祥瑞微
CRM Microelectronics

CRMCGH1008A

N-Channel 100V, 7.0mΩ Typ. Power MOSFET

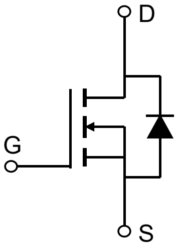
Description

Features

- 100V, 92A

  $R_{DS(ON)}$ Typ = 7.0mΩ @ V_{GS} = 10V
- Advanced Split Gate Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- 100% UIS TESTED!
- 100% ΔVds TESTED!

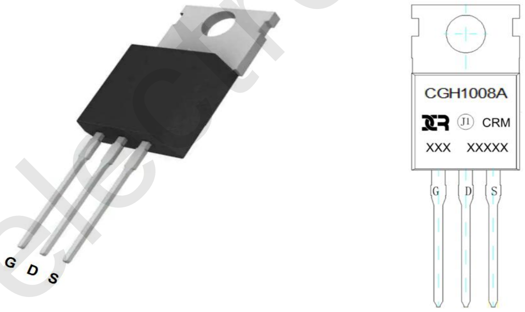
RoHS



Schematic Diagram

Application

- Load Switch
- PWM Application
- Power Management



Marking and Pin Assignment

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Package Marking and Ordering Information

Device	Marking	Package	Outline	TUBE(pcs)	Inner Box (pcs)	Per Carton (pcs)
CRMCGH1008A	CRMCGH1008A	TO-220C-3L	TUBE	50	1000	5000

Absolute Maximum Ratings (@ T_J = 25°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	92	A
		T_C = 100°C	55.2	A
I_{DM}	Pulsed Drain Current (1)		368	A
E_{AS}	Single Pulsed Avalanche Energy (2)		156	mJ
P_D	Power Dissipation	T_C = 25°C	139	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		0.9	°C/W
T_J, T_{STG}	Junction & Storage Temperature Range		-55 to 150	°C

Electrical Characteristics (T_J = 25°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 = 30A	-	7.0	9.0	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz	-	1800	-	pF
C_{oss}	Output Capacitance		-	1357	-	pF
C_{rss}	Reverse Transfer Capacitance		-	53	-	pF
Q_g	Total Gate Charge	V_{GS} = 0 to 10V V_{DS} = 50V, I_D = 20A	-	29	-	nC
Q_{gs}	Gate Source Charge		-	6.8	-	nC
Q_{gd}	Gate Drain("Miller") Charge		-	8.4	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-On DelayTime	V_{GS} = 10V, V_{DD} = 50V I_D= 20A, R_{GEN} = 6Ω	-	8.4	-	ns
t_r	Turn-On Rise Time		-	9.4	-	ns
$t_{d(off)}$	Turn-Off DelayTime		-	27	-	ns
t_f	Turn-Off Fall Time		-	18	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	92	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	368	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_S = 30A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I_F = 15A, di/dt = 100A/us	-	45	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	53	-	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. E_{AS} condition: Starting T_J=25°C, V_{DD}=50V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=25A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

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Test Circuit

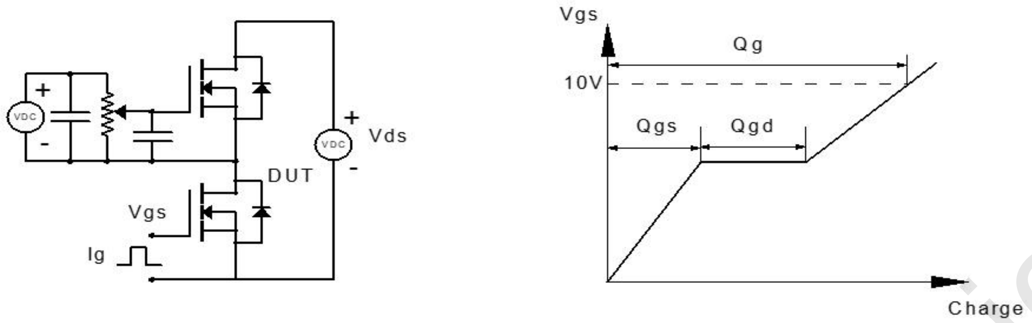

Figure 1: Gate Charge Test Circuit & Waveform

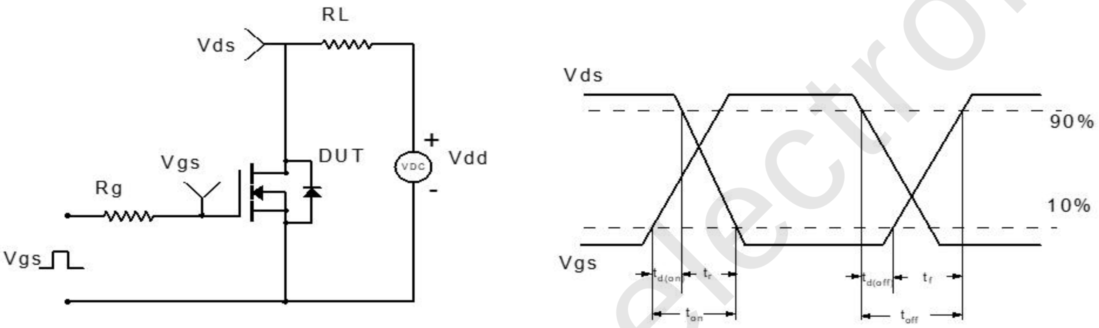

Figure 2: Resistive Switching Test Circuit & Waveform

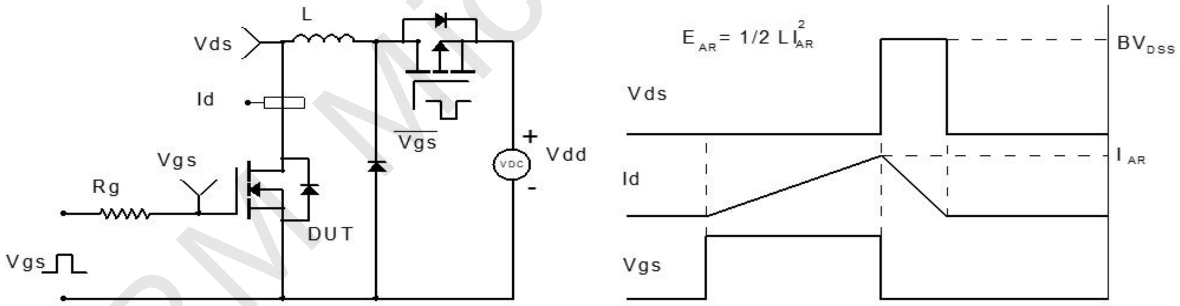

Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

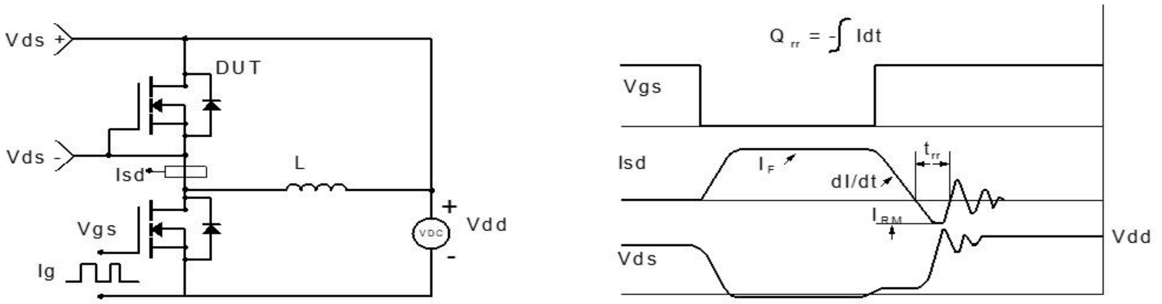

Figure 4: Diode Recovery Test Circuit & Waveform

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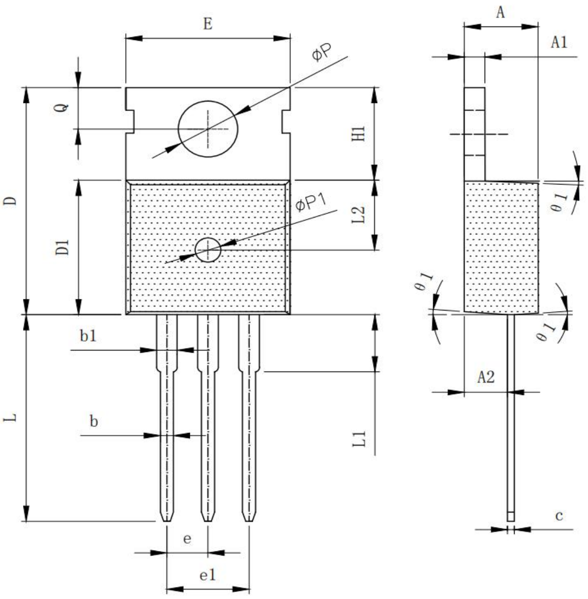
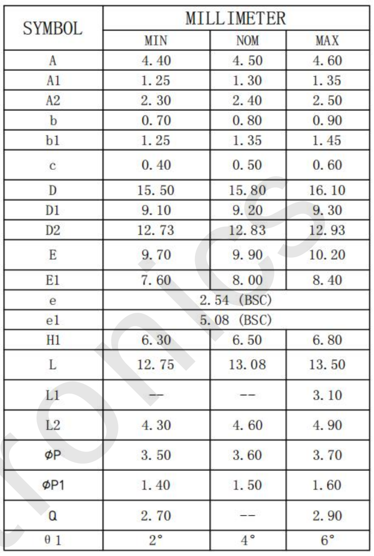
Package Mechanical Data(TO-220C-3L)





SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	4. 40	4. 50	4. 60
A1	1. 25	1. 30	1. 35
A2	2. 30	2. 40	2. 50
b	0. 70	0. 80	0. 90
b1	1. 25	1. 35	1. 45
c	0. 40	0. 50	0. 60
D	15. 50	15. 80	16. 10
D1	9. 10	9. 20	9. 30
D2	12. 73	12. 83	12. 93
E	9. 70	9. 90	10. 20
E1	7. 60	8. 00	8. 40
e	2. 54 (BSC)		
e1	5. 08 (BSC)		
H1	6. 30	6. 50	6. 80
L	12. 75	13. 08	13. 50
L1	--	--	3. 10
L2	4. 30	4. 60	4. 90
ØP	3. 50	3. 60	3. 70
ØP1	1. 40	1. 50	1. 60
Q	2. 70	--	2. 90
θ1	2°	4°	6°

NOTES:1. PKG ▨ SURFACE IS MATTE Ra1. 2~1. 4;
OTHERS IS POLISHED Ra0. 15;

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