

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	13mΩ@10V	30A
	18mΩ@4.5V	

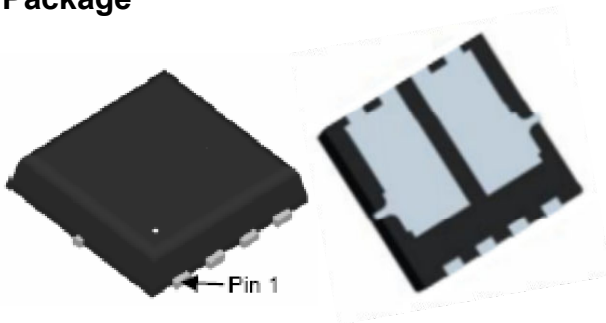
Feature

- High density cell design for ultra low Rdson
- Trench Power LV MOSFET technology
- Excellent package for heat dissipation
- Suffix "-Q1" for AEC-Q101

Application

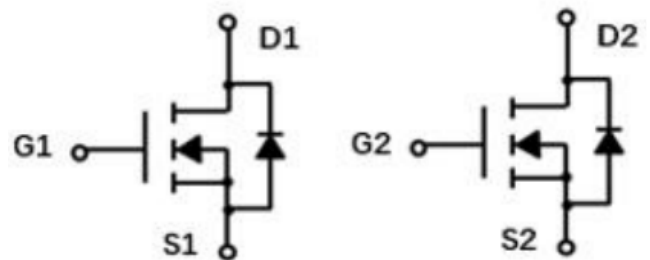
- High current load applications
- Load switching
- Hard switched and high frequency circuits
- Uninterruptible power supply

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}	±20	V
Continuous Drain Current	I_D	30	A
Tc=25°C			
Pulsed Drain Current	I_{DM}	115	A
Power Dissipation	P_D	21	W
Tc=25°C			
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	7.1	°C/W
Single pulse avalanche energy	E_{AS}	140	mJ
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
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	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			±100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0		2.5	V
Drain-source on-resistance ¹⁾	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		11	13	mΩ
		$V_{GS} = 4.5V, I_D = 10A$		14	18	
Dynamic characteristics²⁾						
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		950		pF
Output Capacitance	C_{oss}			204		
Reverse Transfer Capacitance	C_{rss}			121		
Total Gate Charge	Q_g	$V_{DS} = 15V, V_{GS} = 10V, I_D = 30A$		28		nC
Gate-Source Charge	Q_{gs}			7		
Gate-Drain Charge	Q_{gd}			5		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 20V, V_{GS} = 10V, I_D = 2A, R_{GEN} = 3\Omega, R_L = 1\Omega$		8		nS
Turn-on rise time	t_r			15		
Turn-off delay time	$t_{d(off)}$			27		
Turn-off fall time	t_f			7		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I_S				30	A
Diode Forward voltage	V_{DS}	$V_{GS} = 0V, I_S = 15A$			1.2	V
Reverse Recovery Time	t_{rr}	$I_F = 15A, di/dt = 100A/\mu s$ ¹⁾		26		nS
Reverse Recovery Charge	Q_{rr}			25		nC

Notes:

1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.

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

Typical Characteristics

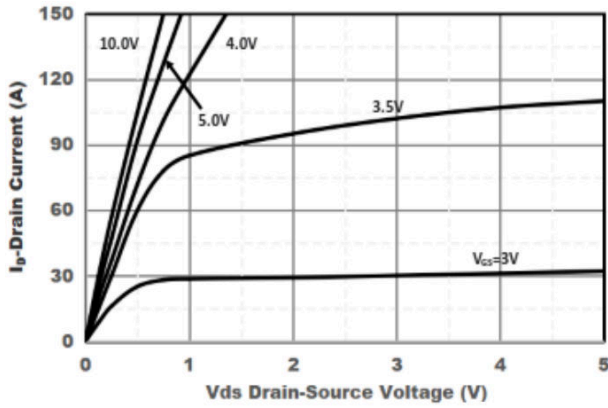


Figure1. Output Characteristics

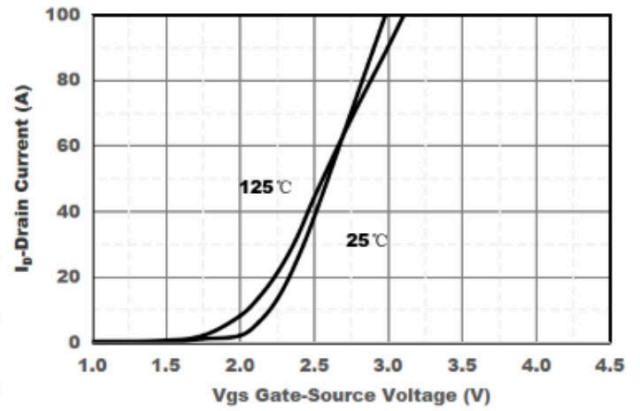


Figure2. Transfer Characteristics

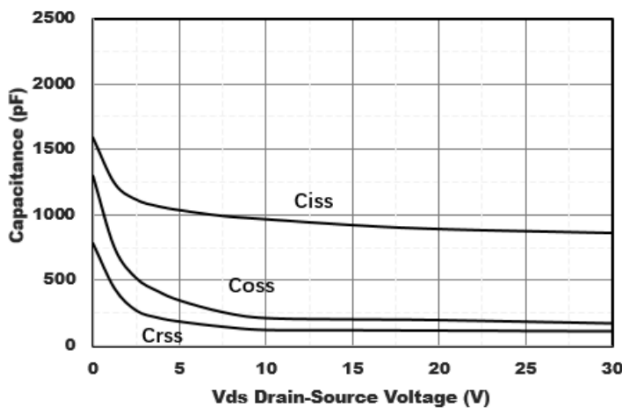


Figure3. Capacitance Characteristics

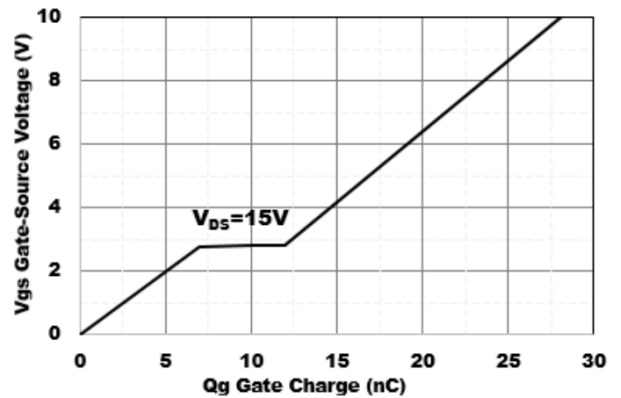


Figure4. Gate Charge

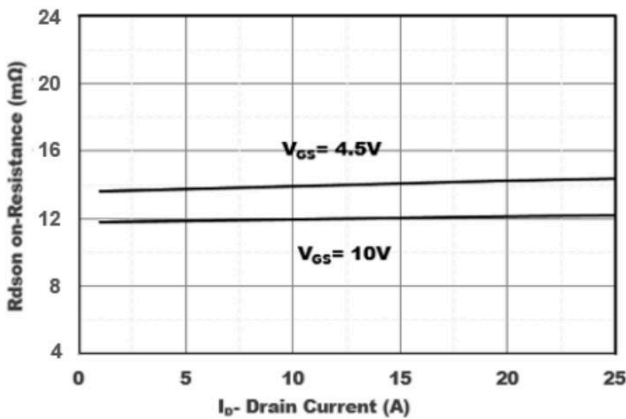


Figure5. Drain-Source on Resistance

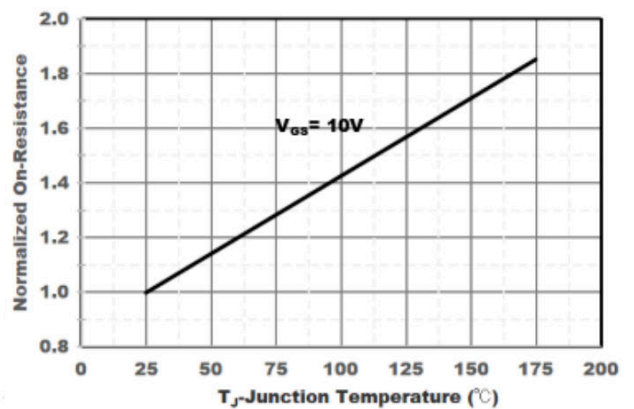


Figure6. Drain-Source on Resistance

Typical Characteristics

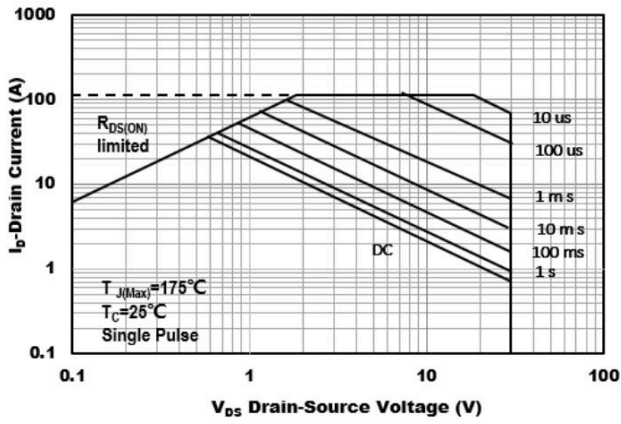


Figure7. Safe Operation Area

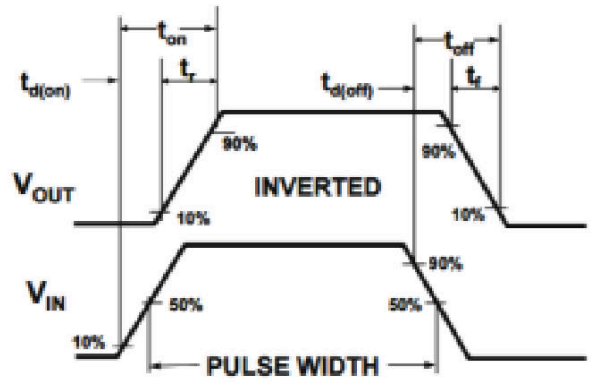
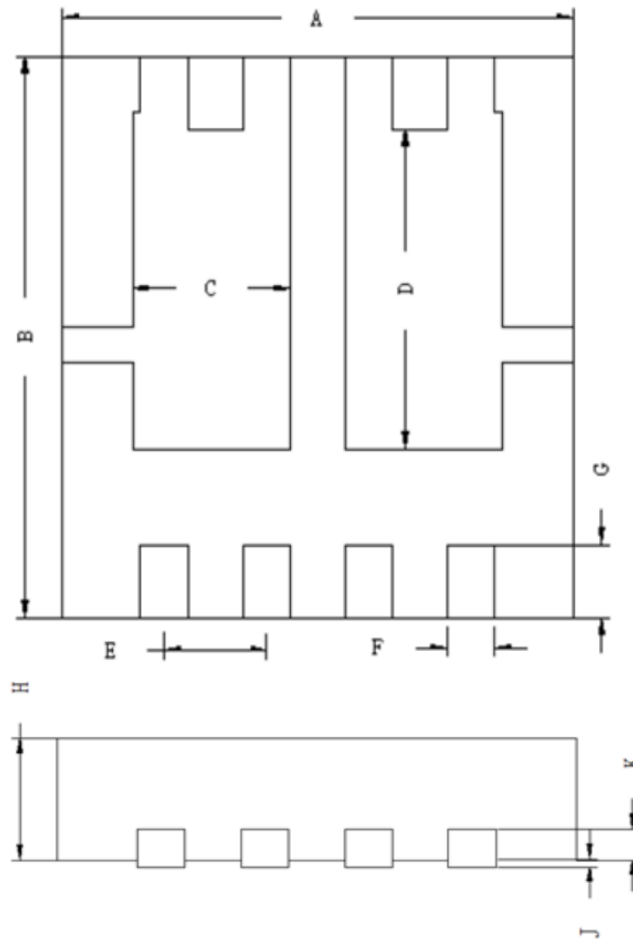


Figure8. Switching wave

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	0.950	1.050	0.037	0.041
D	1.800	1.900	0.071	0.075
E	0.650 BSC		0.026 BSC	
F	0.250	0.350	0.010	0.014
G	0.375	0.475	0.015	0.019
H	0.750	0.850	0.030	0.033
J	0.050 Max		0.002 Max	
K	0.200 REF		0.008 REF	