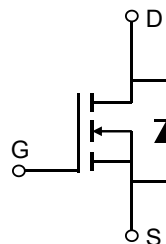


### Description

#### Features

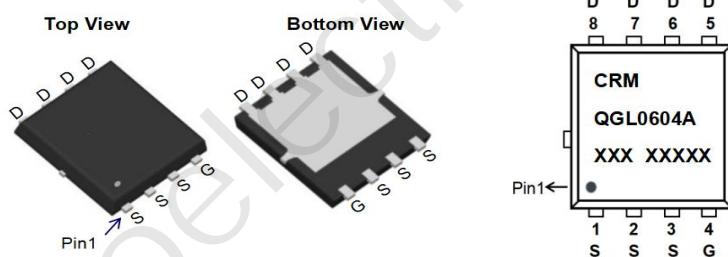
- 60V, 80A  
 $R_{DS(ON)}$  Typ = 3.9mΩ @  $V_{GS} = 10V$   
 $R_{DS(ON)}$  Typ = 5mΩ @  $V_{GS} = 4.5V$
- Advanced Split Gate Trench Technology
- Excellent  $R_{DS(ON)}$  and Low Gate Charge
- 100% UIS TESTED!
- 100%  $\Delta V_d$ s TESTED!



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)
CRMQGL0604A	CRMQGL0604A	PDFN3.3x3.3-8L	TAPING	13"	5000	60000

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

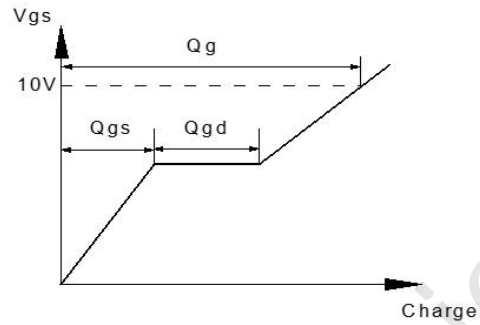
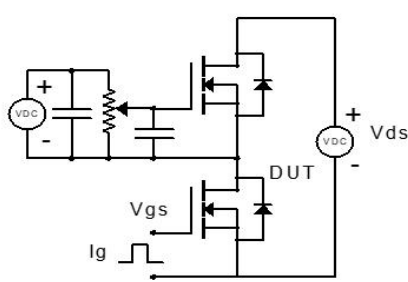
Symbol	Parameter	Value	Units
$V_{DS}$	Drain-to-Source Voltage	60	V
$V_{GS}$	Gate-to-Source Voltage	$\pm 20$	V
$I_D$	Continuous Drain Current	$T_C = 25^\circ C$	80
		$T_C = 100^\circ C$	48
$I_{DM}$	Pulsed Drain Current <sup>(1)</sup>	320	A
$E_{AS}$	Single Pulsed Avalanche Energy <sup>(2)</sup>	100	mJ
$P_D$	Power Dissipation	$T_C = 25^\circ C$	56.8
$R_{\theta JC}$	Thermal Resistance, Junction to Case	2.2	$^\circ C/W$
$T_J, T_{STG}$	Junction & Storage Temperature Range	-55 to 150	$^\circ C$

### Electrical Characteristics (T<sub>J</sub> = 25°C unless otherwise specified)

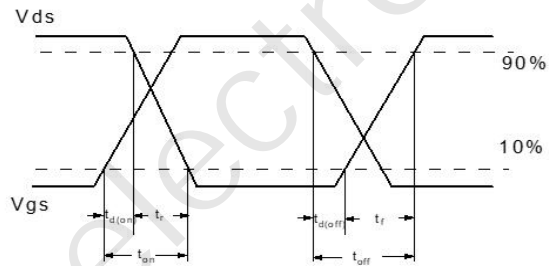
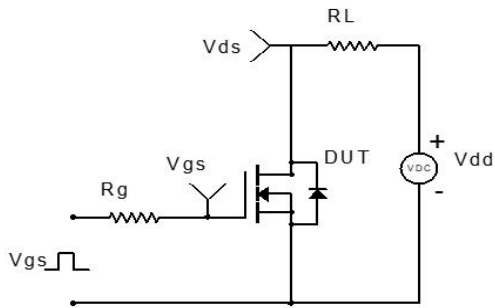
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
<b>Off Characteristics</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	I <sub>D</sub> = 250μA, V <sub>GS</sub> = 0V	60	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = 60V, V <sub>GS</sub> = 0V	-	-	1.0	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V	-	-	±100	nA
<b>On Characteristics</b>						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1.2	1.6	2.5	V
R <sub>DS(ON)</sub>	Static Drain-Source ON-Resistance <sup>(3)</sup>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 20A	-	3.9	5.1	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 10A	-	5	6.5	mΩ
<b>Dynamic Characteristics</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 30V, f = 1MHz	-	2000	-	pF
C <sub>oss</sub>	Output Capacitance		-	660	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		-	28	-	pF
Q <sub>g</sub>	Total Gate Charge	V <sub>GS</sub> = 0 to 10V V <sub>DS</sub> = 30V, I <sub>D</sub> = 20A	-	35	-	nC
Q <sub>gs</sub>	Gate Source Charge		-	10	-	nC
Q <sub>gd</sub>	Gate Drain("Miller") Charge		-	7	-	nC
<b>Switching Characteristics</b>						
t <sub>d(on)</sub>	Turn-On DelayTime	V <sub>GS</sub> = 10V, V <sub>DD</sub> = 30V I <sub>D</sub> = 20A, R <sub>GEN</sub> = 4.5Ω	-	12	-	ns
t <sub>r</sub>	Turn-On Rise Time		-	34	-	ns
t <sub>d(off)</sub>	Turn-Off DelayTime		-	25	-	ns
t <sub>f</sub>	Turn-Off Fall Time		-	30	-	ns
<b>Drain-Source Diode Characteristics and Max Ratings</b>						
I <sub>S</sub>	Maximum Continuous Drain to Source Diode Forward Current		-	-	80	A
I <sub>SM</sub>	Maximum Pulsed Drain to Source Diode Forward Current		-	-	320	A
V <sub>SD</sub>	Drain to Source Diode Forward Voltage	V <sub>GS</sub> = 0V, I <sub>S</sub> = 20A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I <sub>F</sub> = 20A, di/dt = 100A/us	-	38	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	23	-	nC

- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
  2. E<sub>AS</sub> condition: Starting T<sub>J</sub>=25°C, V<sub>DD</sub>=30V, V<sub>G</sub>=10V, R<sub>G</sub>=25ohm, L=0.5mH, I<sub>AS</sub>=20A
  3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 0.5%.

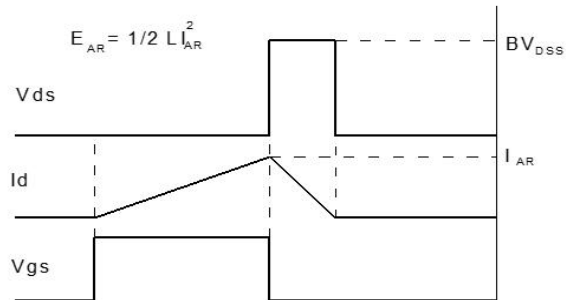
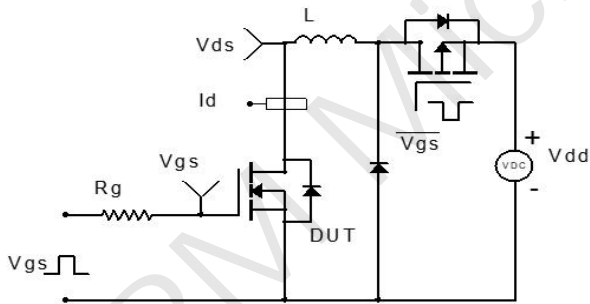
**Test Circuit**



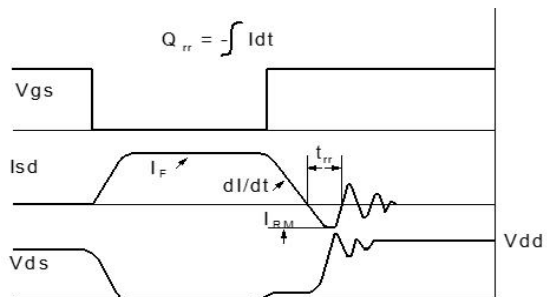
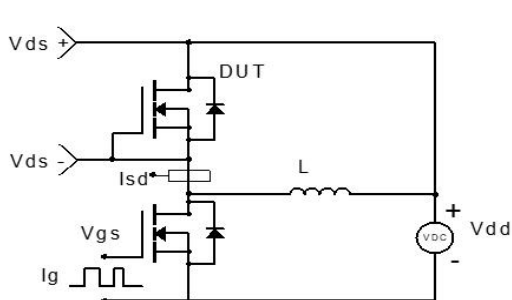
**Figure 1: Gate Charge Test Circuit & Waveform**



**Figure 2: Resistive Switching Test Circuit & Waveform**

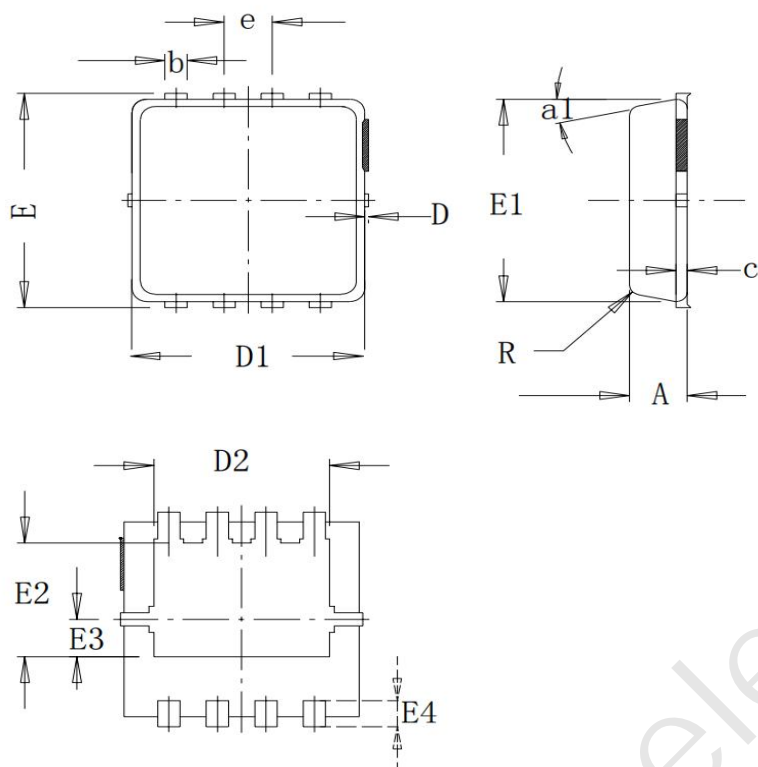


**Figure 3: Unclamped Inductive Switching Test Circuit & Waveform**



**Figure 4: Diode Recovery Test Circuit & Waveform**

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




SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.75	0.78	0.81
* b	0.297	0.3	0.35
c	—	0.152	—
* D	0.00	0.05	0.1
D1	3.12	3.15	3.18
* D2	—	2.35	—
* E	3.2	3.3	3.4
E1	3.09	3.12	3.15
E2	—	1.75	—
E3	—	0.575	—
* E4	—	0.4	—
R	—	0.15	—
* e	0.65BSC		
a1°	—	12°	—

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