CRMGGH0804A

祥瑞微 CRM Microelectronics

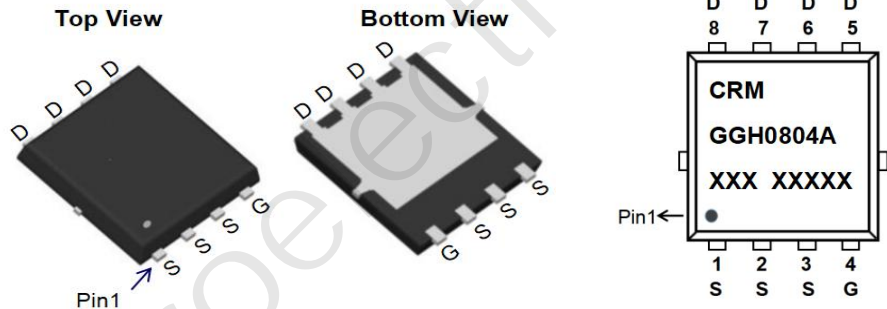## N-Channel 80V, 3.9mΩ Typ. Power MOSFET

Description

Features

- 80V, 125A

  $R_{DS(ON)}$ Typ = 3.9mΩ @ 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

Top View

Bottom View

Marking and Pin Assignment

Package Marking and Ordering Information

Device	Marking	Package	Outline	Reel Size	Reel (pcs)	Per Carton (pcs)
CRMGGH0804A	CRMGGH0804A	PDFN5x6-8L	TAPING	13"	5000	60000

Absolute Maximum Ratings (@ T_J = 25°C unless otherwise specified)

Symbol	Parameter		Value	Units
V_{DS}	Drain-to-Source Voltage		80	V
V_{GS}	Gate-to-Source Voltage		±20	V
I_D	Continuous Drain Current	T_C = 25°C	125	A
		T_C = 100°C	75	A
I_{DM}	Pulsed Drain Current [1]		500	A
E_{AS}	Single Pulsed Avalanche Energy [2]		342	mJ
P_D	Power Dissipation	T_C = 25°C	132	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		0.95	°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	$I_D = 250\mu A$, $V_{GS} = 0V$	80	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 80V$, $V_{GS} = 0V$	-	-	1.0	μA
I_{GSS}	Gate-Body Leakage Current	$V_{DS} = 0V$, $V_{GS} = \pm20V$	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$, $I_D = 250\mu A$	2	3	4	V
$R_{DS(ON)}$	Static Drain-Source ON-Resistance[3]	$V_{GS} = 10V$, $I_D = 20A$	-	3.9	5.1	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{GS} = 0V$, $V_{DS} = 40V$, f = 1MHz	-	4850	-	pF
C_{oss}	Output Capacitance		-	787	-	pF
C_{rss}	Reverse Transfer Capacitance		-	16	-	pF
Q_g	Total Gate Charge	$V_{GS} = 0$ to 10V, $V_{DS} = 40V$, $I_D = 20A$	-	68	-	nC
Q_{gs}	Gate Source Charge		-	23	-	nC
Q_{gd}	Gate Drain("Miller") Charge		-	15	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-On DelayTime	$V_{GS} = 10V$, $V_{DD} = 40V$, $I_D = 20A$, $R_{GEN} = 3\Omega$	-	20	-	ns
t_r	Turn-On Rise Time		-	38	-	ns
$t_{d(off)}$	Turn-Off DelayTime		-	30	-	ns
t_f	Turn-Off Fall Time		-	15	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	125	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	500	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	-	48	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	100	-	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

2. E_{AS} condition: Starting T_J=25°C, V_{DD}=40V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=37A

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

Test Circuit

Figure 1: Gate Charge Test Circuit & Waveform
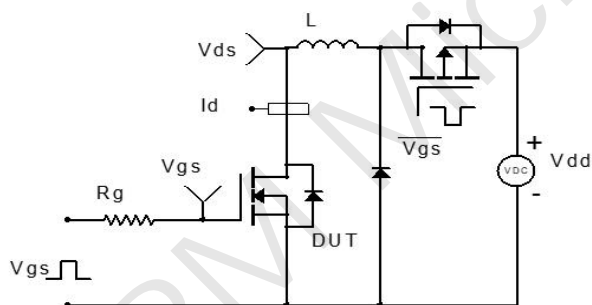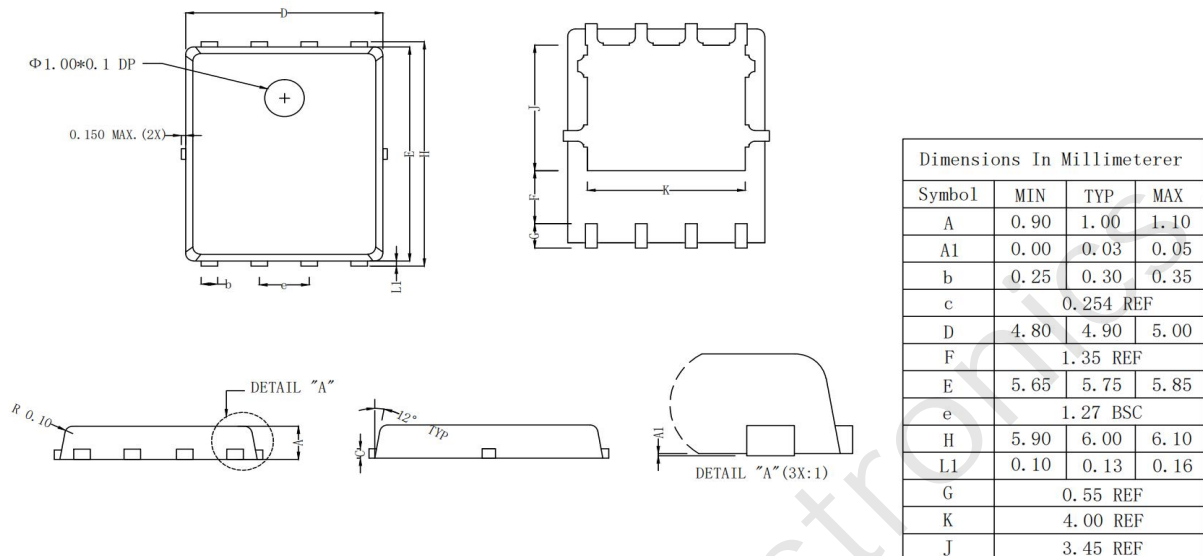
Figure 2: Resistive Switching Test Circuit & Waveform

$E_{AR} = 1/2\ L\ I_{AR}^2$

Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

$Q_{rr} = \int Idt$

Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(PDFN5x6-8L)

Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	0.90	1.00	1.10
A1	0.00	0.03	0.05
b	0.25	0.30	0.35
c		0.254 REF	
D	4.80	4.90	5.00
F		1.35 REF	
E	5.65	5.75	5.85
e		1.27 BSC	
H	5.90	6.00	6.10
L1	0.10	0.13	0.16
G		0.55 REF	
K		4.00 REF	
J		3.45 REF	

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