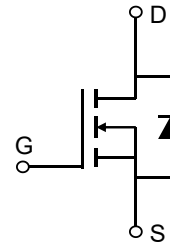


### Description

#### Features

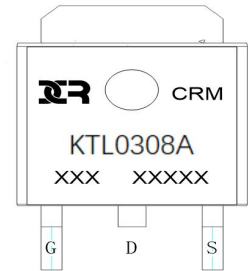
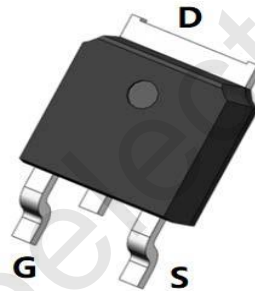
- 30V, 50A  
 $R_{DS(ON)}$  Typ = 6mΩ @  $V_{GS} = 10V$   
 $R_{DS(ON)}$  Typ = 9.8mΩ @  $V_{GS} = 4.5V$
- Advanced Trench Technology
- Excellent  $R_{DS(ON)}$  and Low Gate Charge
- 100% UIS TESTED!
- 100%  $\Delta V_{ds}$  TESTED!



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)
CRMKTL0308A	CRMKTL0308A	TO-252-3L	TAPING	13"	2500	25000

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

Symbol	Parameter	Value	Units
$V_{DS}$	Drain-to-Source Voltage	30	V
$V_{GS}$	Gate-to-Source Voltage	±20	V
$I_D$	Continuous Drain Current	$T_C = 25^\circ\text{C}$	50
		$T_C = 100^\circ\text{C}$	30
$I_{DM}$	Pulsed Drain Current <sup>(1)</sup>	200	A
$E_{AS}$	Single Pulsed Avalanche Energy <sup>(2)</sup>	56	mJ
$P_D$	Power Dissipation	$T_C = 25^\circ\text{C}$	39
$R_{\theta JC}$	Thermal Resistance, Junction to Case	3.2	°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
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#### Off Characteristics

$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$I_D = 250\mu\text{A}$ , $V_{GS} = 0\text{V}$	30	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 30\text{V}$ , $V_{GS} = 0\text{V}$	-	-	1.0	$\mu\text{A}$
$I_{GSS}$	Gate-Body Leakage Current	$V_{DS} = 0\text{V}$ , $V_{GS} = \pm 20\text{V}$	-	-	$\pm 100$	nA

#### On Characteristics

$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ , $I_D = 250\mu\text{A}$	1.1	1.6	2.2	V
$R_{DS(ON)}$	Static Drain-Source ON-Resistance <sup>(3)</sup>	$V_{GS} = 10\text{V}$ , $I_D = 20\text{A}$	-	6	8	mΩ
		$V_{GS} = 4.5\text{V}$ , $I_D = 10\text{A}$	-	9.8	13	mΩ

#### Dynamic Characteristics

$C_{iss}$	Input Capacitance	$V_{GS} = 0\text{V}$ , $V_{DS} = 15\text{V}$ , $f = 1\text{MHz}$	-	1310	-	pF
$C_{oss}$	Output Capacitance		-	180	-	pF
$C_{rss}$	Reverse Transfer Capacitance		-	136	-	pF
$Q_g$	Total Gate Charge	$V_{GS} = 0$ to $10\text{V}$ $V_{DS} = 15\text{V}$ , $I_D = 20\text{A}$	-	23	-	nC
$Q_{gs}$	Gate Source Charge		-	4.5	-	nC
$Q_{gd}$	Gate Drain("Miller") Charge		-	5.5	-	nC

#### Switching Characteristics

$t_{d(on)}$	Turn-On DelayTime	$V_{GS} = 10\text{V}$ , $V_{DD} = 15\text{V}$ $I_D = 15\text{A}$ , $R_{GEN} = 3\Omega$	-	7	-	ns
$t_r$	Turn-On Rise Time		-	15	-	ns
$t_{d(off)}$	Turn-Off DelayTime		-	25	-	ns
$t_f$	Turn-Off Fall Time		-	6	-	ns

#### Drain-Source Diode Characteristics and Max Ratings

$I_S$	Maximum Continuous Drain to Source Diode Forward Current	$V_{GS} = 0\text{V}$ , $I_S = 15\text{A}$	-	-	50	A
$I_{SM}$	Maximum Pulsed Drain to Source Diode Forward Current		-	-	200	A
$V_{SD}$	Drain to Source Diode Forward Voltage		-	-	1.2	V
$t_{rr}$	Body Diode Reverse Recovery Time		-	10	-	ns
$Q_{rr}$	Body Diode Reverse Recovery Charge		-	3	-	nC

- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
  2.  $E_{AS}$  condition: Starting  $T_J = 25^\circ\text{C}$ ,  $V_{DD} = 15\text{V}$ ,  $V_G = 10\text{V}$ ,  $R_G = 25\text{ohm}$ ,  $L = 0.5\text{mH}$ ,  $I_{AS} = 15\text{A}$
  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

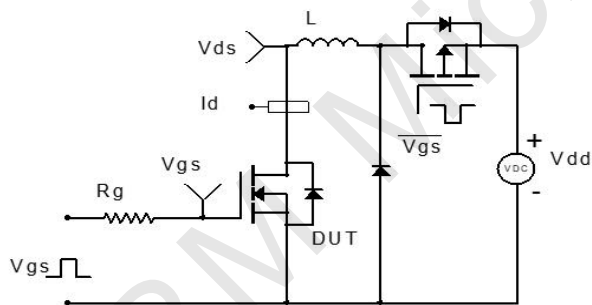
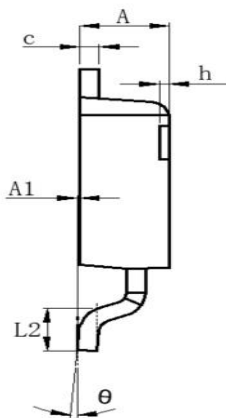
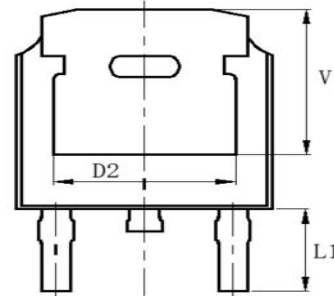
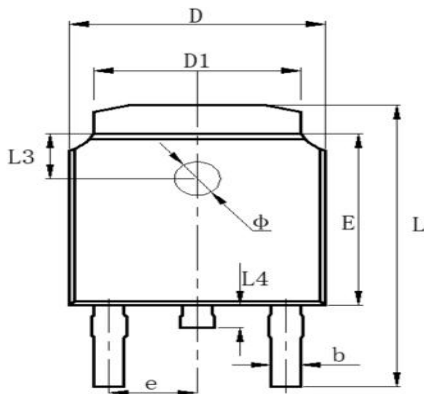


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform



Figure 4: Diode Recovery Test Circuit & Waveform

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




Symbol	Dimensions In Millimeters	
	Min.	Max.
A	2.200	2.400
A1	0.000	0.127
b	0.600	0.860
c	0.460	0.580
D	6.500	6.700
D1	5.100	5.460
D2	4.830 REF.	
E	6.000	6.300
e	2.186	2.386
L	9.712	10.312
L1	2.900 REF.	
L2	1.400	1.700
L3	1.600 REF.	
L4	0.600	1.000
Φ	1.100	1.300
θ	0°	8°
h	0.000	0.300
V	5.250 REF.	

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