

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-100V	110mΩ@-10V	-15A
	120mΩ@-4.5V	

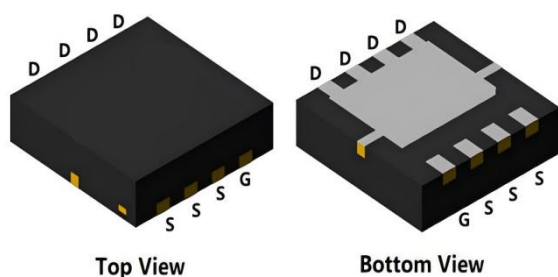
Feature

- Split gate trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(on)}$
- Suffix“-Q1”for AEC-Q101

Application

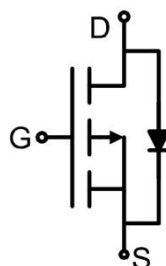
- Power management functions
- DC-DC converters

Package

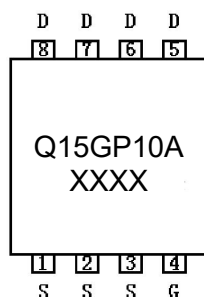


DFN3.3*3.3-8L

Circuit diagram



Marking



Absolute maximum ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C=25^{\circ}\text{C}$)	I_D	-15	A
Continuous Drain Current ($T_C=100^{\circ}\text{C}$)	$I_D (100^{\circ}\text{C})$	-9.5	A
Pulsed Drain Current ¹⁾	I_{DM}	-45	A
Single Pulse Avalanche Energy ²⁾	E_{AS}	64	mJ
Power Dissipation ³⁾ ($T_C=25^{\circ}\text{C}$)	P_D	43	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	2.9	$^{\circ}\text{C/W}$
Operating Junction Temperature	T_J	-55 ~ +150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Electrical characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-100			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=-100V, V_{GS}=0V$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.8	-2.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-10A$		83	110	m Ω
		$V_{GS}=-4.5V, I_D=-5A$		95	120	
Dynamic characteristics ⁴⁾						
Input Capacitance	C_{iss}	$V_{DS}=-50V, V_{GS}=0V, f=1MHz$		1051		pF
Output Capacitance	C_{oss}			119		
Reverse Transfer Capacitance	C_{rss}			25		
Total Gate Charge	Q_g	$V_{DS}=-50V, V_{GS}=-10V$ $I_D=-5A$		20.1		nC
Gate-Source Charge	Q_{gs}			3.98		
Gate-Drain Charge	Q_{gd}			4.38		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=-50V, V_{GS}=-10V$ $I_D=-5A, R_G=6\Omega$		10		nS
Turn-on rise time	t_r			30		
Turn-off delay time	$t_{d(off)}$			77		
Turn-off fall time	t_f			81		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				-15	A
Diode Forward voltage	V_{SD}	$V_{GS}=0V, I_S=-15A$			-1.3	V
Reverse Recovery Time	T_{rr}	$I_F=-5A, di/dt=-100A/\mu s$		80		nS
Reverse Recovery Charge	Q_{rr}			140		nC

Notes:

- 1) Repetitive rating; pulse width limited by max. junction temperature.
- 2) $T_J=25^{\circ}\text{C}$, $V_{DS}=-50V$, $V_G=-10V$, $L=0.5\text{mH}$, $I_{AS}=-16A$, $R_G=25\Omega$.
- 3) P_D is based on max. junction temperature, using junction-case and junction-ambient thermal resistance.
- 4) Guaranteed by design, not subject to production testing.

Typical Characteristics

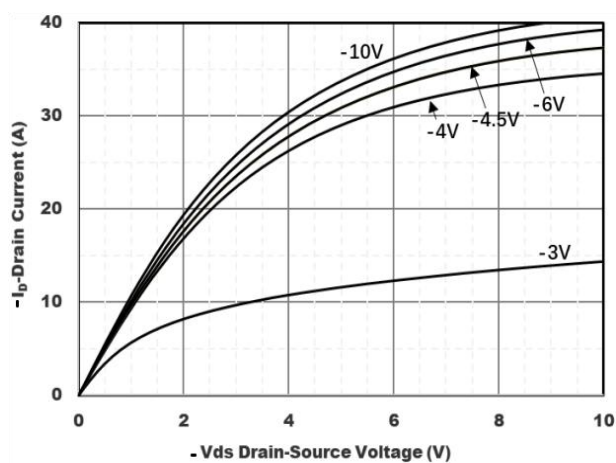


Figure1. Output Characteristics

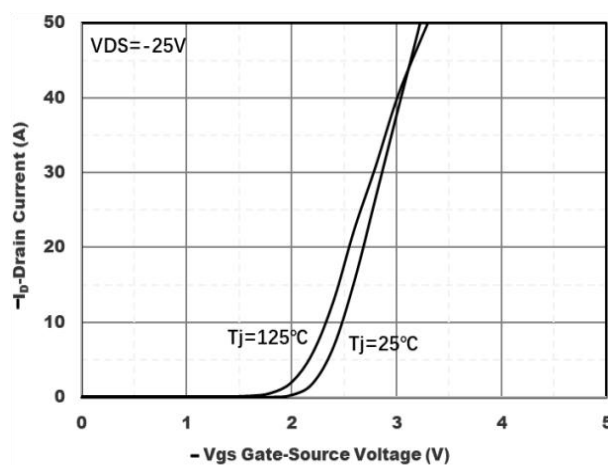


Figure2. Transfer Characteristics

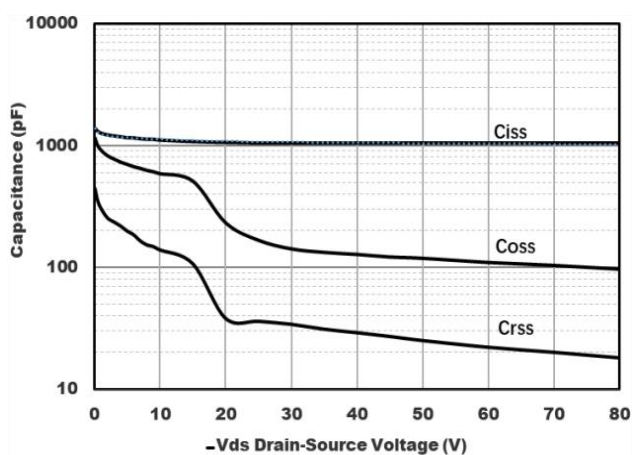


Figure3. Capacitance Characteristics

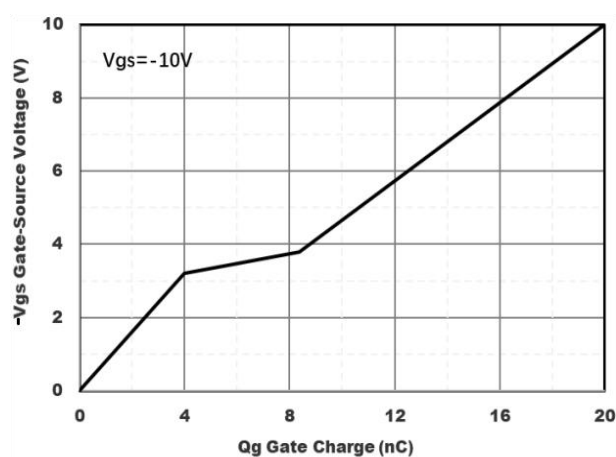


Figure4. Gate Charge

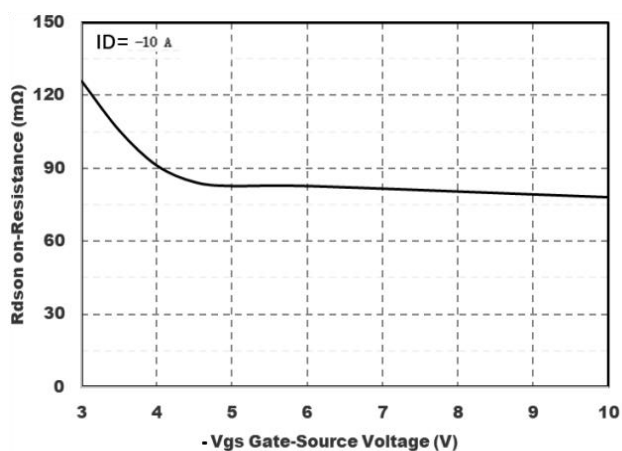


Figure5. : On-Resistance vs. Gate to Source Voltage

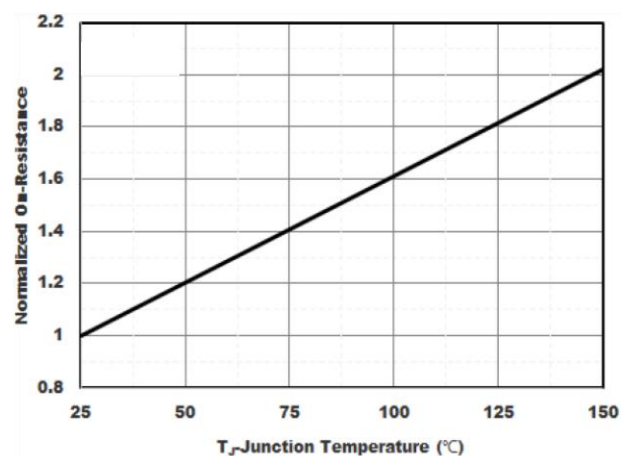


Figure6. Normalized On-Resistance

Typical Characteristics

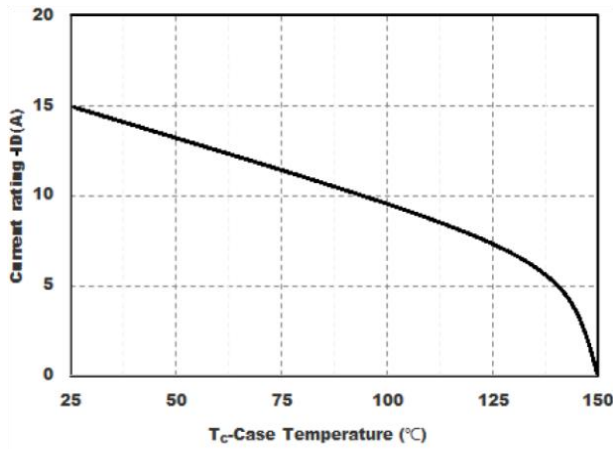


Figure7. Drain current

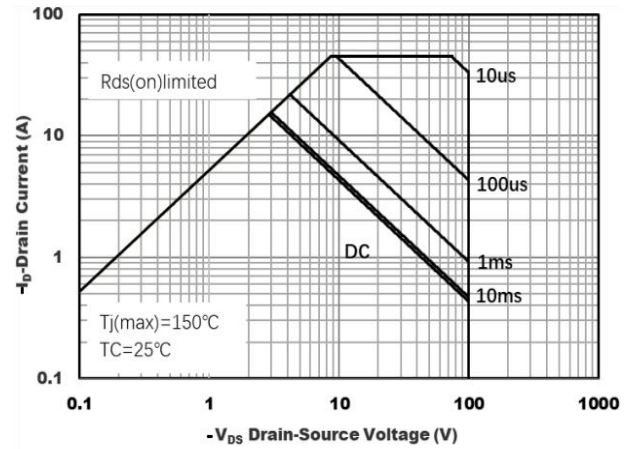


Figure8.Safe Operation Area

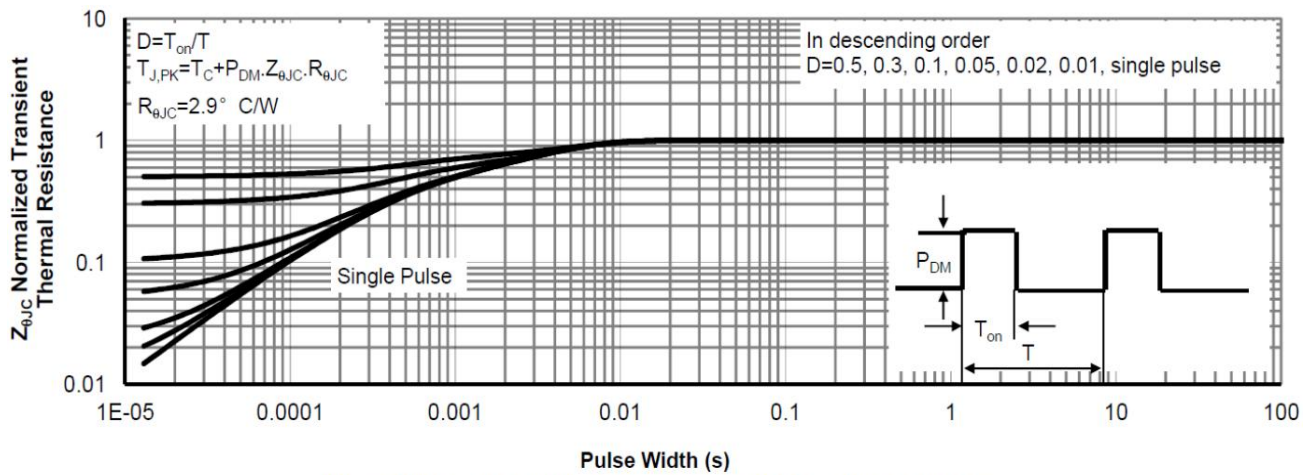


Figure9.Normalized Maximum Transient thermal impedance

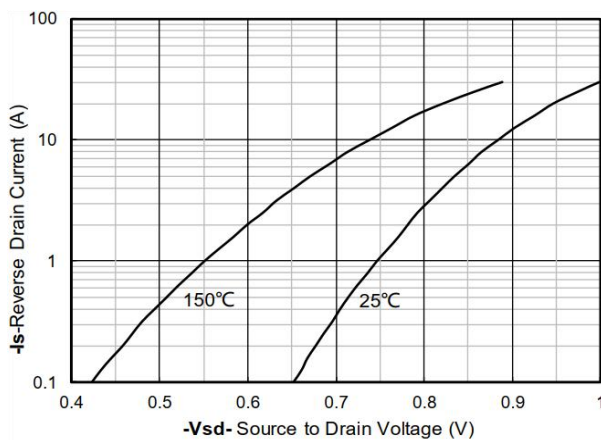
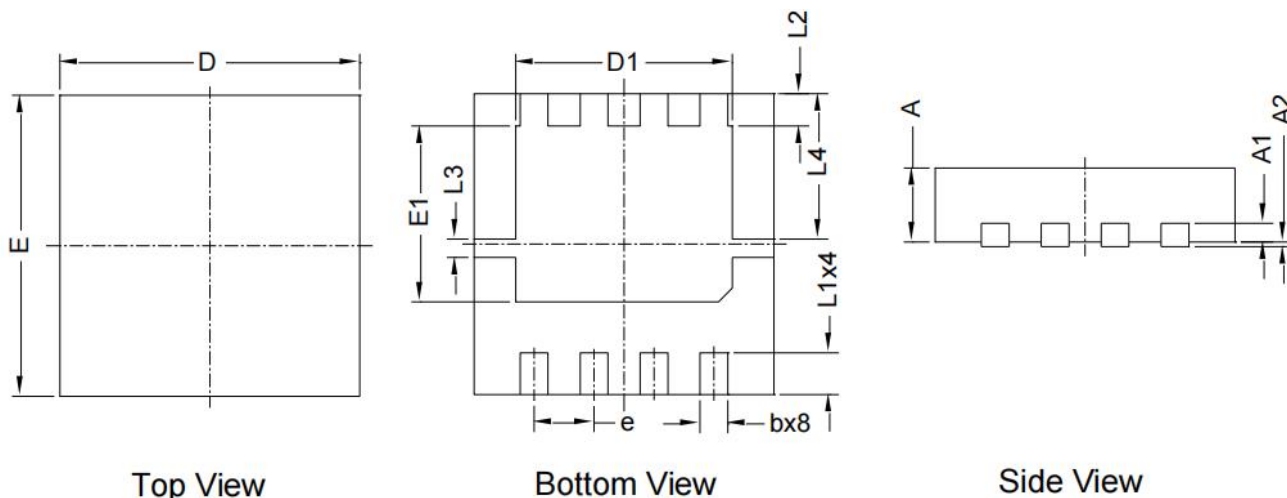


Figure 10. Forward characteristics of reverse diode

DFN3.3*3.3-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
D	3.150	3.350	0.124	0.132
E	3.150	3.350	0.124	0.132
A	0.700	0.900	0.027	0.035
A1	0.200 BSC.		0.008 BSC.	
A2	0.000	0.100	0.000	0.004
D1	2.200	2.500	0.086	0.098
E1	1.800	2.000	0.071	0.079
L1	0.350	0.550	0.013	0.022
L2	0.350 BSC.		0.014 BSC.	
L3	0.200 BSC.		0.008 BSC.	
L4	1.570 BSC.		0.062 BSC.	
b	0.200	0.400	0.008	0.016
e	0.650 BSC.		0.026 BSC.	