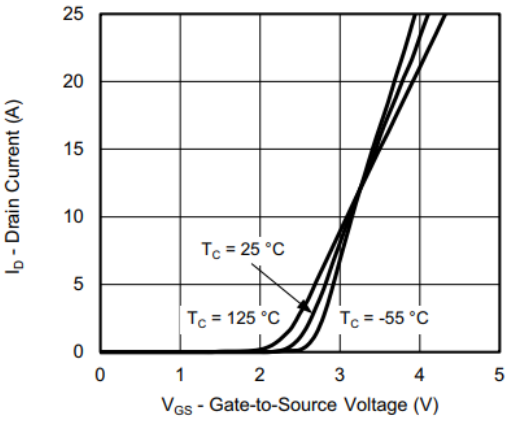
➢ **Q2 Electronics Characteristics**(T_A=25℃ unless otherwise noted)

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	1.55	3	V
$R_{DS(on)}$	Drain-Source On-Resistance	VGS=10V,ID=15A		8	11	mR
		VGS=4.5V,ID=12A		10	14	
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
V_{SD}	Forward Voltage	VGS=0V,IS=1A		0.8	1.5	V
G_{FS}	Transconductance	VDS=15V,ID=10A		60		S
Ciss	Input Capacitance	VDS=15V, VGS=0V, f=1MHz		1000		pF
Coss	Output Capacitance			269		
Crss	Reverse Transfer Capacitance			105		
$T_{D(ON)}$	Turn-on delay time	VGS=10V, VDS=15V, RG=3R,RL=2.3R		8		ns
Tr	Rise time			4		
$T_{D(OFF)}$	Turn-off delay time			18		
Tf	Fall time			6		
Qg	Total Gate charge	VGS=10V, VDS=15V, ID=13A		15		nC
Qgs	Gate to Source charge			2.2		
Qgd	Gate to Drain charge			3.3		

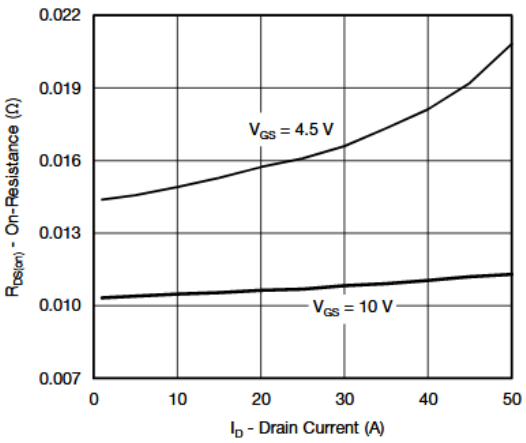
➢ Q1 Typical Characteristics(T_A=25℃ unless otherwise noted)



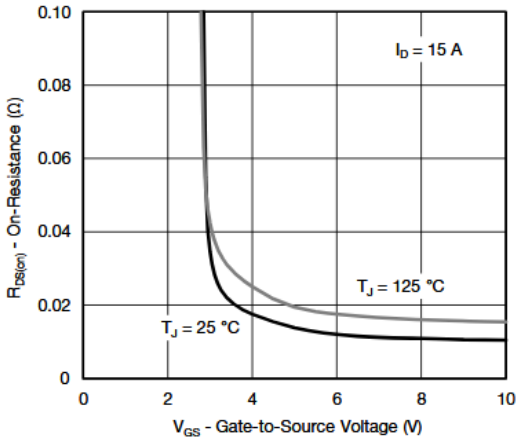
Output Characteristics



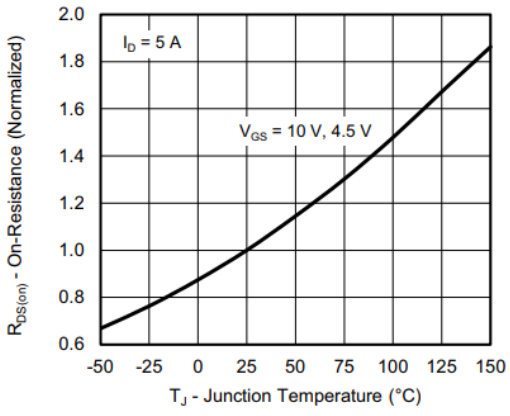
Transfer Characteristics



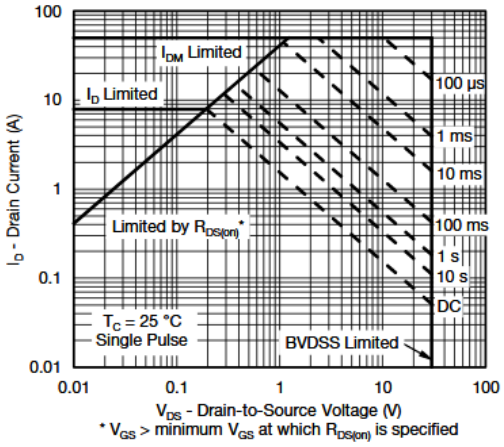
On-Resistance vs. Drain Current and Gate Voltage



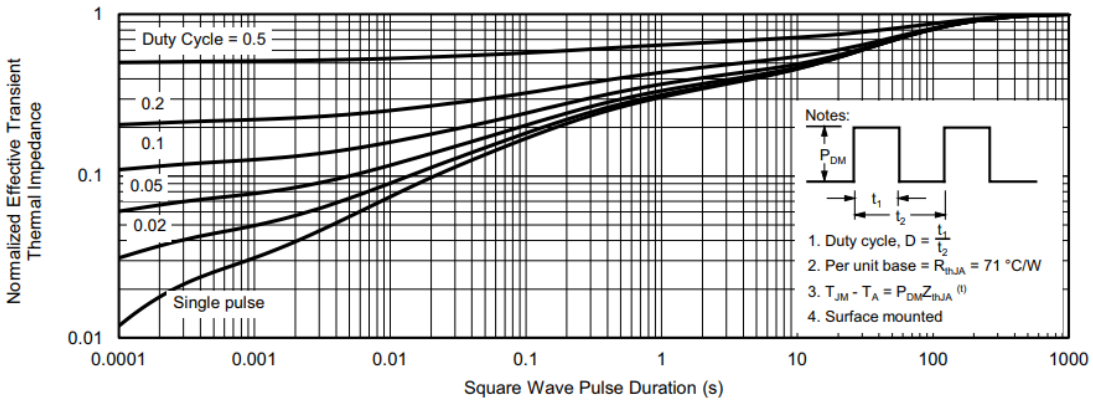
On-Resistance vs. Gate-to-Source Voltage



On-Resistance vs. Junction Temperature

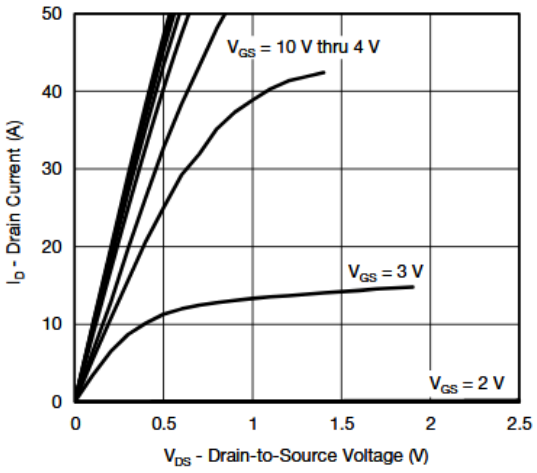


Safe Operating Area, Junction-to-Ambient

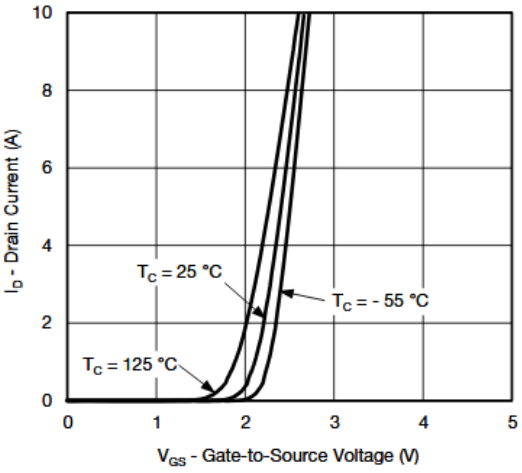


Normalized Thermal Transient Impedance, Junction-to-Ambient

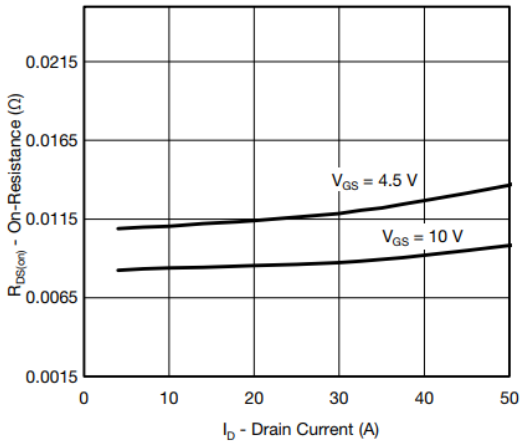
➢ Q2 Typical Characteristics(T_A=25℃ unless otherwise noted)



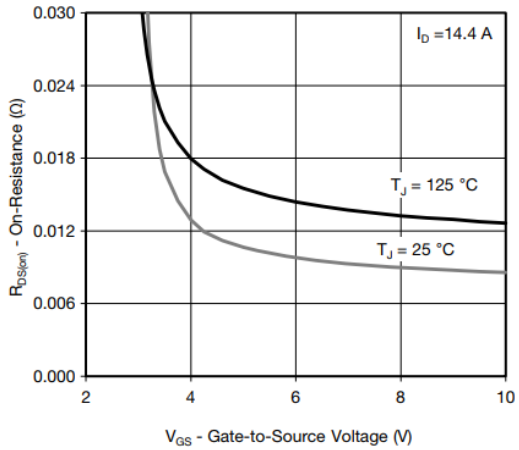
Output Characteristics



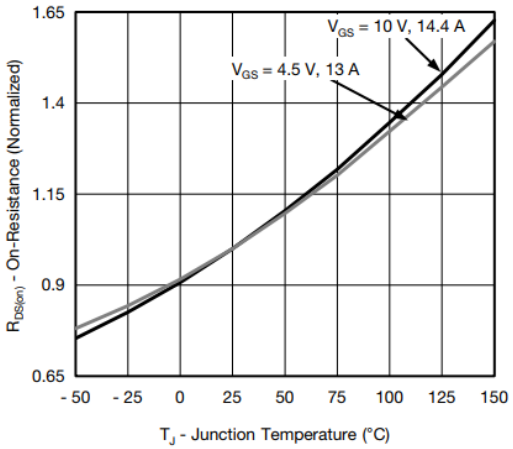
Transfer Characteristics



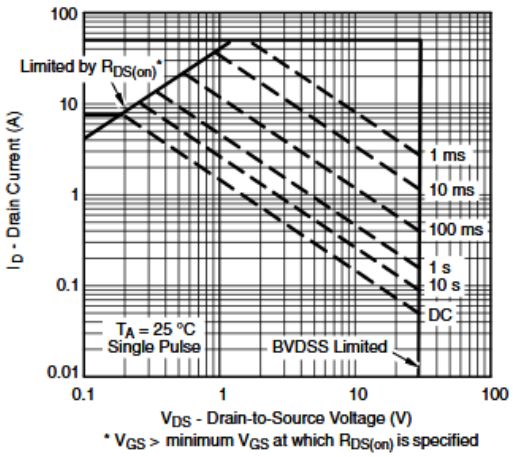
On-Resistance vs. Drain Current



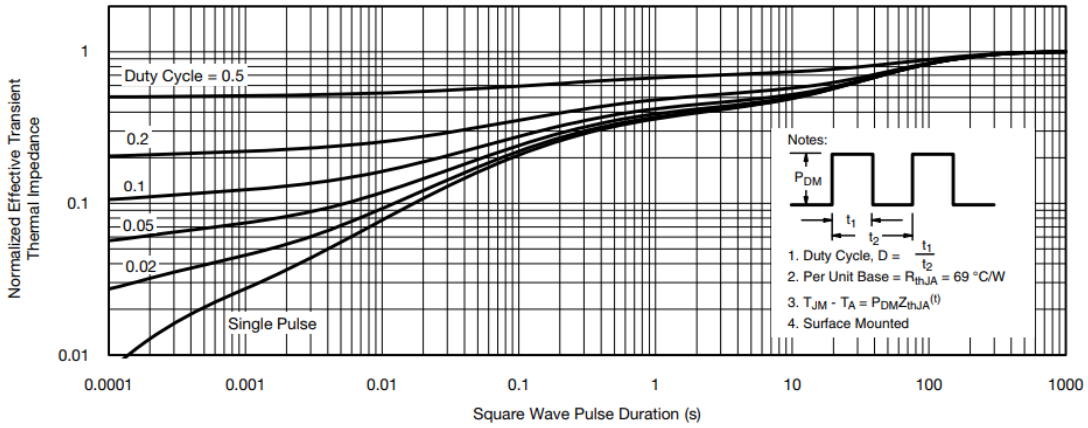
On-Resistance vs. Gate-to-Source Voltage



On-Resistance vs. Junction Temperature

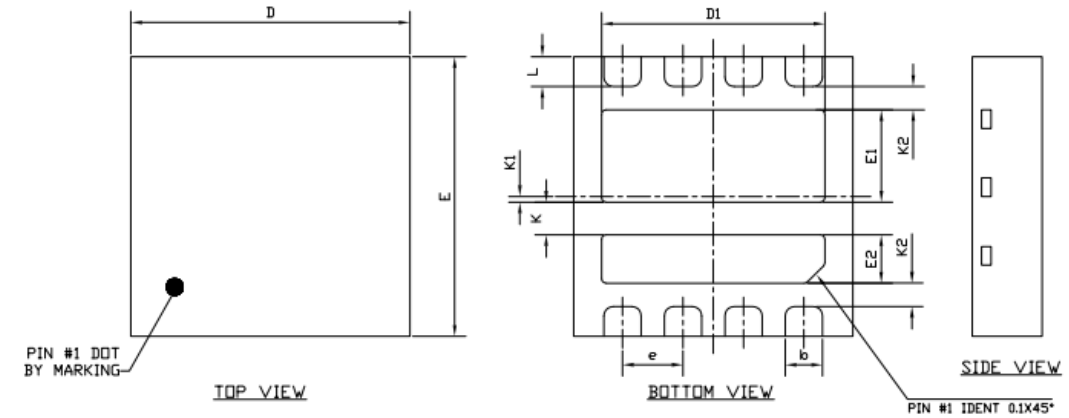


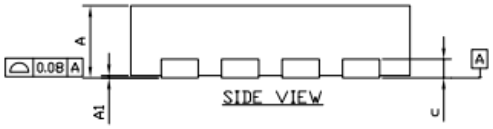
Safe Operating Area, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Ambient

➢ Package Information





DFN3X3

SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.70	0.75	0.80	0.028	0.030	0.032
A1	0.00	---	0.05	0.000	---	0.002
c	0.203 REF.			0.008 REF.		
b	0.35	0.40	0.45	0.014	0.016	0.018
D	2.90	3.00	3.10	0.114	0.118	0.122
D1	2.30	2.40	2.50	0.090	0.094	0.098
E	2.90	3.00	3.10	0.114	0.118	0.122
E1	0.89	0.99	1.09	0.035	0.039	0.043
E2	0.42	0.52	0.62	0.016	0.020	0.024
e	0.65 BSC			0.026 BSC		
L	0.27	0.32	0.37	0.011	0.013	0.015
K	0.35 REF.			0.014 REF.		
K1	0.06 REF.			0.002 REF.		
K2	0.25 REF.			0.010 REF.		

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