

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-20V	19mΩ@-4.5V	-30A
	26mΩ@-2.5V	
	45mΩ@-1.8V	

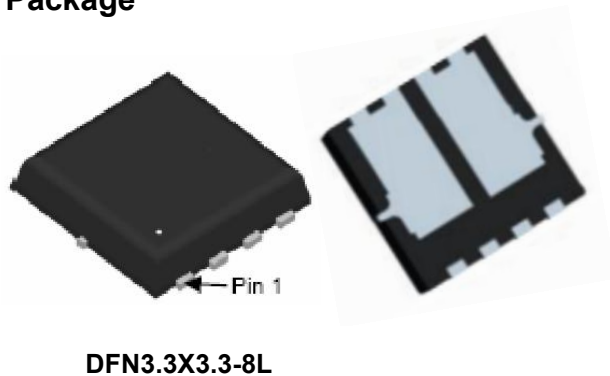
Feature

- High density cell design for ultra low Rdson
- High Speed switching
- Suffix "-Q1" for AEC-Q101

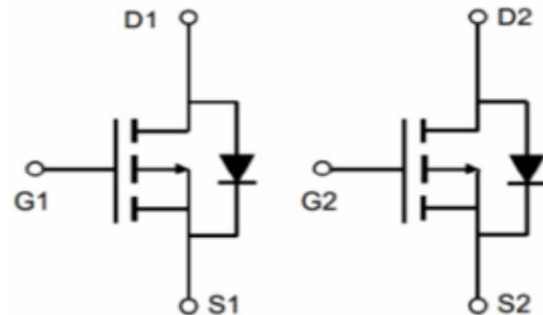
Application

- Battery protection
- Load switching
- Power management

Package



Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±10	V
Continuous Drain Current	I _D	Tc=25°C	-30
		Ta=25°C	-10
Pulsed Drain Current	I _{DM}	-40	A
Power Dissipation	P _D	Tc=25°C	32
		Ta=25°C	3
Thermal Resistance, Junction-to-Case	R _{θJC}	3.9	°C/W
Single pulse avalanche energy	E _{AS}	31	mJ
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_A=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 = -250μA	-20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±10V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4		-1.0	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} = -4.5V, I _D = -15A			19	mΩ
		V _{GS} = -2.5V, I _D = -8A			26	
		V _{GS} = -1.8V, I _D = -6A			45	
Dynamic characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz		2050		pF
Output Capacitance	C _{oss}			411		
Reverse Transfer Capacitance	C _{rss}			362		
Total Gate Charge	Q _g	V _{DS} = -15V, V _{GS} = -10V, I _D = -15A		30		nC
Gate-Source Charge	Q _{gs}			5.3		
Gate-Drain Charge	Q _{gd}			7.6		
Turn-on delay time	t _{d(on)}	V _{DD} = -15V, V _{GS} = -10V, I _D = -15A, R _{GEN} = 2.5Ω		14		nS
Turn-on rise time	t _r			20		
Turn-off delay time	t _{d(off)}			95		
Turn-off fall time	t _f			65		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I _S				-30	A
Diode Forward voltage	V _{DS}	V _{GS} = 0V, I _S = -30A			-1.2	V

Notes:

- 1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.
- 2) Guaranteed by design, not subject to production testing.

Typical Characteristics

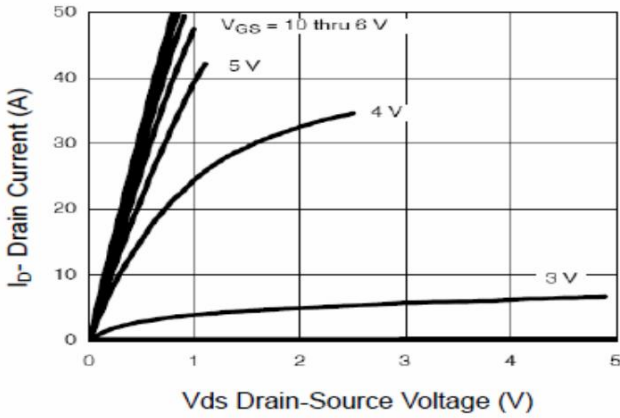


Figure1. Output Characteristics

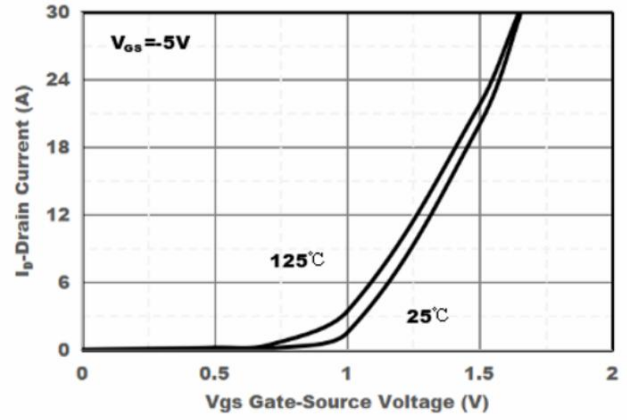


Figure2. Transfer Characteristics

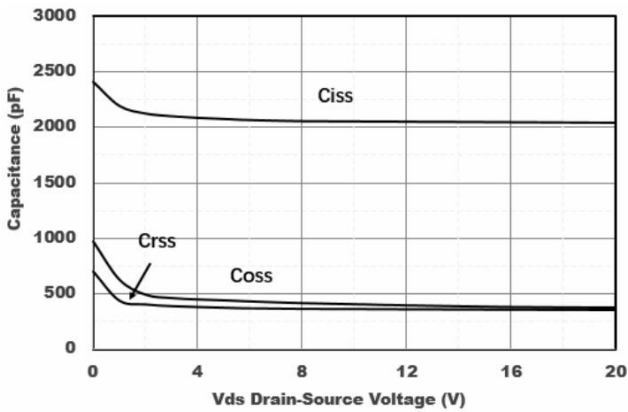


Figure3. Capacitance Characteristics

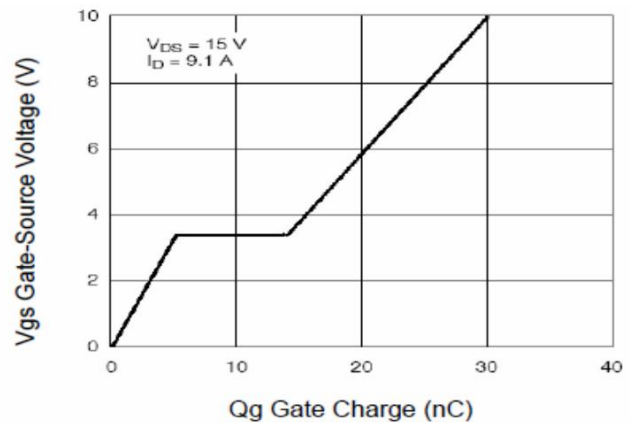


Figure4. Gate Charge

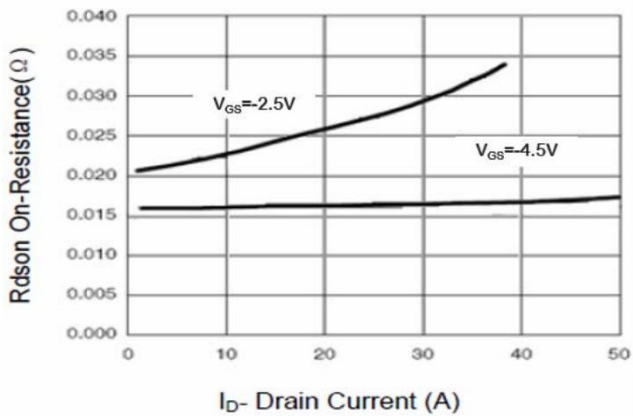


Figure5. Drain-Source on Resistance

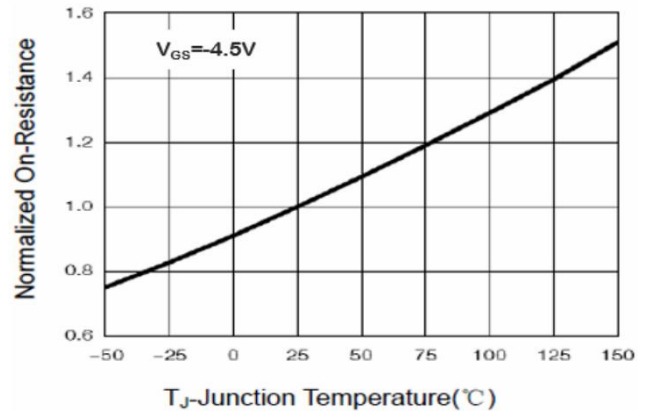


Figure6. Drain-Source on Resistance

Typical Characteristics

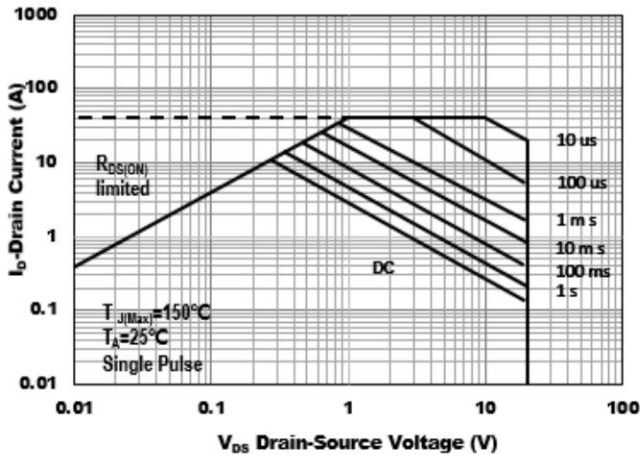


Figure7. Safe Operation Area

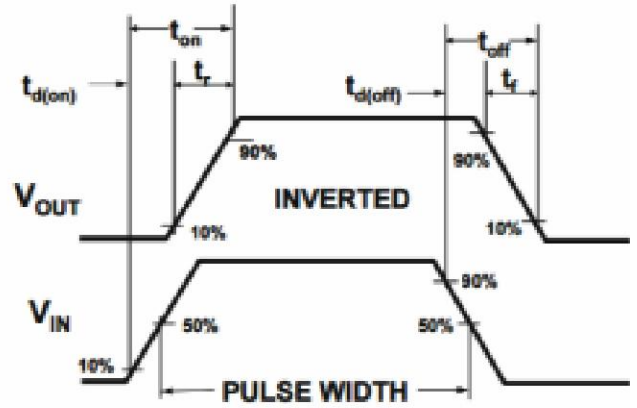
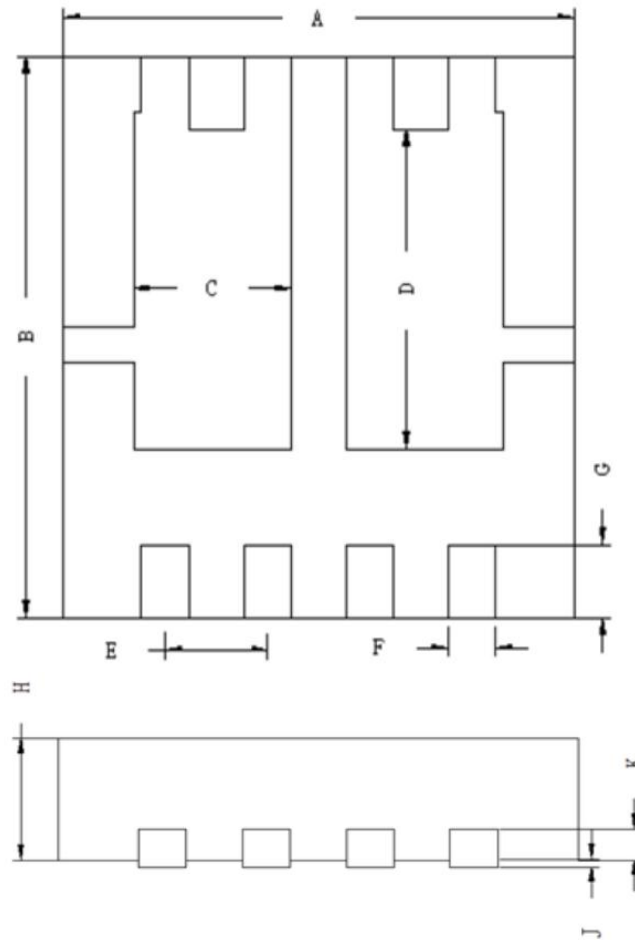


Figure8. Switching wave

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	