## CRMKTL1032A

### **Description**

#### **N-channel Enhancement Mode Power MOSFET**

#### **Features**

• 100V, 30A

 $R_{DS(ON)} < 32m\Omega @ V_{GS} = 10V$  $R_{DS(ON)} < 34m\Omega @ V_{GS} = 4.5V$ 

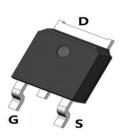
- Advanced Trench Technology
- Excellent R<sub>DS(ON)</sub> and Low Gate Charge

#### **Applications**

- Load Switch
- PWM Application
- Power Management

100% UIS TESTED! 100% ΔVds TESTED!

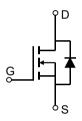








**Marking and Pin Assignment** 



**Schematic Diagram** 

#### Package Marking and Ordering Information

Device Marking	Device	Outline	Package	Reel Size	Reel(pcs)	Per Carton (pcs)
CRMKTL1032A	CRMKTL1032A	TAPING	TO-252-3L	13"	2500	25000

#### Absolute Maximum Ratings (@ T<sub>C</sub> = 25°C unless otherwise specified)

Symbol	Parameter		Value	Units
V <sub>DS</sub>	Drain-to-Source Voltage		100	V
$V_{GS}$	Gate-to-Source Voltage		±20	V
	Continuous Drain Current	T <sub>C</sub> = 25°C	30	۸
I <sub>D</sub>	Continuous Drain Current	T <sub>C</sub> = 100°C	18	А
I <sub>DM</sub>	Pulsed Drain Current (1)		120	Α
E <sub>AS</sub>	Single Pulsed Avalanche Energy	y <sup>(2)</sup>	64	mJ
$P_{D}$	Power Dissipation	T <sub>C</sub> = 25°C	74	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		1.7	°C/W
$T_{J}$ , $T_{STG}$	Junction & Storage Temperature F	Range	-55 to 150	°C

# CRMKTL1032A

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

Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit
Off Cha	aracteristics					
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	$I_D = 250 \mu A, V_{GS} = 0 V$	100	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = 100V, V <sub>GS</sub> = 0V	-	-	1.0	μΑ
$I_{GSS}$	Gate-Body Leakage Current	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	±100	nA
On Cha	aracteristics					
V <sub>GS(th)</sub>	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$	1	1.7	2.5	V
	O. (1) D. (2) O. (3)	V <sub>GS</sub> = 10V, I <sub>D</sub> = 15A	-	24	32	mΩ
$R_{DS(ON)}$	Static Drain-Source ON-Resistance <sup>(3)</sup>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 10A	-	26	34	mΩ
Dynami	ic Characteristics					
C <sub>iss</sub>	Input Capacitance		-	3033	-	pF
C <sub>oss</sub>	Output Capacitance	$V_{GS} = 0V$ , $V_{DS} = 25V$ , $f = 1MHz$		130	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance	I – IIVIMZ	X - \	113	-	pF
Q <sub>g</sub>	Total Gate Charge			66	-	nC
$Q_{gs}$	Gate Source Charge	$V_{GS} = 0 \text{ to } 10V$ $V_{DS} = 30V, I_D = 15A$	<u></u>	10	-	nC
$Q_{gd}$	Gate Drain("Miller") Charge	V <sub>DS</sub> = 30V, I <sub>D</sub> = 13A	-	14	-	nC
Switchi	ing Characteristics					
t <sub>d(on)</sub>	Turn-On DelayTime		-	11	-	ns
t <sub>r</sub>	Turn-On Rise Time	$V_{GS} = 10V, V_{DD} = 30V$	-	45	-	ns
$t_{d(off)}$	Turn-Off DelayTime	$I_{D}$ = 15A, $R_{GEN}$ = 1.8 $\Omega$	-	67	-	ns
t <sub>f</sub>	Turn-Off Fall Time	<i>)</i> `	-	48	-	ns
Drain-S	Source Diode Characteristics and M	ax Ratings				
I <sub>S</sub>	Maximum Continuous Drain to Source Diode	Forward Current	-	-	30	А
I <sub>SM</sub>	Maximum Pulsed Drain to Source Diode For	ward Current	-	-	120	Α
$V_{SD}$	Drain to Source Diode Forward Voltage	$V_{GS} = 0V, I_{S} = 30A$	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	L = 20A di/dt = 100A/v.c		28		ns
Qrr	Body Diode Reverse Recovery Charge	$I_F = 30A$ , di/dt = 100A/us	-	40	-	nC

Notes:

<sup>1.</sup> Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

<sup>2.</sup>  $E_{AS}$  condition: Starting  $T_J$ =25C,  $V_{DD}$ =30V,  $V_G$ =10V,  $R_G$ =25ohm, L=0.5mH,  $I_{AS}$ =16A

<sup>3.</sup> Pulse Test: Pulse Width  $\leq$  300  $\mu$ s, Duty Cycle  $\leq$  0.5%.



### **Test Circuit**

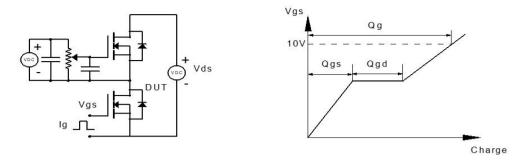


Figure 1: Gate Charge Test Circuit & Waveform

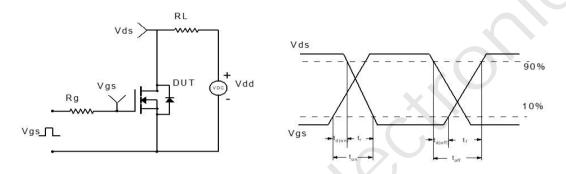


Figure 2: Resistive Switching Test Circuit & Waveform

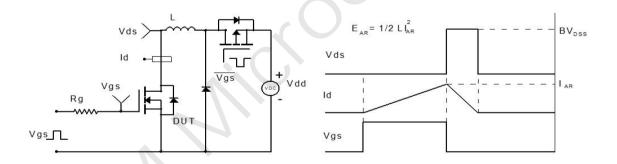


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

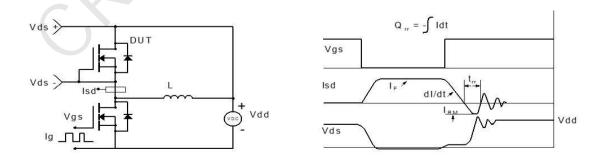
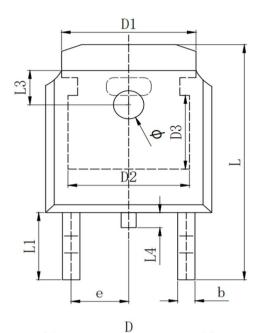


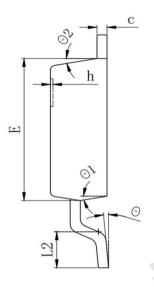
Figure 4: Diode Recovery Test Circuit & Waveform



## CRMKTL1032A

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





SYMBOL	MILLIMETER					
SIMBUL	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			
е	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			
ф	1. 100	1.200	1.300			
θ	0°		8°			
θ 1 9° ТҮР						
θ2	9° TYP					

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