

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
30V	6mΩ@10V	50A
	8mΩ@4.5V	

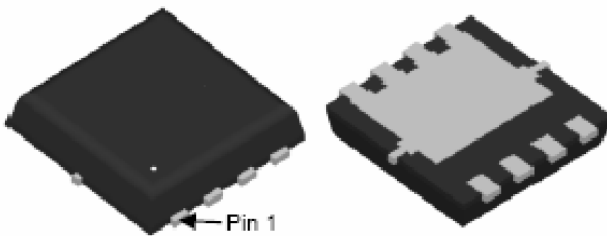
### Feature

- High density cell design for ultra low Rdson
- Excellent package for heat dissipatio
- Suffix "-Q1" for AEC-Q101

### Application

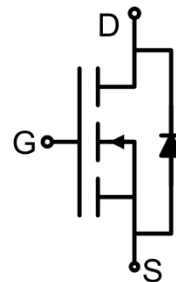
- High current load applications
- Load switching
- Hard switched and high frequency circuits
- Uninterruptible power supply

### Package

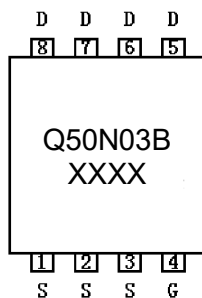


DFN3.3X3.3-8L

### Circuit diagram



### Marking



### Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	50	A
Pulsed Drain Current	$I_{DM}$	190	A
Power Dissipation	$P_D$	30	W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	5	$^{\circ}C/W$
Single pulse avalanche energy	$E_{AS}$	225	mJ
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^{\circ}C$

### Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 30V, V_{GS} = 0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1		2.5	V
Drain-source on-resistance <sup>1)</sup>	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 15A$		4.9	6.0	m $\Omega$
		$V_{GS} = 4.5V, I_D = 15A$		6.3	8.0	
<b>Dynamic characteristics<sup>2)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		1480		pF
Output Capacitance	$C_{oss}$			302		
Reverse Transfer Capacitance	$C_{rss}$			175		
Total Gate Charge	$Q_g$	$V_{DS} = 15V, V_{GS} = 10V, I_D = 20A$		52.8		nC
Gate-Source Charge	$Q_{gs}$			12.3		
Gate-Drain Charge	$Q_{gd}$			10.8		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 20V, V_{GS} = 10V, I_D = 4A, R_{GEN} = 3\Omega, R_L = 1\Omega$		9		nS
Turn-on rise time	$t_r$			15.5		
Turn-off delay time	$t_{d(off)}$			29		
Turn-off fall time	$t_f$			9		
<b>Source-Drain Diode characteristics</b>						
Diode Forward Current <sup>1)</sup>	$I_S$				50	A
Diode Forward voltage	$V_{DS}$	$V_{GS} = 0V, I_S = 20A$			1.2	V
Reverse Recovery Time	$t_{rr}$	$T_J = 25^{\circ}C, I_F = 25A, di/dt = 100A/\mu s$ <sup>1)</sup>		27		nS
Reverse Recovery Charge	$Q_{rr}$			28		nC

Notes:

1) Pulse Test: Pulse Width < 300 $\mu s$ , Duty Cycle  $\leq 2\%$ .

2) Guaranteed by design, not subject to production testing.

## Typical Characteristics

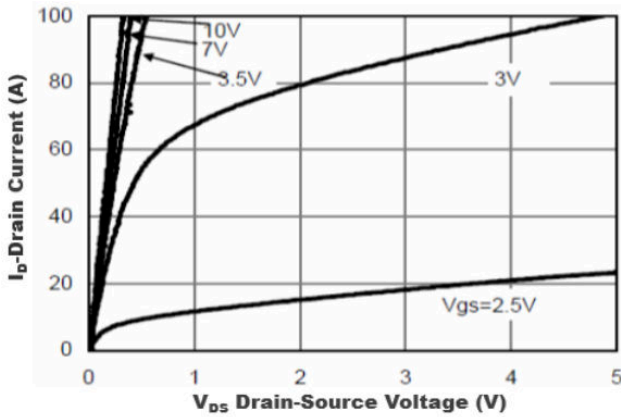


Figure1. Output Characteristics

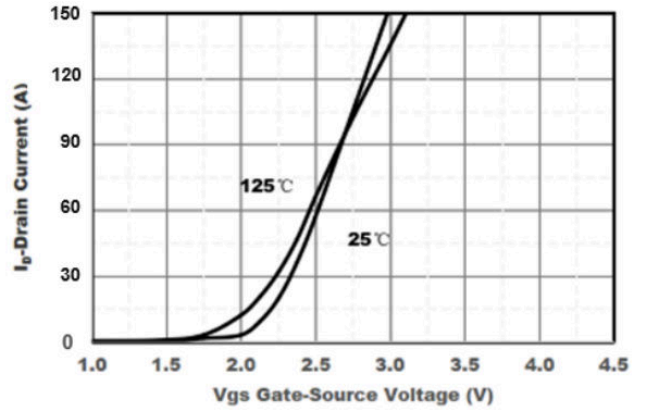


Figure2. Transfer Characteristics

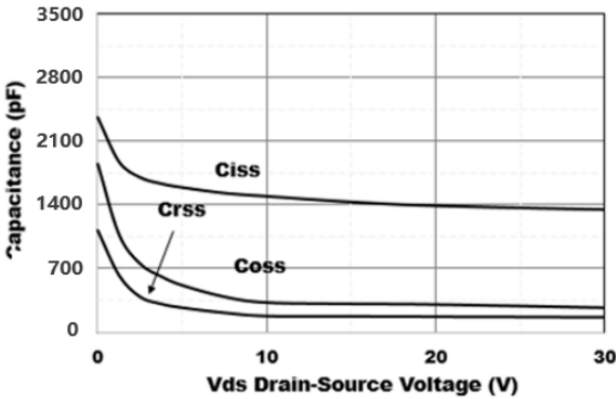


Figure3. Capacitance Characteristics

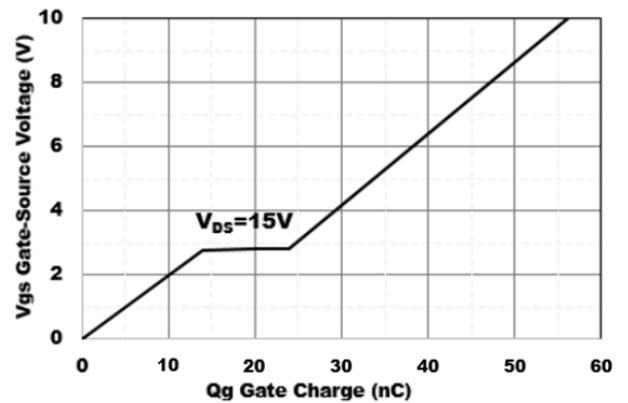


Figure4. Gate Charge

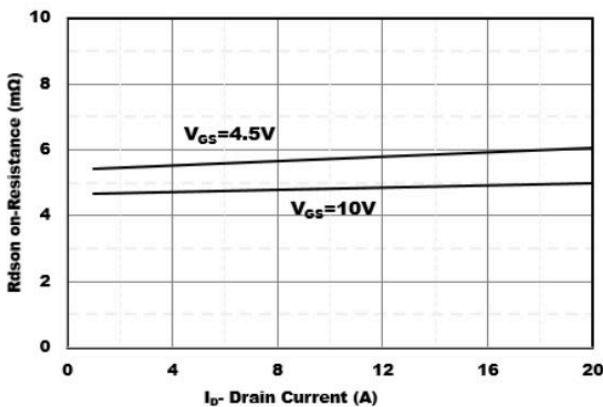


Figure5. Drain-Source on Resistance

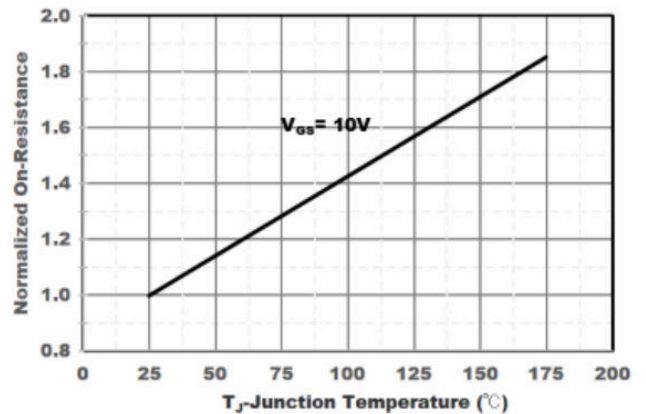
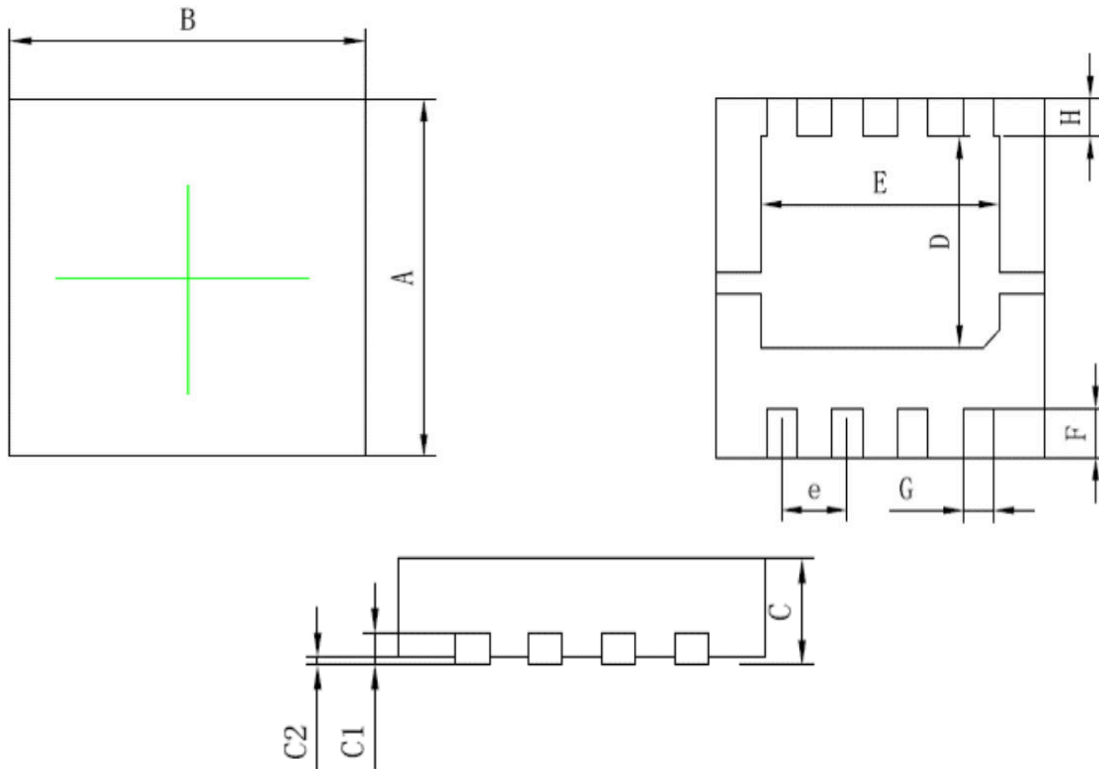


Figure6. Drain-Source on Resistance

### DFN3.3X3.3-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	3.200	3.300	0.126	0.130
B	3.200	3.300	0.126	0.130
C	0.750	0.850	0.030	0.033
C1	0.180	0.220	0.007	0.009
C2	0.05 Max		0.002 Max	
D	1.800	2.000	0.071	0.079
E	2.200	2.500	0.087	0.098
F	0.400	0.500	0.016	0.020
G	0.250	0.350	0.010	0.014
H	0.300	0.400	0.012	0.016
e	0.600	0.700	0.024	0.028