CRMGGH0602A
N-Channel 60V, 2.4mΩ Typ. Power MOSFET

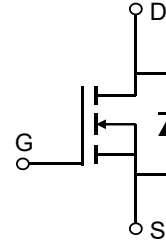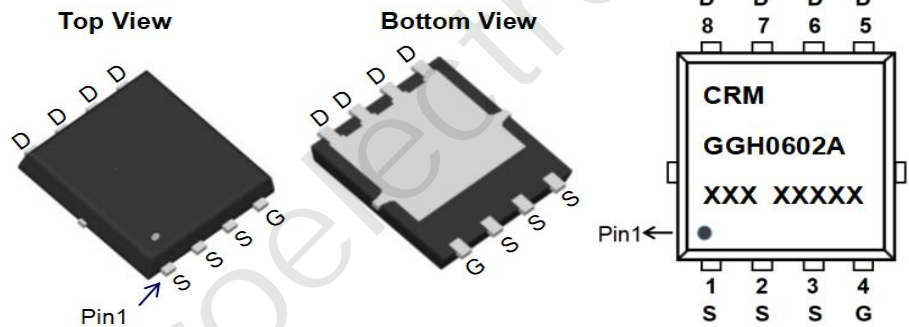**CRM Microelectronics**

Description

Features

- 60V, 135A

  $R_{DS(ON)}$ Typ = 2.4mΩ @ V_{GS} = 10V

- Advanced Split Gate Trench Technology

- Excellent $R_{DS(ON)}$ and Low Gate Charge

- 100% UIS TESTED!

- 100% ΔVds TESTED!

Schematic Diagram

Application

- Load Switch

- PWM Application

- Power Management

Top View   Bottom View

Marking and Pin Assignment

Package Marking and Ordering Information

Device	Marking	Package	Outline	Reel Size	Reel (pcs)	Per Carton (pcs)
CRMGGH0602A	CRMGGH0602A	PDFN5x6-8L	TAPING	13"	5000	50000

Absolute Maximum Ratings (@ T_J = 25°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°C	135	A
		T_C = 100°C	81	A
I_{DM}	Pulsed Drain Current [1]		540	A
E_{AS}	Single Pulsed Avalanche Energy [2]		306	mJ
P_D	Power Dissipation	T_C = 25°C	100	W
$R_{θJC}$	Thermal Resistance, Junction to Case		1.25	°C/W
T_J, T_{STG}	Junction & Storage Temperature Range		-55 to 150	°C

Electrical Characteristics (T$_J$ = 25°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	2.8	3.4	V
R$_{DS(ON)}$	Static Drain-Source ON-Resistance[3]	V$_{GS}$ = 10V, I$_D$ = 30A	-	2.4	3.2	mΩ
Dynamic Characteristics						
C$_{iss}$	Input Capacitance	V$_{GS}$ = 0V, V$_{DS}$ = 30V, f = 1MHz	-	3501	-	pF
C$_{oss}$	Output Capacitance		-	1089	-	pF
C$_{rss}$	Reverse Transfer Capacitance		-	14	-	pF
Q$_g$	Total Gate Charge	V$_{GS}$ = 0 to 10V, V$_{DS}$ = 30V, I$_D$ = 50A	-	56	-	nC
Q$_{gs}$	Gate Source Charge		-	25	-	nC
Q$_{gd}$	Gate Drain("Miller") Charge		-	3	-	nC
Switching Characteristics						
t$_{d(on)}$	Turn-On DelayTime	V$_{GS}$ = 10V, V$_{DD}$ = 30V, I$_D$= 50A, R$_{GEN}$ = 2.7Ω	-	12	-	ns
t$_r$	Turn-On Rise Time		-	32	-	ns
t$_{d(off)}$	Turn-Off DelayTime		-	46	-	ns
t$_f$	Turn-Off Fall Time		-	23	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I$_S$	Maximum Continuous Drain to Source Diode Forward Current		-	-	135	A
I$_{SM}$	Maximum Pulsed Drain to Source Diode Forward Current		-	-	540	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$_F$ = 50A, di/dt = 100A/us	-	40	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	38	-	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

2. E$_{AS}$ condition: Starting T$_J$=25°C, V$_{DD}$=30V, V$_G$=10V, R$_G$=25ohm, L=0.5mH, I$_{AS}$=35A

3. Pulse Test: Pulse Width≤300µs, Duty Cycle≤0.5%.
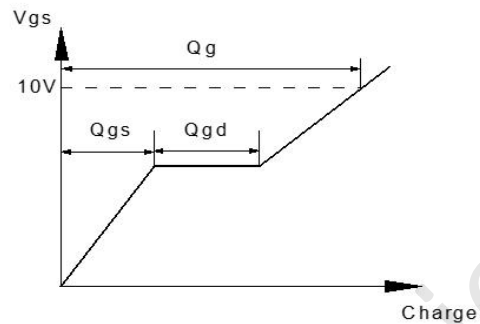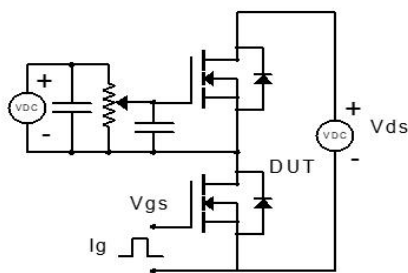
Test Circuit

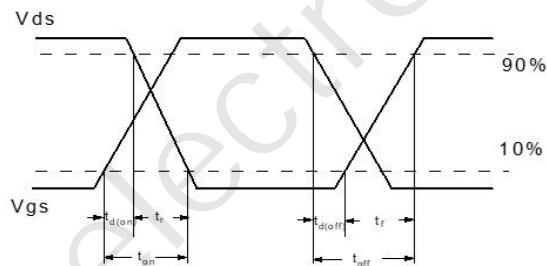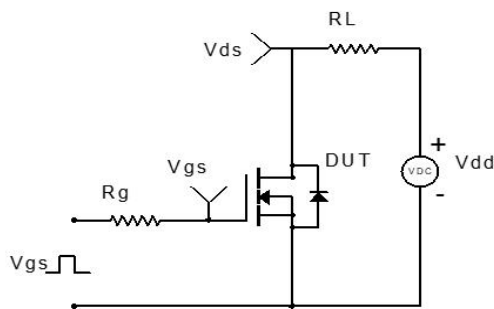**Figure 1: Gate Charge Test Circuit & Waveform**
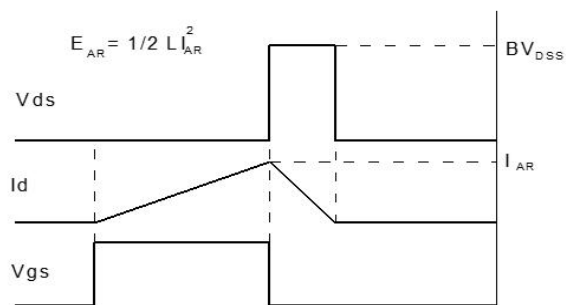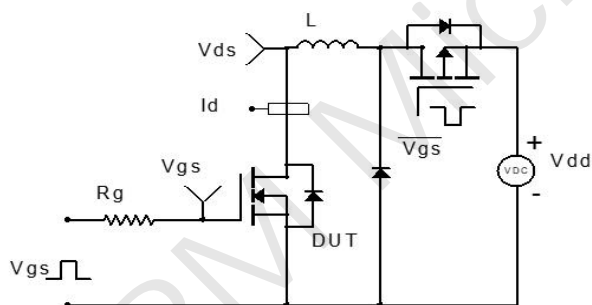

Figure 2: Resistive Switching Test Circuit & Waveform

Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

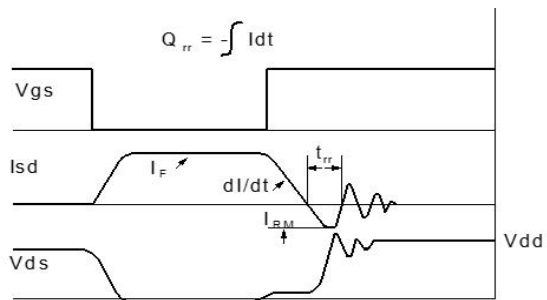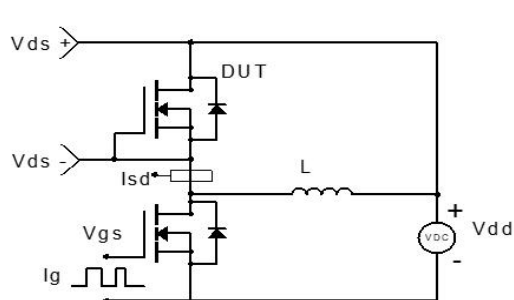**Figure 4: Diode Recovery Test Circuit & Waveform**

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Package Mechanical Data(PDFN5x6-8L)
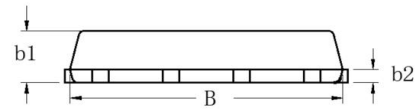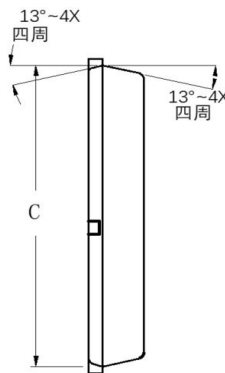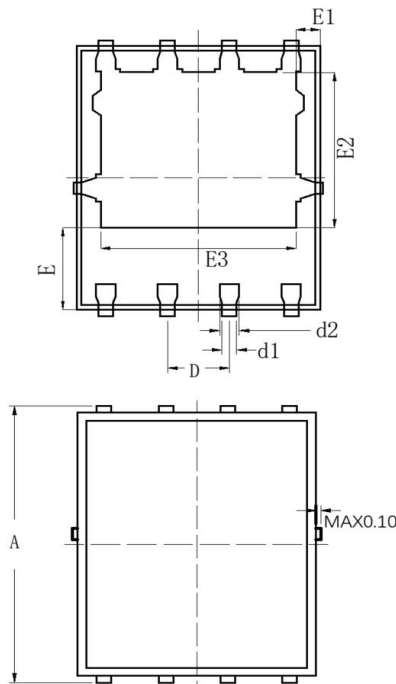
COMMON DIMENSION (MM)			
PKG	PDFN 5×6-8L		
SYMBOL	MIN	TYP	MAX
A	6.000	6.100	6.200
B	4.875	4.900	4.925
b1	0.975	1.000	1.025
b2	0.246	0.254	0.262
C	5.775	5.800	5.825
D	1.245	1.270	1.295
d1	0.275	0.300	0.325
d2	0.375	0.400	0.425
E	1.725	1.775	1.825
E1	0.395	0.445	0.495
E2	3.425	3.475	3.525
E3	3.960	4.010	4.060

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