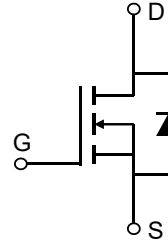


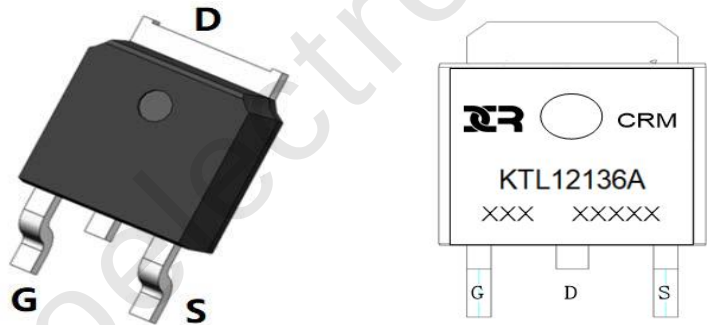
Description

Features

- 120V, 10A
- $R_{DS(ON)}$ Typ = 124mΩ @ $V_{GS} = 10V$
- $R_{DS(ON)}$ Typ = 130mΩ @ $V_{GS} = 4.5V$
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- 100% UIS TESTED!
- 100% ΔV_{ds} TESTED!



Schematic Diagram



Marking and Pin Assignment

Application

- Load Switch
- PWM Application
- Power Management

Package Marking and Ordering Information

Device	Marking	Package	Outline	Reel Size	Reel (pcs)	Per Carton (pcs)
CRMKTL12136A	CRMKTL12136A	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	120	V
V_{GS}	Gate-to-Source Voltage	±20	V
I_D	Continuous Drain Current	$T_C = 25^\circ\text{C}$	10
		$T_C = 100^\circ\text{C}$	6
I_{DM}	Pulsed Drain Current ⁽¹⁾	40	A
E_{AS}	Single Pulsed Avalanche Energy ⁽²⁾	18	mJ
P_D	Power Dissipation	$T_C = 25^\circ\text{C}$	35
$R_{\theta JC}$	Thermal Resistance, Junction to Case	3.6	°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	$I_D = 250\mu\text{A}, V_{GS} = 0\text{V}$	120	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 120\text{V}, V_{GS} = 0\text{V}$	-	-	1.0	μA
I_{GSS}	Gate-Body Leakage Current	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$	-	-	± 100	nA

On Characteristics

$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	1.2	1.8	2.4	V
$R_{DS(ON)}$	Static Drain-Source ON-Resistance ⁽³⁾	$V_{GS} = 10\text{V}, I_D = 5\text{A}$	-	124	161	mΩ
		$V_{GS} = 4.5\text{V}, I_D = 5\text{A}$	-	130	169	mΩ

Dynamic Characteristics

C_{iss}	Input Capacitance	$V_{GS} = 0\text{V}, V_{DS} = 25\text{V},$ $f = 1\text{MHz}$	-	623	-	pF
C_{oss}	Output Capacitance		-	37	-	pF
C_{rss}	Reverse Transfer Capacitance		-	30	-	pF
Q_g	Total Gate Charge	$V_{GS} = 0 \text{ to } 10\text{V}$ $V_{DS} = 96\text{V}, I_D = 4\text{A}$	-	16	-	nC
Q_{gs}	Gate Source Charge		-	1.5	-	nC
Q_{gd}	Gate Drain("Miller") Charge		-	5.2	-	nC

Switching Characteristics

$t_{d(on)}$	Turn-On DelayTime	$V_{GS} = 10\text{V}, V_{DD} = 60\text{V}$ $I_D = 4\text{A}, R_{GEN} = 3\Omega$	-	7	-	ns
t_r	Turn-On Rise Time		-	11	-	ns
$t_{d(off)}$	Turn-Off DelayTime		-	15	-	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	$V_{GS} = 0\text{V}, I_S = 5\text{A}$	-	-	10	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	40	A
V_{SD}	Drain to Source Diode Forward Voltage		-	-	1.2	V
t_{rr}	Body Diode Reverse Recovery Time		-	45	-	ns
Q_{rr}	Body Diode Reverse Recovery Charge		-	110	-	nC

- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. E_{AS} condition: Starting $T_J = 25^\circ\text{C}$, $V_{DD} = 60\text{V}$, $V_G = 10\text{V}$, $R_G = 25\Omega$, $L = 0.5\text{mH}$, $I_{AS} = 8.5\text{A}$
 3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$.

Test Circuit

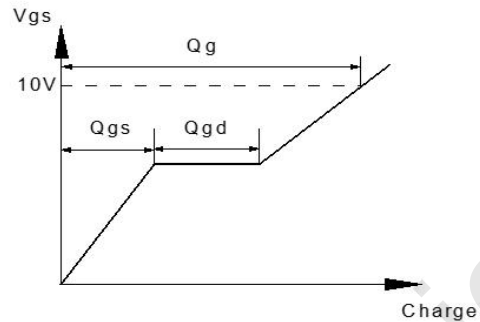
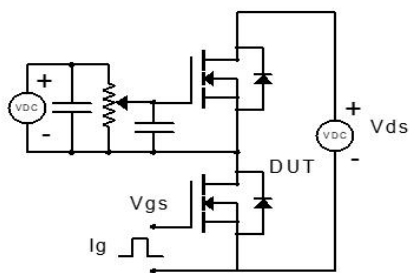


Figure 1: Gate Charge Test Circuit & Waveform

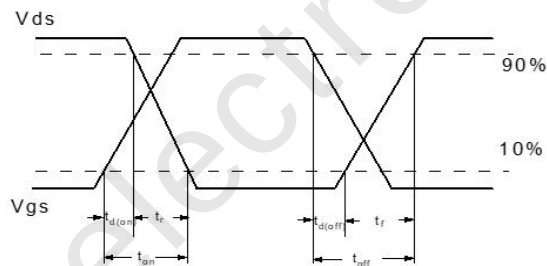
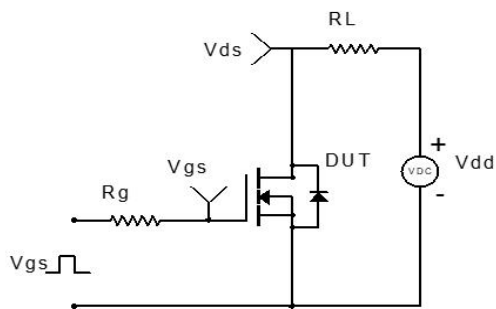


Figure 2: Resistive Switching Test Circuit & Waveform

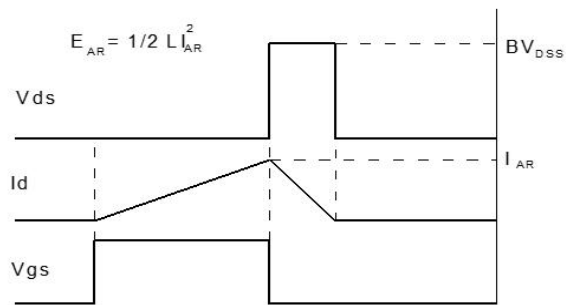
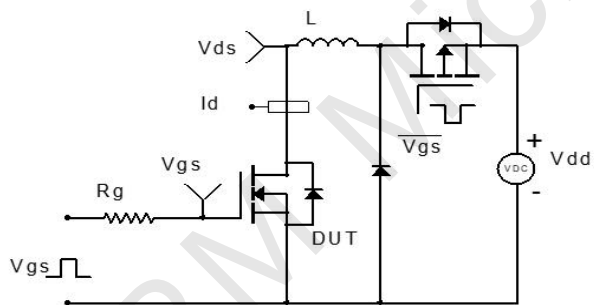


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

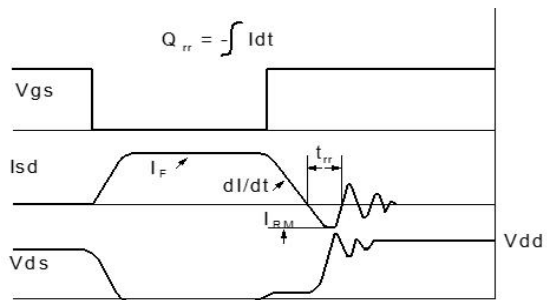
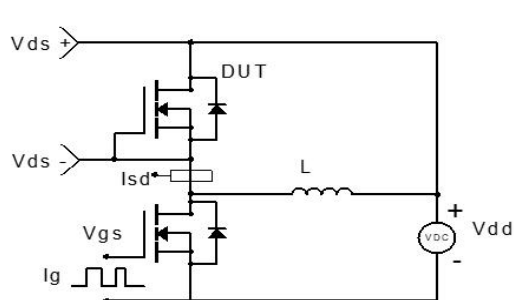
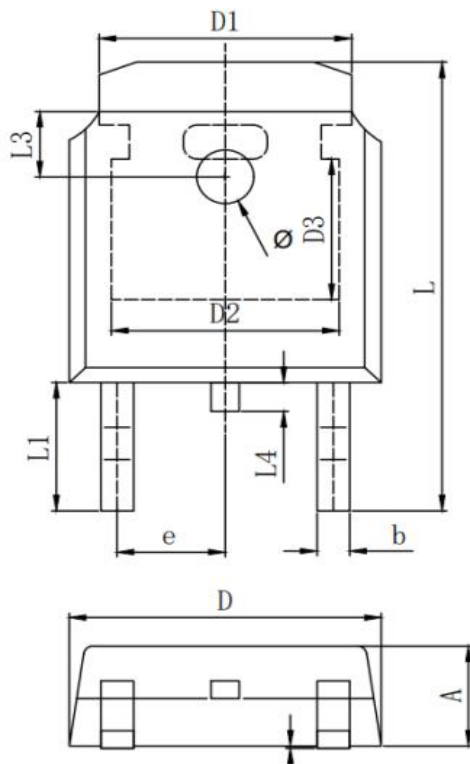


Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(TO-252-3L)



SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	2.200	2.300	2.400
A1	0.000		0.127
b	0.640	0.690	0.740
c (电镀后)	0.460	0.520	0.580
D	6.500	6.600	6.700
D1	5.334 REF		
D2	4.826 REF		
D3	3.166 REF		
E	6.000	6.100	6.200
e	2.286 TYP		
h	0.000	0.100	0.200
L	9.900	10.100	10.300
L1	2.888 REF		
L2	1.400	1.550	1.700
L3	1.600 REF		
L4	0.600	0.800	1.000
Φ	1.100	1.200	1.300
θ	0°		8°
θ1	9° TYP		
θ2	9° TYP		

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