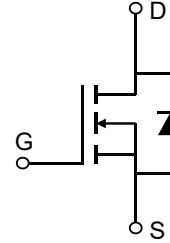


Description

Features

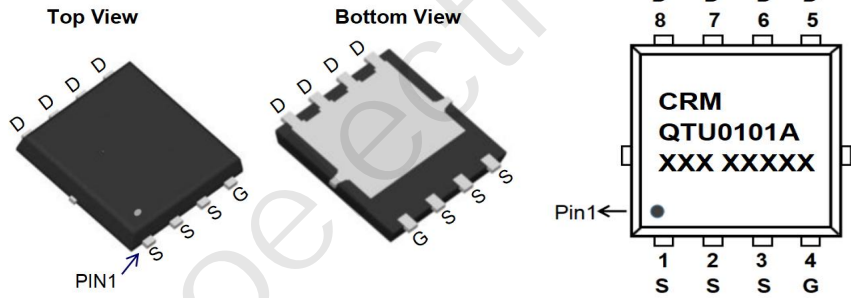
- 12V, 80A
- $R_{DS(ON)}$ Typ = 1.9mΩ @ $V_{GS} = 4.5V$
- $R_{DS(ON)}$ Typ = 2.4mΩ @ $V_{GS} = 2.5V$
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead Free
- 100% UIS TESTED!
- 100% ΔV_d s TESTED!



Schematic Diagram

Application

- Load Switch
- PWM Application
- Power Management



Marking and Pin Assignment

Package Marking and Ordering Information

Device	Marking	Package	Outline	Reel Size	Reel (pcs)	Per Carton (pcs)
CRMQTU0101A	CRMQTU0101A	PDFN3.3x3.3-8L	TAPING	13"	5000	50000

Absolute Maximum Ratings (@ $T_J = 25^\circ C$ unless otherwise specified)

Symbol	Parameter	Value	Units
V_{DS}	Drain-to-Source Voltage	12	V
V_{GS}	Gate-to-Source Voltage	±12	V
I_D	Continuous Drain Current	$T_C = 25^\circ C$	80
		$T_C = 100^\circ C$	48
I_{DM}	Pulsed Drain Current ⁽¹⁾	320	A
E_{AS}	Single Pulsed Avalanche Energy ⁽²⁾	25	mJ
P_D	Power Dissipation	$T_C = 25^\circ C$	28
$R_{\theta JC}$	Thermal Resistance, Junction to Case	4.4	°C/W
T_J, T_{STG}	Junction & Storage Temperature Range	-55 to 150	°C

Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	I _D = 250μA, V _{GS} = 0V	12	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 12V, V _{GS} = 0V	-	-	1.0	μA
I _{GSS}	Gate-Body Leakage Current	V _{DS} = 0V, V _{GS} = ±12V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	0.4	0.6	1	V
R _{DS(ON)}	Static Drain-Source ON-Resistance ⁽³⁾	V _{GS} = 4.5V, I _D = 20A	-	1.9	2.5	mΩ
		V _{GS} = 2.5V, I _D = 10A	-	2.4	3.1	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 6V, f = 1MHz	-	4940	-	pF
C _{oss}	Output Capacitance		-	1228	-	pF
C _{rss}	Reverse Transfer Capacitance		-	1128	-	pF
Q _g	Total Gate Charge	V _{GS} = 0 to 4.5V V _{DS} = 10V, I _D = 20A	-	50	-	nC
Q _{gs}	Gate Source Charge		-	8	-	nC
Q _{gd}	Gate Drain("Miller") Charge		-	20	-	nC
Switching Characteristics						
t _{d(on)}	Turn-On DelayTime	V _{GS} = 4.5V, V _{DD} = 10V I _D = 20A, R _{GEN} = 3Ω	-	15	-	ns
t _r	Turn-On Rise Time		-	40	-	ns
t _{d(off)}	Turn-Off DelayTime		-	80	-	ns
t _f	Turn-Off Fall Time		-	85	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current	V _{GS} = 0V, I _S = 20A	-	-	80	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	320	A
V _{SD}	Drain to Source Diode Forward Voltage		-	-	1.2	V
trr	Body Diode Reverse Recovery Time		-	30	-	ns
Qrr	Body Diode Reverse Recovery Charge		I _F = 20A, di/dt = 100A/us	-	20	-

- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. E_{AS} condition: Starting $T_J = 25^\circ\text{C}$, $V_{DD} = 6\text{V}$, $V_G = 10\text{V}$, $R_G = 25\Omega$, $L = 0.5\text{mH}$, $I_{AS} = 10\text{A}$
 3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$.

Test Circuit



Figure 1: Gate Charge Test Circuit & Waveform



Figure 2: Resistive Switching Test Circuit & Waveform

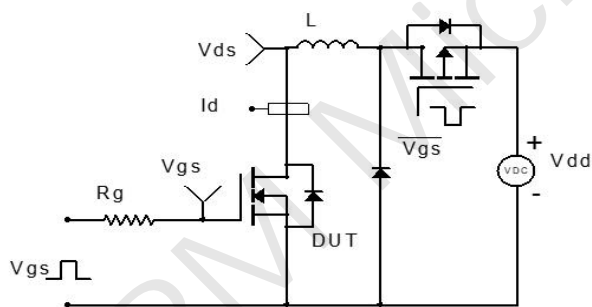
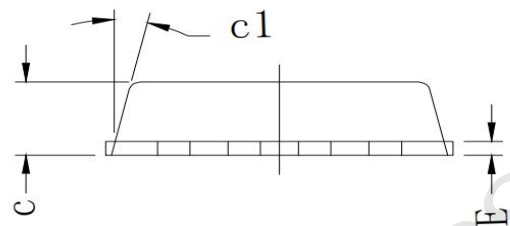
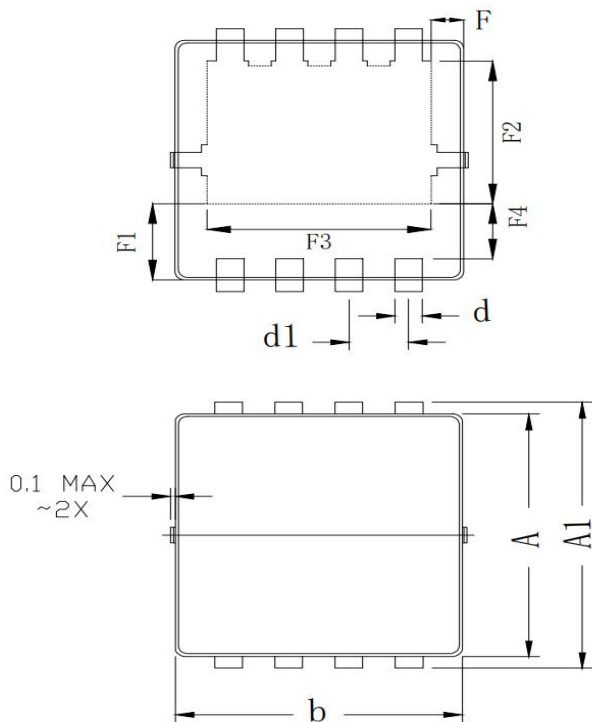


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform



Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(PDFN3.3x3.3-8L)




COMMON DIMENSION (MM)			
PKG	PDFN 3.3×3.3-8L		
SYMBOL	MIN	TYP	MAX
A	3.070	3.100	3.130
A1	3.300	3.400	3.500
b	3.070	3.100	3.130
c	0.770	0.800	0.830
c1	—	13°	—
d	0.275	0.300	0.325
d1	0.625	0.650	0.675
E	0.144	0.152	0.160
F	0.300	0.325	0.350
F1	0.960	0.985	1.010
F2	1.775	1.800	1.825
F3	2.425	2.450	2.475
F4	0.660	0.685	0.710

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