

### Description

#### Features

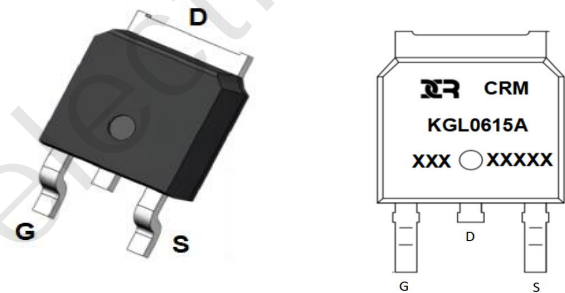
- 60V, 30A
- $R_{DS(ON)}$  Typ = 15mΩ @  $V_{GS} = 10V$
- $R_{DS(ON)}$  Typ = 20mΩ @  $V_{GS} = 4.5V$
- Advanced Split Gate Trench Technology
- Excellent  $R_{DS(ON)}$  and Low Gate Charge
- 100% UIS TESTED!
- 100%  $\Delta V_{ds}$  TESTED!



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)
CRMKGL0615A	CRMKGL0615A	TO-252-3L	TAPING	13"	2500	25000

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

Symbol	Parameter	Value	Units	
V <sub>DS</sub>	Drain-to-Source Voltage	60	V	
V <sub>GS</sub>	Gate-to-Source Voltage	±20	V	
I <sub>D</sub>	Continuous Drain Current	T <sub>C</sub> = 25°C	30	A
		T <sub>C</sub> = 100°C	18	A
I <sub>DM</sub>	Pulsed Drain Current <sup>(1)</sup>	120	A	
E <sub>AS</sub>	Single Pulsed Avalanche Energy <sup>(2)</sup>	30	mJ	
P <sub>D</sub>	Power Dissipation	T <sub>C</sub> = 25°C	30	W
R <sub>θJC</sub>	Thermal Resistance, Junction to Case	4.1	°C/W	
T <sub>J</sub> , T <sub>STG</sub>	Junction & Storage Temperature Range	-55 to 150	°C	

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
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
On Characteristics						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1	1.6	2.2	V
R <sub>DS(ON)</sub>	Static Drain-Source ON-Resistance <sup>(3)</sup>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 20A	-	15	19.5	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 10A	-	20	26	mΩ
Dynamic Characteristics						
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 25V, f = 1MHz	-	500	-	pF
C <sub>oss</sub>	Output Capacitance		-	204	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		-	6.8	-	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	-	12.1	-	nC
Q <sub>gs</sub>	Gate Source Charge		-	1.3	-	nC
Q <sub>gd</sub>	Gate Drain("Miller") Charge		-	2.6	-	nC
Switching Characteristics						
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> = 6Ω	-	3.3	-	ns
t <sub>r</sub>	Turn-On Rise Time		-	4	-	ns
t <sub>d(off)</sub>	Turn-Off DelayTime		-	14	-	ns
t <sub>f</sub>	Turn-Off Fall Time		-	5.5	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I <sub>S</sub>	Maximum Continuous Drain to Source Diode Forward Current	V <sub>GS</sub> = 0V, I <sub>S</sub> = 30A	-	-	30	A
I <sub>SM</sub>	Maximum Pulsed Drain to Source Diode Forward Current		-	-	120	A
V <sub>SD</sub>	Drain to Source Diode Forward Voltage		-	-	1.2	V
t <sub>rr</sub>	Body Diode Reverse Recovery Time		-	20	-	ns
Q <sub>rr</sub>	Body Diode Reverse Recovery Charge		I <sub>F</sub> = 15A, di/dt = 100A/us	-	8.1	-

- 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>=11A
  3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 0.5%.

## Test Circuit

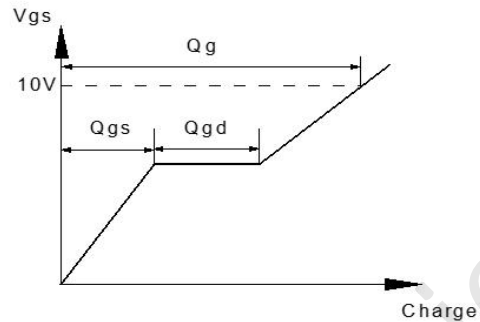
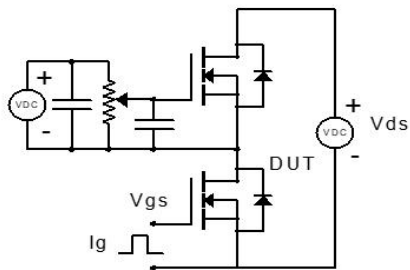


Figure 1: Gate Charge Test Circuit & Waveform

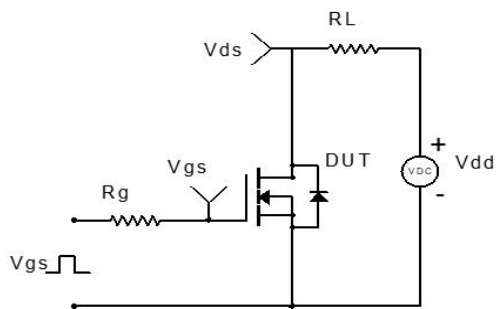


Figure 2: Resistive Switching Test Circuit & Waveform

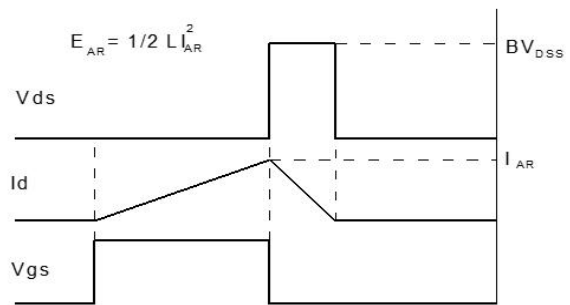
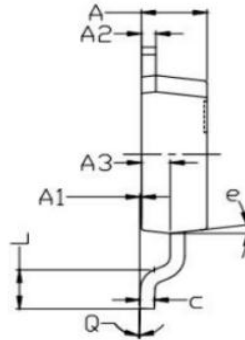
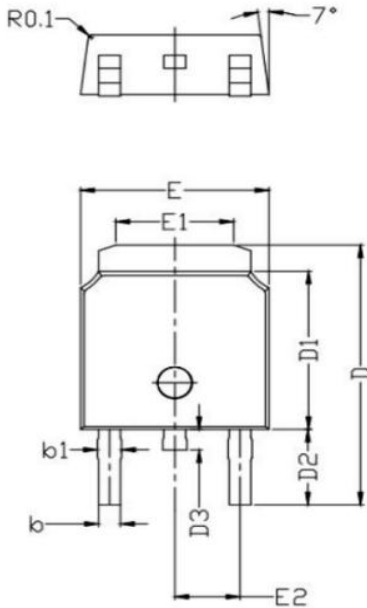


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform



Figure 4: Diode Recovery Test Circuit & Waveform

## Package Mechanical Data(TO-252-3L)



COMMON DIMENSION(MM)			
PKG	TO-252-3L		
Symbol	MIN	MON	MAX
A	2.250	2.300	2.400
A1	0.010	0.060	0.150
A2	0.500	0.508	0.550
A3	0.960	1.010	1.060
b	0.740	0.760	0.800
b1	0.880	0.900	0.950
c	0.500	0.508	0.550
D	9.800	10.025	10.350
D1	6.050	6.100	6.180
D2	2.850	2.900	2.950
D3	0.700	0.800	2.900
E	6.550	6.600	6.700
E1	4.050	4.130	4.200
E2	2.250	2.286	2.300
L	1.400	1.500	1.600
e	7.000		
Q	0°	2°	5°

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