

Description

Features

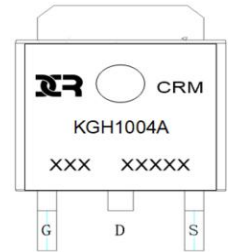
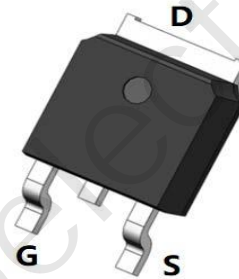
- 100V, 110A
 $R_{DS(ON)}$ Typ = 4.9mΩ @ $V_{GS} = 10V$
- Advanced Split Gate Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- 100% UIS TESTED!
- 100% ΔV_{ds} TESTED!



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)
CRMKGH1004A	CRMKGH1004A	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°C	110	A
		T _C = 100°C	66	A
I _{DM}	Pulsed Drain Current ⁽¹⁾	440	A	
E _{AS}	Single Pulsed Avalanche Energy ⁽²⁾	240	mJ	
P _D	Power Dissipation	T _C = 25°C	130	W
R _{θJC}	Thermal Resistance, Junction to Case	0.96	°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	2.4	3	3.6	V
R _{DS(ON)}	Static Drain-Source ON-Resistance ⁽³⁾	V _{GS} = 10V, I _D = 20A	-	4.9	6.3	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 50V, f = 1MHz	-	2800	-	pF
C _{oss}	Output Capacitance		-	1295	-	pF
C _{rss}	Reverse Transfer Capacitance		-	20	-	pF
Q _g	Total Gate Charge	V _{GS} = 0 to 10V V _{DS} = 50V, I _D = 20A	-	45	-	nC
Q _{gs}	Gate Source Charge		-	7.5	-	nC
Q _{gd}	Gate Drain("Miller") Charge		-	12	-	nC
Switching Characteristics						
t _{d(on)}	Turn-On DelayTime	V _{GS} = 10V, V _{DD} = 50V I _D = 20A, R _{GEN} = 2.5Ω	-	13	-	ns
t _r	Turn-On Rise Time		-	20	-	ns
t _{d(off)}	Turn-Off DelayTime		-	50	-	ns
t _f	Turn-Off Fall Time		-	40	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	110	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	440	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} = 0V, I _S = 20A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I _F = 20A, di/dt = 100A/us	-	54.7	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	76	-	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. E_{AS} condition: Starting $T_J = 25^\circ\text{C}$, $V_{DD} = 50\text{V}$, $V_G = 10\text{V}$, $R_G = 25\Omega$, $L = 0.5\text{mH}$, $I_{AS} = 31\text{A}$
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$.

Test Circuit



Figure 1: Gate Charge Test Circuit & Waveform

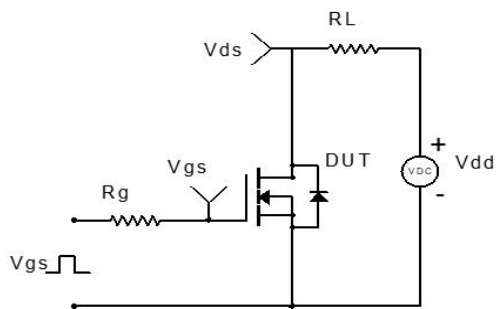


Figure 2: Resistive Switching Test Circuit & Waveform

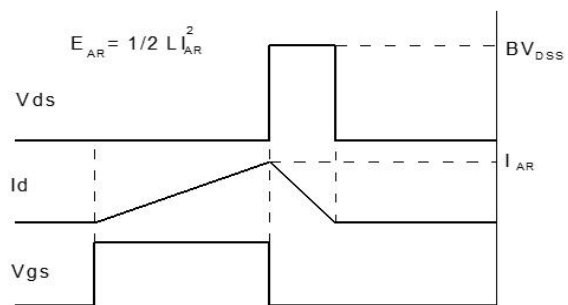
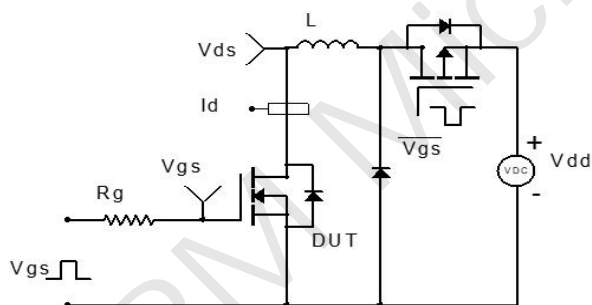
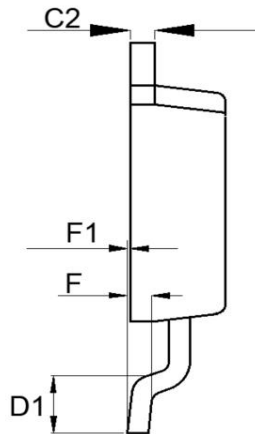
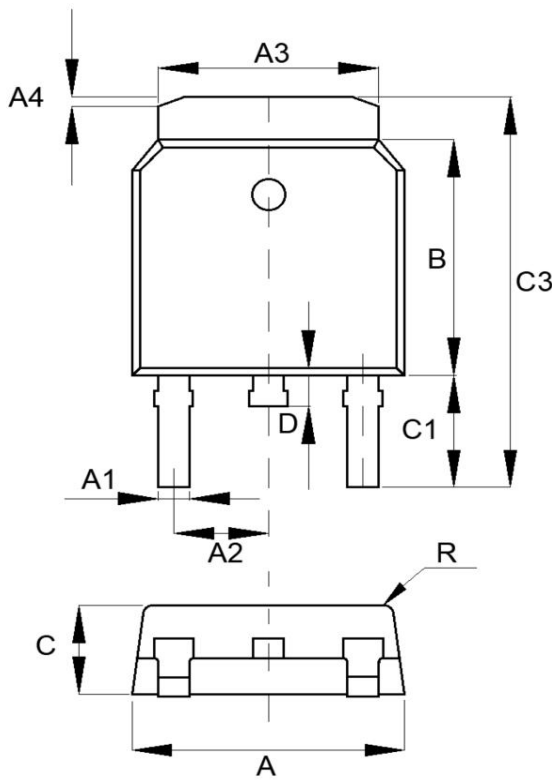


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform



Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(TO-252-3L)




SYMBOL	MIN	NOM	MAX
A	6.550	6.600	6.650
A1	0.640	0.690	0.740
A2	—	2.286	—
A3	5.234	5.334	5.434
A4	0.070	0.270	0.470
B	6.050	6.100	6.150
C	2.250	2.300	2.350
C1	2.650	2.780	2.950
C2	0.504	0.508	0.510
C3	9.750	9.850	10.00
D	0.700	0.800	0.900
D1	1.400	1.500	1.600
F	—	0.508	—
F1	0	0.050	0.100
R	—	0.250	—

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