

Description

Features

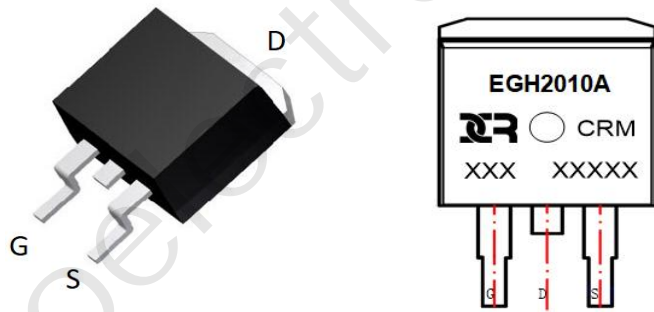
- 200V, 100A
 $R_{DS(ON)}$ Typ = 9.6mΩ @ $V_{GS} = 10V$
 Advanced Split Gate Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- 100% UIS TESTED!
- 100% ΔV_{ds} TESTED!



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)
CRMEGH2010A	CRMEGH2010A	TO-263-3L	TAPING	13"	800	4000

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

Symbol	Parameter	Value	Units	
V _{DS}	Drain-to-Source Voltage	200	V	
V _{GS}	Gate-to-Source Voltage	±20	V	
I _D	Continuous Drain Current	T _C = 25°C	100	A
		T _C = 100°C	60	A
I _{DM}	Pulsed Drain Current ⁽¹⁾	400	A	
E _{AS}	Single Pulsed Avalanche Energy ⁽²⁾	1531	mJ	
P _D	Power Dissipation	T _C = 25°C	250	W
R _{θJC}	Thermal Resistance, Junction to Case	0.5	°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	$I_D = 250\mu\text{A}$, $V_{GS} = 0\text{V}$	200	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 200\text{V}$, $V_{GS} = 0\text{V}$	-	-	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	$V_{DS} = V_{GS}$, $I_D = 250\mu\text{A}$	2.4	2.7	3.6	V
$R_{DS(ON)}$	Static Drain-Source ON-Resistance ⁽³⁾	$V_{GS} = 10\text{V}$, $I_D = 30\text{A}$	-	9.6	12.5	mΩ

Dynamic Characteristics

C_{iss}	Input Capacitance	$V_{GS} = 0\text{V}$, $V_{DS} = 100\text{V}$, $f = 1\text{MHz}$	-	5237	-	pF
C_{oss}	Output Capacitance		-	384	-	pF
C_{rss}	Reverse Transfer Capacitance		-	12	-	pF
Q_g	Total Gate Charge	$V_{GS} = 0$ to 10V $V_{DS} = 100\text{V}$, $I_D = 50\text{A}$	-	78	-	nC
Q_{gs}	Gate Source Charge		-	25	-	nC
Q_{gd}	Gate Drain("Miller") Charge		-	11	-	nC

Switching Characteristics

$t_{d(on)}$	Turn-On DelayTime	$V_{GS} = 10\text{V}$, $V_{DD} = 100\text{V}$ $I_D = 50\text{A}$, $R_{GEN} = 2.7\Omega$	-	23	-	ns
t_r	Turn-On Rise Time		-	46	-	ns
$t_{d(off)}$	Turn-Off DelayTime		-	63	-	ns
t_f	Turn-Off Fall Time		-	20	-	ns

Drain-Source Diode Characteristics and Max Ratings

I_S	Maximum Continuous Drain to Source Diode Forward Current	$V_{GS} = 0\text{V}$, $I_S = 30\text{A}$	-	-	100	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	400	A
V_{SD}	Drain to Source Diode Forward Voltage		-	-	1.2	V
t_{rr}	Body Diode Reverse Recovery Time		-	130	-	ns
Q_{rr}	Body Diode Reverse Recovery Charge		-	670	-	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. E_{AS} condition: Starting $T_J = 25^\circ\text{C}$, $V_{DD} = 50\text{V}$, $V_G = 10\text{V}$, $R_G = 25\Omega$, $L = 10\text{mH}$, $I_{AS} = 17.5\text{A}$
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$.

Test Circuit



Figure 1: Gate Charge Test Circuit & Waveform

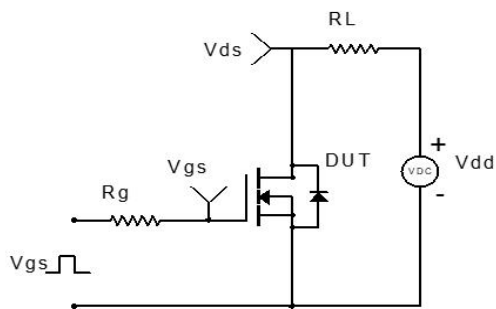


Figure 2: Resistive Switching Test Circuit & Waveform

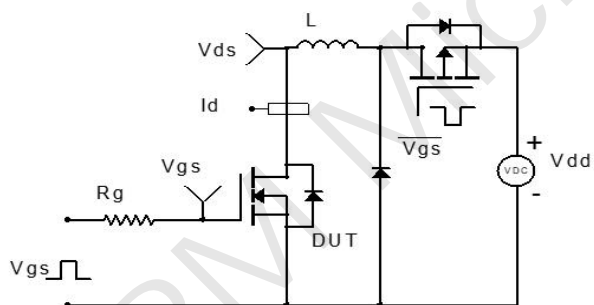
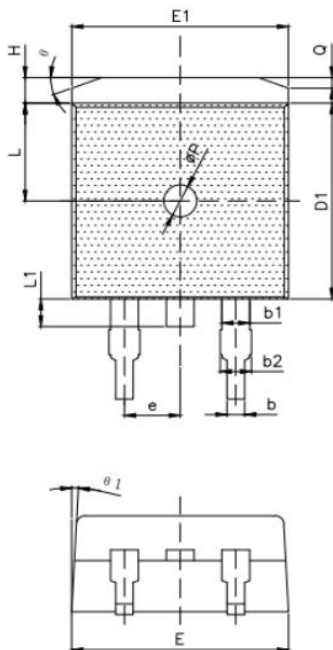


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform



Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(TO-263-3L)




SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	4.40	4.50	4.60
A1	1.20	1.30	1.40
A2	2.30	2.40	2.50
A3	0.03	0.13	0.23
b	0.70	0.80	0.90
b1	1.21	1.27	1.40
b2	1.25	1.35	1.45
c	0.40	0.50	0.60
D	14.80	15.10	15.40
D1	9.10	9.20	9.30
D2	8.00	—	—
E	9.70	9.90	10.20
E1	9.68	9.88	10.08
E2	7.80	—	—
e	2.54 (BSC)		
H	1.00	1.20	1.40
L	4.30	4.60	4.90
L1	1.10	1.30	1.50
L2	2.10	2.30	2.50
φP	1.40	1.50	1.60
Q	0.50 (REF)		
θ	16°	20°	24°
θ1	1°	3°	5°
θ2	0°	—	9°

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