

Description

Features

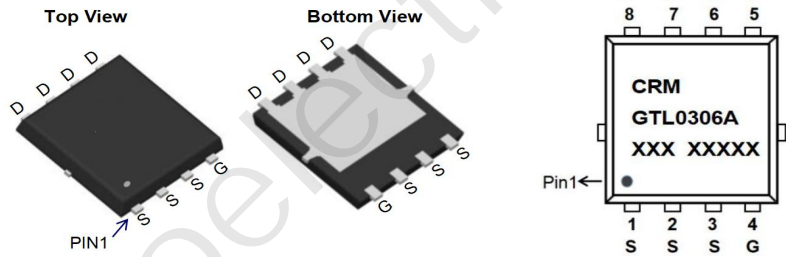
- 30V, 67A
- $R_{DS(ON)}$ Typ = 4.0mΩ @ $V_{GS} = 10V$
- $R_{DS(ON)}$ Typ = 6.3mΩ @ $V_{GS} = 4.5V$
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- 100% UIS TESTED!
- 100% ΔV_{ds} TESTED!



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)
CRMGTL0306A	CRMGTL0306A	PDFN5x6-8L	TAPING	13"	5000	50000

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

Symbol	Parameter	Value	Units	
V _{DS}	Drain-to-Source Voltage	30	V	
V _{GS}	Gate-to-Source Voltage	±20	V	
I _D	Continuous Drain Current	T _C = 25°C	67	A
		T _C = 100°C	40.2	A
I _{DM}	Pulsed Drain Current ⁽¹⁾	268	A	
E _{AS}	Single Pulsed Avalanche Energy ⁽²⁾	76.5	mJ	
P _D	Power Dissipation	T _C = 25°C	40.3	W
R _{θJC}	Thermal Resistance, Junction to Case	3.1	°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	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 30V, 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	1	1.4	2	V
R _{DS(ON)}	Static Drain-Source ON-Resistance ⁽³⁾	V _{GS} = 10V, I _D = 20A	-	4	5.2	mΩ
		V _{GS} = 4.5V, I _D = 15A	-	6.3	8.2	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz	-	1916	-	pF
C _{oss}	Output Capacitance		-	217	-	pF
C _{rss}	Reverse Transfer Capacitance		-	183	-	pF
Q _g	Total Gate Charge	V _{GS} = 0 to 10V V _{DS} = 15V, I _D = 30A	-	37	-	nC
Q _{gs}	Gate Source Charge		-	7.4	-	nC
Q _{gd}	Gate Drain("Miller") Charge		-	8.6	-	nC
Switching Characteristics						
t _{d(on)}	Turn-On DelayTime	V _{GS} = 10V, V _{DD} = 15V I _D = 30A, R _{GEN} = 3Ω	-	8.4	-	ns
t _r	Turn-On Rise Time		-	20	-	ns
t _{d(off)}	Turn-Off DelayTime		-	32	-	ns
t _f	Turn-Off Fall Time		-	9	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current	V _{GS} = 0V, I _S = 20A	-	-	67	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	268	A
V _{SD}	Drain to Source Diode Forward Voltage		-	-	1.2	V
trr	Body Diode Reverse Recovery Time		-	10.2	-	ns
Qrr	Body Diode Reverse Recovery Charge		I _F = 20A, di/dt = 100A/us	-	2.75	-

- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. E_{AS} condition: Starting $T_J = 25^\circ\text{C}$, $V_{DD} = 15\text{V}$, $V_G = 10\text{V}$, $R_G = 25\Omega$, $L = 0.5\text{mH}$, $I_{AS} = 17.5\text{A}$
 3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$.

Test Circuit

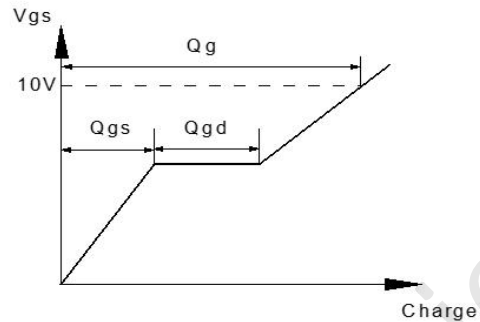


Figure 1: Gate Charge Test Circuit & Waveform



Figure 2: Resistive Switching Test Circuit & Waveform

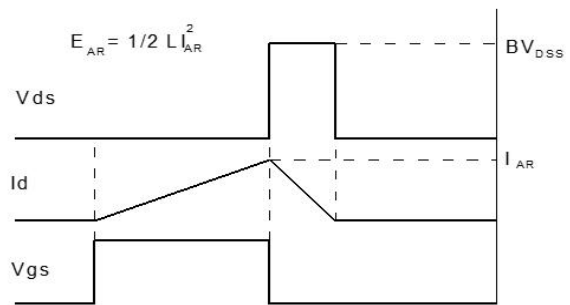


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

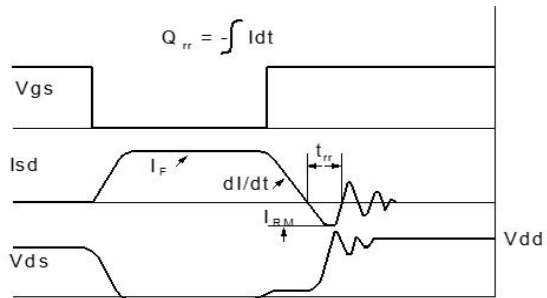
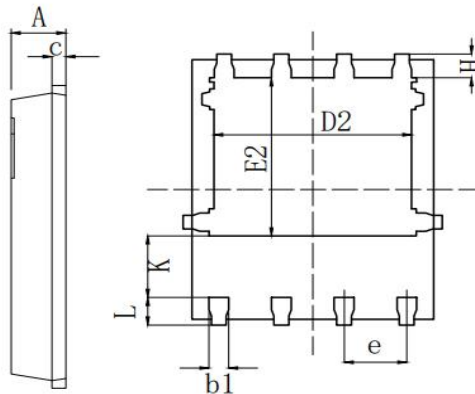
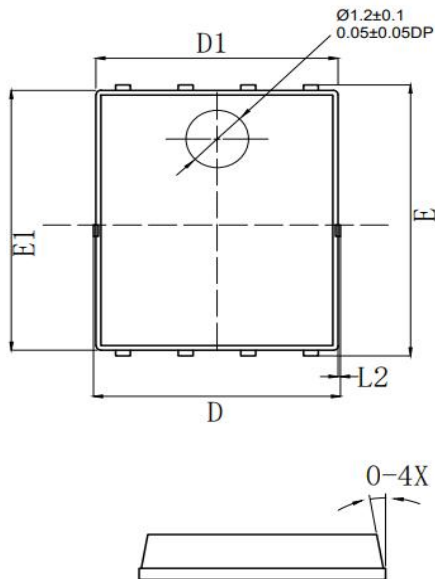


Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(PDFN5x6-8L)




SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.90	1.00	1.10
b	0.25	0.30	0.35
b1	0.30	0.40	0.45
c	0.22	0.25	0.28
D	—	—	5.30
D1	4.90	5.05	5.20
D2	3.90REF		
E	6.00	6.15	6.30
E1	5.70	5.85	6.00
E2	3.50REF		
e	1.10	1.27	1.40
H	0.51	0.61	0.71
K	1.10	—	—
L	0.51	0.61	0.71
L2	—	—	0.10
Φ	8°	—	12°

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