

Description

Features

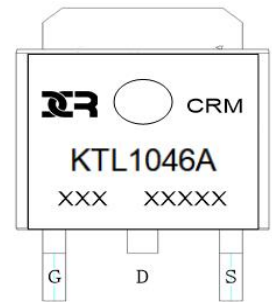
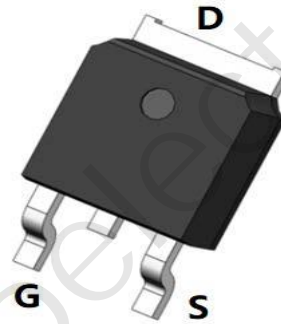
- 100V, 18A
 $R_{DS(ON)}$ Typ = 43mΩ @ $V_{GS} = 10V$
 $R_{DS(ON)}$ Typ = 45mΩ @ $V_{GS} = 4.5V$
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- 100% UIS TESTED!
- 100% ΔV_{ds} TESTED!



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)
CRMKTL1046A	CRMKTL1046A	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	100	V
V_{GS}	Gate-to-Source Voltage	±20	V
I_D	Continuous Drain Current	$T_C = 25^\circ\text{C}$	18
		$T_C = 100^\circ\text{C}$	10.8
I_{DM}	Pulsed Drain Current ⁽¹⁾	72	A
E_{AS}	Single Pulsed Avalanche Energy ⁽²⁾	36	mJ
P_D	Power Dissipation	$T_C = 25^\circ\text{C}$	34.7
$R_{\theta JC}$	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
Off Characteristics						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	I _D = 250μA, V _{GS} = 0V	100	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 100V, 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	1	1.5	2	V
R _{DS(ON)}	Static Drain-Source ON-Resistance ⁽³⁾	V _{GS} = 10V, I _D = 9A	-	43	56	mΩ
		V _{GS} = 4.5V, I _D = 7A	-	45	59	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 25V, f = 1MHz	-	1811	-	pF
C _{oss}	Output Capacitance		-	73	-	pF
C _{rss}	Reverse Transfer Capacitance		-	66	-	pF
Q _g	Total Gate Charge	V _{GS} = 0 to 10V V _{DS} = 25V, I _D = 3A	-	47	-	nC
Q _{gs}	Gate Source Charge		-	7	-	nC
Q _{gd}	Gate Drain("Miller") Charge		-	10	-	nC
Switching Characteristics						
t _{d(on)}	Turn-On DelayTime	V _{GS} = 10V, V _{DD} = 30V I _D = 3A, R _{GEN} = 1.8Ω	-	7.8	-	ns
t _r	Turn-On Rise Time		-	32	-	ns
t _{d(off)}	Turn-Off DelayTime		-	48	-	ns
t _f	Turn-Off Fall Time		-	34	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	18	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	72	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} = 0V, I _S = 9A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I _F = 3A, di/dt = 100A/us	-	20	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	28	-	nC

- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. E_{AS} condition: Starting $T_J = 25^\circ\text{C}$, $V_{DD} = 50\text{V}$, $V_G = 10\text{V}$, $R_G = 25\text{ohm}$, $L = 0.5\text{mH}$, $I_{AS} = 12\text{A}$
 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

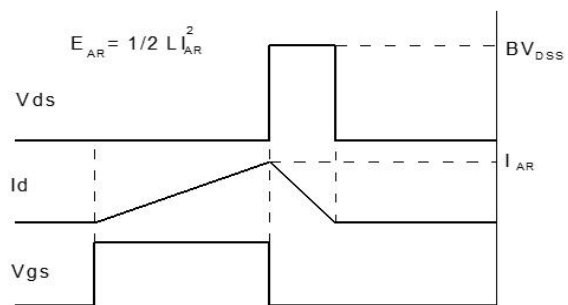
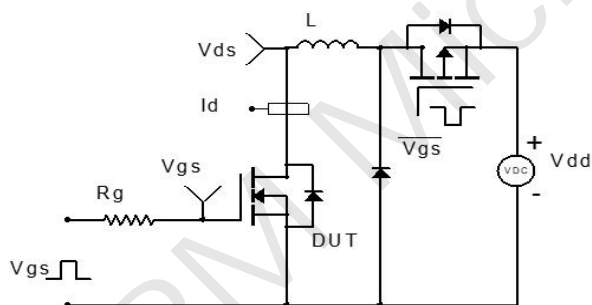
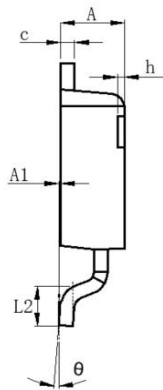
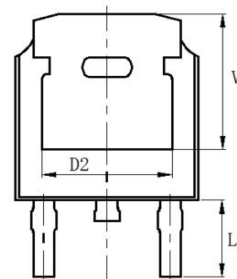
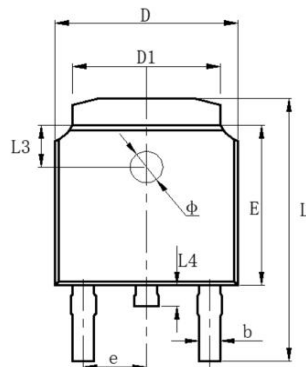


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform



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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