

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	18.5mΩ@10V	40A
	22.5mΩ@4.5V	

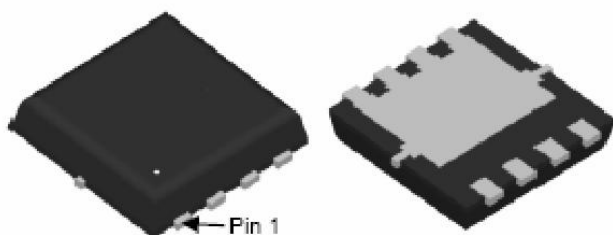
Feature

- High density cell design for ultra low Rdson
- Split gate trench MOSFET technology
- Excellent package for heat dissipation
- Moisture Sensitivity Level 3
- Suffix“-Q1”for AEC-Q101

Application

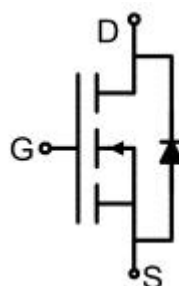
- Consumer electronic power supply
- DC/DC converter
- Ideal for high-frequency switching and synchronous rectification
- Motor control
- Invertors

Package

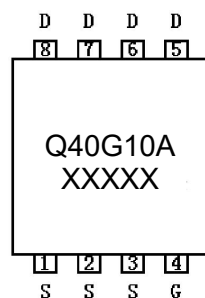


DFN3.3X3.3-8L

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	40	A
Continuous Drain Current(T _C =100 °C)	I _D (100 °C)	25.3	A
Pulsed Drain Current	I _{DM}	160	A
Power Dissipation	P _D	43	W
Thermal Resistance,Junction-to-Ambient	R _{θJA}	55	°C/W
Thermal Resistance,Junction-to-Case	R _{θJC}	2.9	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_J=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	100			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =100V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.8	2.5	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} =10V, I _D =20A		15	18.5	mΩ
		V _{GS} =4.5V, I _D =20A		18	22.5	
Dynamic characteristics²⁾						
Input Capacitance	C _{iSS}	V _{DS} =50V, V _{GS} =0V, f =1MHz		1051		pF
Output Capacitance	C _{oss}			399		
Reverse Transfer Capacitance	C _{rSS}			18		
Total Gate Charge	Q _g	V _{DS} =50V, V _{GS} =10V, I _D =25A		16		nC
Gate-Source Charge	Q _{gs}			5.6		
Gate-Drain Charge	Q _{gd}			2.4		
Turn-on delay time	t _{d(on)}	V _{DD} =50V, V _{GS} =10V, I _D =25A, R _{GEN} =2.2Ω		39.2		nS
Turn-on rise time	t _r			11		
Turn-off delay time	t _{d(off)}			53.2		
Turn-off fall time	t _f			15.8		
Source-Drain Diode characteristics						
Diode Forward voltage	V _{DS}	V _{GS} =0V, I _S =20A			1.3	V
Diode Forward Current	I _S				40	A
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F =20A		39.8		nS
Reverse Recovery Charge	Q _{rr}	di/dt = 100A/μs ¹⁾		42		nC

Notes:

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

Typical Characteristics

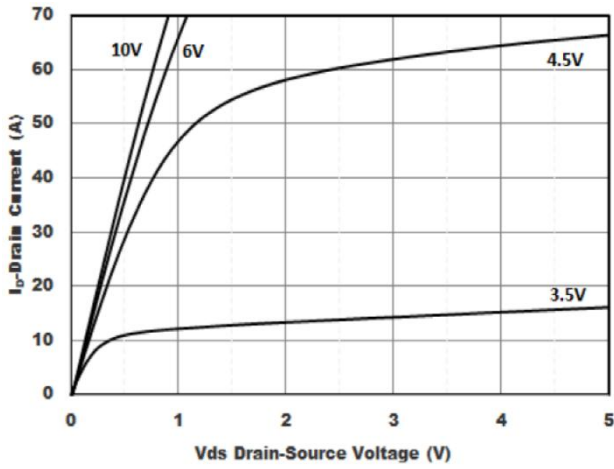


Figure1. Output Characteristics

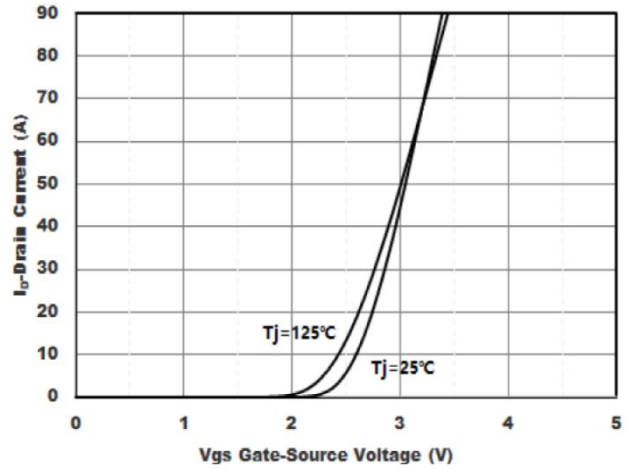


Figure2. Transfer Characteristics

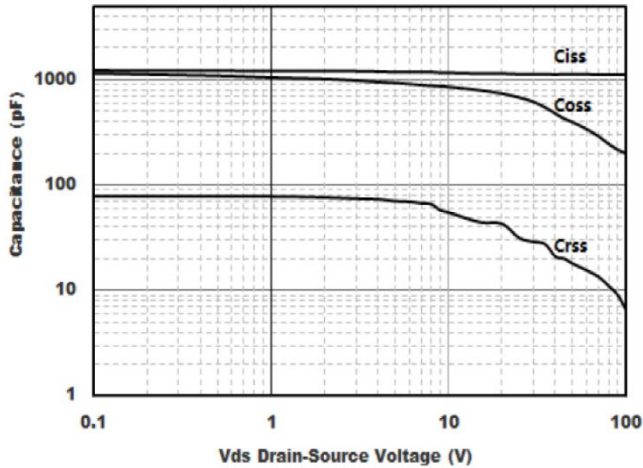


Figure3. Capacitance Characteristics

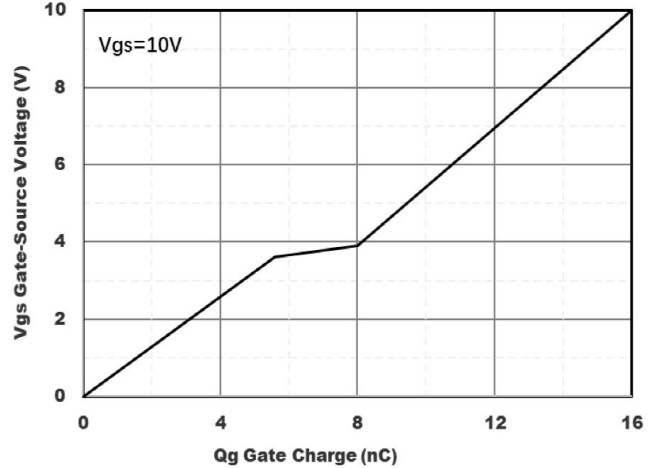


Figure4. Gate Charge

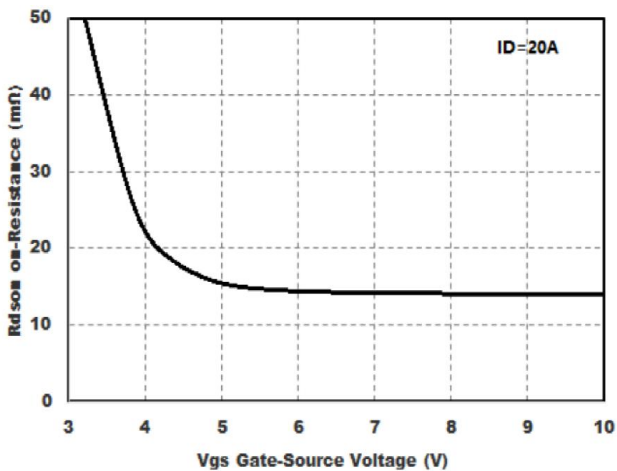


Figure5. : On-Resistance vs. Gate to Source Voltage

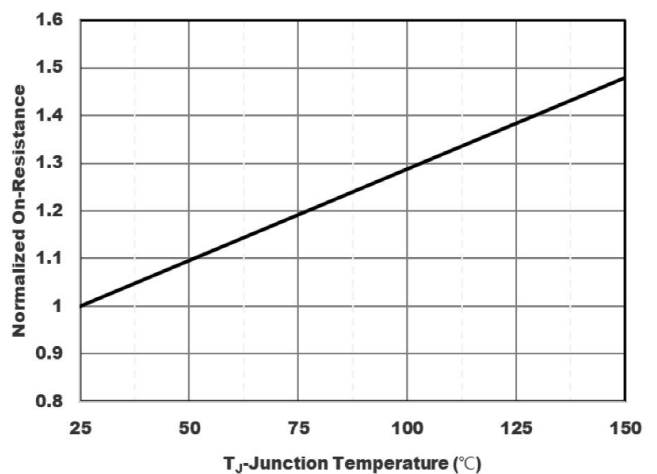


Figure6. Normalized On-Resistance

Typical Characteristics

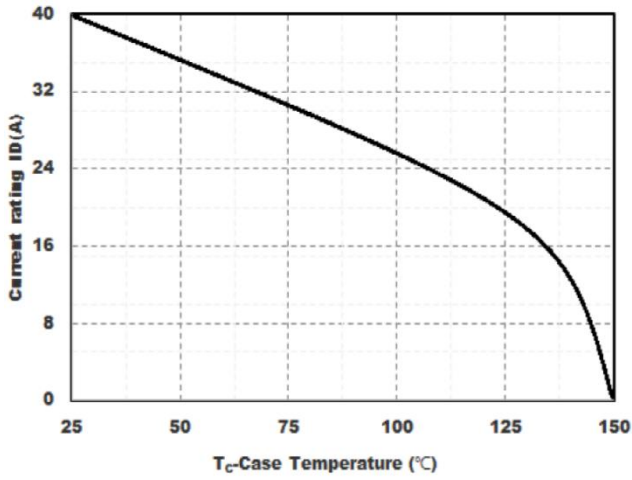


Figure7. Drain current

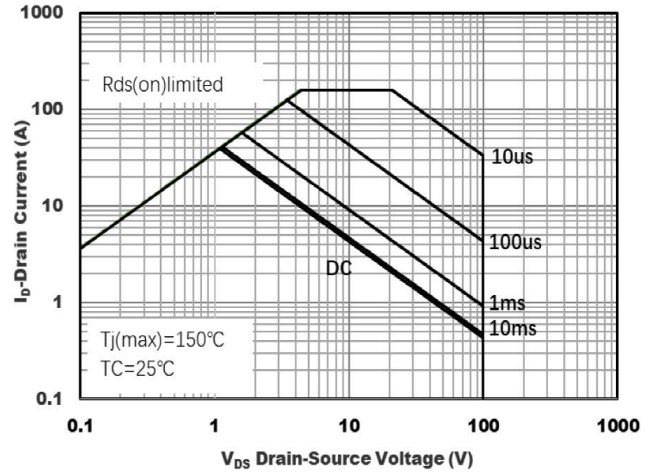


Figure8.Safe Operation Area

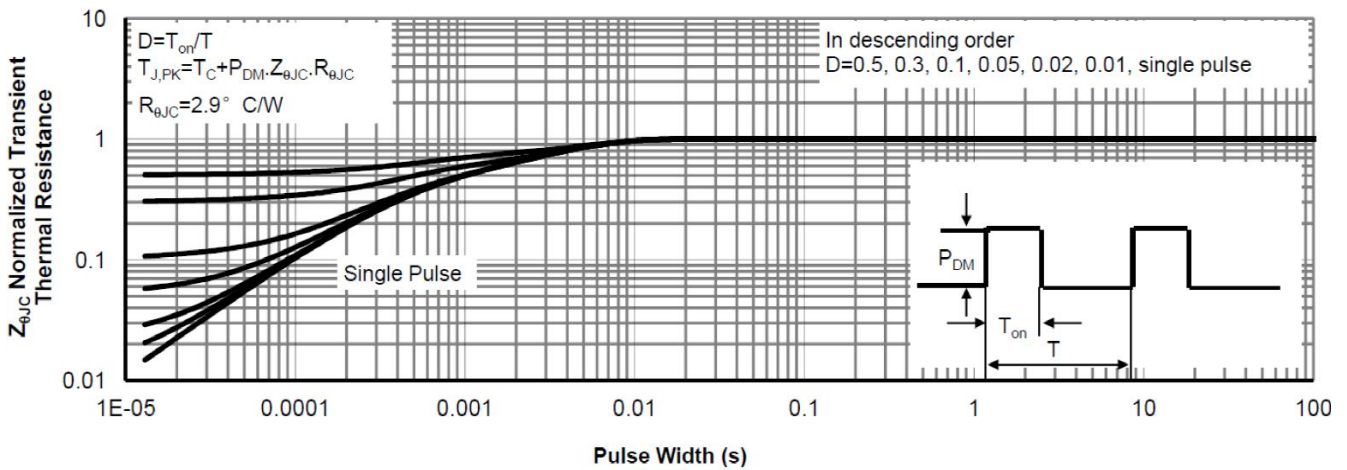
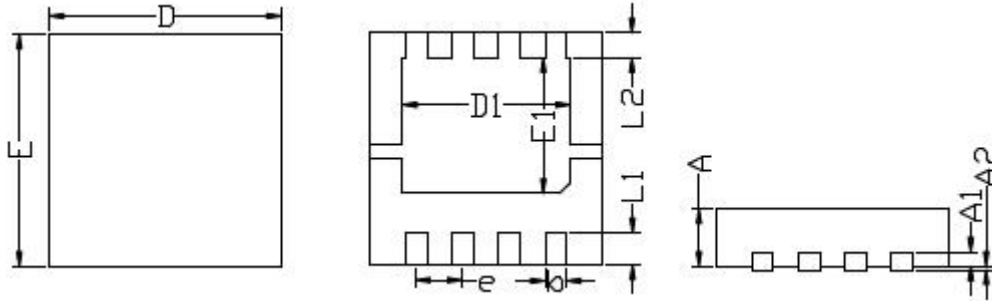


Figure9.Normalized Maximum Transient thermal impedance

DFN3.3X3.3-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.027	0.035
A1	0.200BSC		0.008BSC	
A2	0.000	0.100	0.000	0.004
b	0.200	0.400	0.008	0.016
D	3.150	3.350	0.124	0.132
D1	2.200	2.500	0.086	0.098
E	3.150	3.350	0.124	0.132
E1	1.800	2.000	0.071	0.079
e	0.650 BSC		0.026 BSC	
L1	0.350	0.550	0.013	0.022
L2	0.350 BSC		0.014BSC	