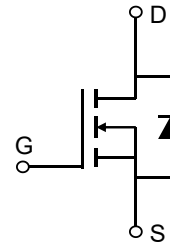


Description

Features

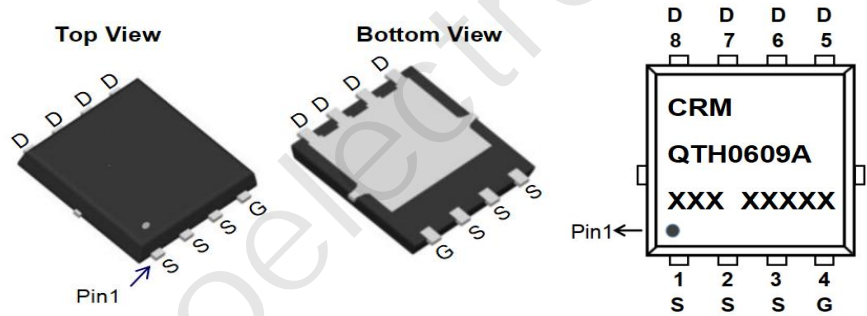
- 60V, 45A
 $R_{DS(ON)}$ Typ = 9.9mΩ @ $V_{GS} = 10V$
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead Free
- 100% UIS TESTED!
- 100% ΔV_{ds} TESTED!



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)
CRMQTH0609A	CRMQTH0609A	PDFN3.3x3.3-8L	TAPING	13"	5000	50000

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

Symbol	Parameter	Value	Units
V_{DS}	Drain-to-Source Voltage	60	V
V_{GS}	Gate-to-Source Voltage	± 20	V
I_D	Continuous Drain Current	$T_C = 25^\circ\text{C}$	45
		$T_C = 100^\circ\text{C}$	27
I_{DM}	Pulsed Drain Current ⁽¹⁾	180	A
E_{AS}	Single Pulsed Avalanche Energy ⁽²⁾	81	mJ
P_D	Power Dissipation	$T_C = 25^\circ\text{C}$	43
$R_{\theta JC}$	Thermal Resistance, Junction to Case	2.9	$^\circ\text{C/W}$
T_J, T_{STG}	Junction & Storage Temperature Range	-55 to 150	$^\circ\text{C}$

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	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 60V, V _{GS} = 0V	-	-	1.0	μA
I _{GSS}	Gate-Body Leakage Current	V _{DS} = 0V, V _{GS} = ±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	2.2	3	3.8	V
R _{DS(ON)}	Static Drain-Source ON-Resistance ⁽³⁾	V _{GS} = 10V, I _D = 20A	-	9.9	12.9	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 25V, f = 1MHz	-	2327	-	pF
C _{oss}	Output Capacitance		-	160	-	pF
C _{rss}	Reverse Transfer Capacitance		-	139	-	pF
Q _g	Total Gate Charge	V _{GS} = 0 to 10V V _{DS} = 30V, I _D = 20A	-	44	-	nC
Q _{gs}	Gate Source Charge		-	12	-	nC
Q _{gd}	Gate Drain("Miller") Charge		-	15	-	nC
Switching Characteristics						
t _{d(on)}	Turn-On DelayTime	V _{GS} = 10V, V _{DD} = 30V I _D = 20A, R _{GEN} = 3Ω	-	14	-	ns
t _r	Turn-On Rise Time		-	73	-	ns
t _{d(off)}	Turn-Off DelayTime		-	33	-	ns
t _f	Turn-Off Fall Time		-	59	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	45	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	180	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} = 0V, I _S = 30A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I _F = 20A, di/dt = 100A/us	-	23	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	28	-	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. E_{AS} condition: Starting $T_J = 25^\circ\text{C}$, $V_{DD} = 30\text{V}$, $V_G = 10\text{V}$, $R_G = 25\Omega$, $L = 0.5\text{mH}$, $I_{AS} = 18\text{A}$
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

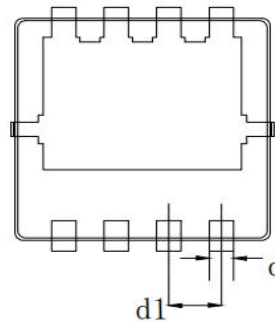
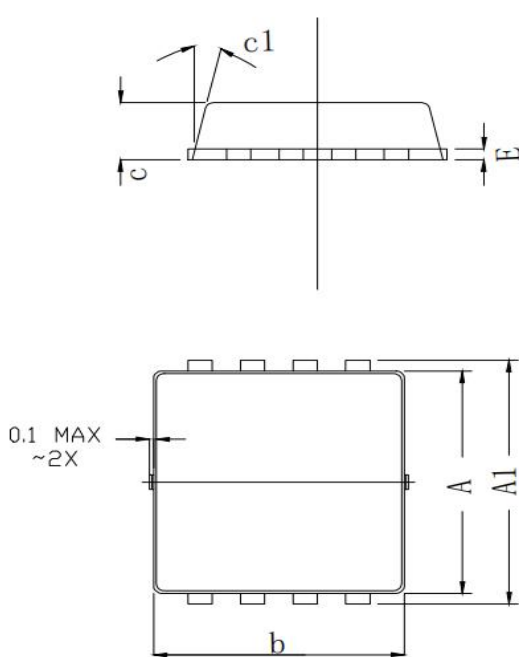


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform



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	MON	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	0.300		
d1	0.650		
E	0.152		

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