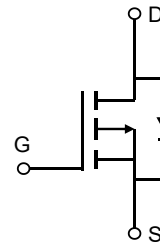


Description

Features

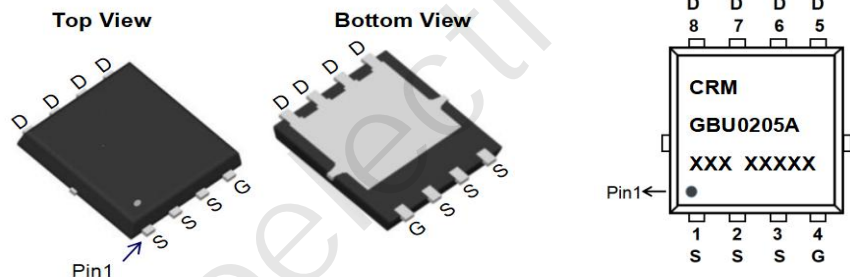
- 20V, -55A
- $R_{DS(ON)}$ Typ = 5.3mΩ @ $V_{GS} = -4.5V$
- $R_{DS(ON)}$ Typ = 6.9mΩ @ $V_{GS} = -2.5V$
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- 100% UIS TESTED!
- 100% ΔV_{ds} TESTED!



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)
CRMGBU0205A	CRMGBU0205A	PDFN5x6-8L	TAPING	13"	5000	50000

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

Symbol	Parameter	Value	Units
V_{DS}	Drain-to-Source Voltage	-20	V
V_{GS}	Gate-to-Source Voltage	±12	V
I_D	Continuous Drain Current	$T_C = 25^\circ C$	-55
		$T_C = 100^\circ C$	-33
I_{DM}	Pulsed Drain Current ⁽¹⁾	-220	A
E_{AS}	Single Pulsed Avalanche Energy ⁽²⁾	53	mJ
P_D	Power Dissipation	$T_C = 25^\circ C$	36.7
$R_{\theta JC}$	Thermal Resistance, Junction to Case	3.4	°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	-20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -20V, V _{GS} = 0V	-	-	-1.0	μA
I _{GSS}	Gate-Body Leakage Current	V _{DS} = 0V, V _{GS} = ±12V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.65	-1	V
R _{DS(ON)}	Static Drain-Source ON-Resistance ⁽³⁾	V _{GS} = -4.5V, I _D = -15A	-	5.3	6.9	mΩ
		V _{GS} = -2.5V, I _D = -10A	-	6.9	9	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = -10V, f = 1MHz	-	3460	-	pF
C _{oss}	Output Capacitance		-	545	-	pF
C _{rss}	Reverse Transfer Capacitance		-	490	-	pF
Q _g	Total Gate Charge	V _{GS} = 0 to -4.5V V _{DS} = -4.5V, I _D = -15A	-	58	-	nC
Q _{gs}	Gate Source Charge		-	7	-	nC
Q _{gd}	Gate Drain("Miller") Charge		-	15	-	nC
Switching Characteristics						
t _{d(on)}	Turn-On DelayTime	V _{GS} = -10V, V _{DD} = -10V I _D = -15A, R _{GEN} = 2.7Ω	-	13	-	ns
t _r	Turn-On Rise Time		-	108	-	ns
t _{d(off)}	Turn-Off DelayTime		-	160	-	ns
t _f	Turn-Off Fall Time		-	155	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-55	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-220	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} = 0V, I _S = -15A	-	-	-1.2	V
trr	Body Diode Reverse Recovery Time	I _F = -15A, di/dt = 100A/us	-	18	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	7.7	-	nC

- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. E_{AS} condition: Starting T_J=25°C, V_{DD}=-10V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=-14.5A
 3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 0.5%.

Test Circuit

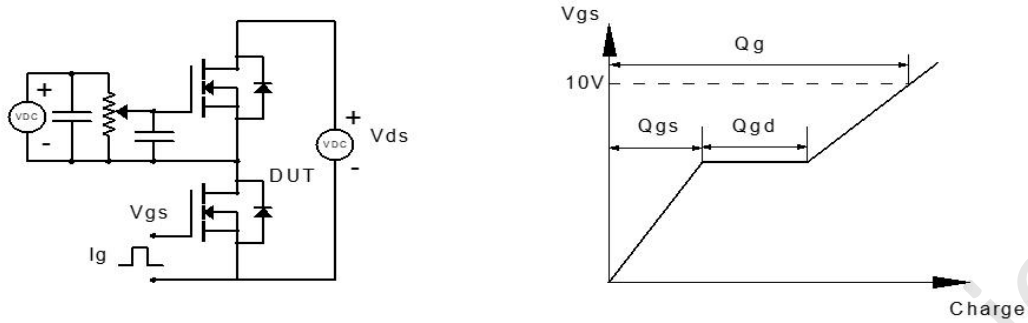


Figure 1: Gate Charge Test Circuit & Waveform

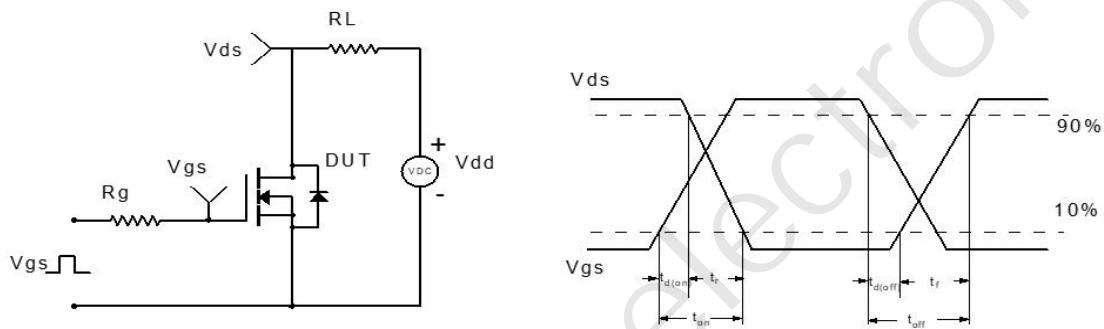


Figure 2: Resistive Switching Test Circuit & Waveform

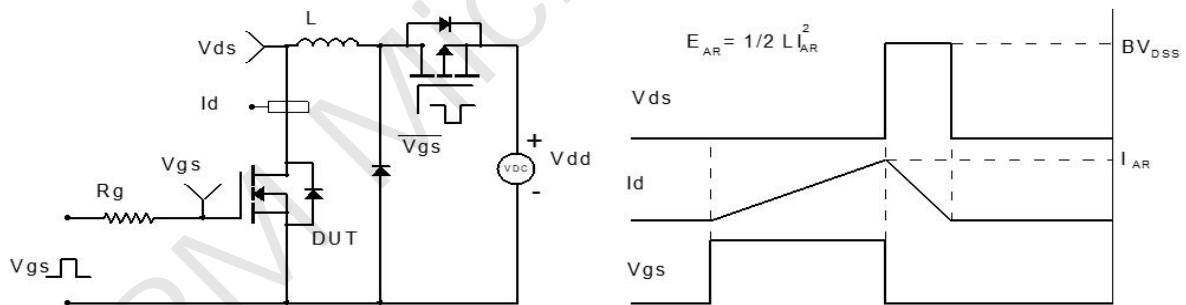


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

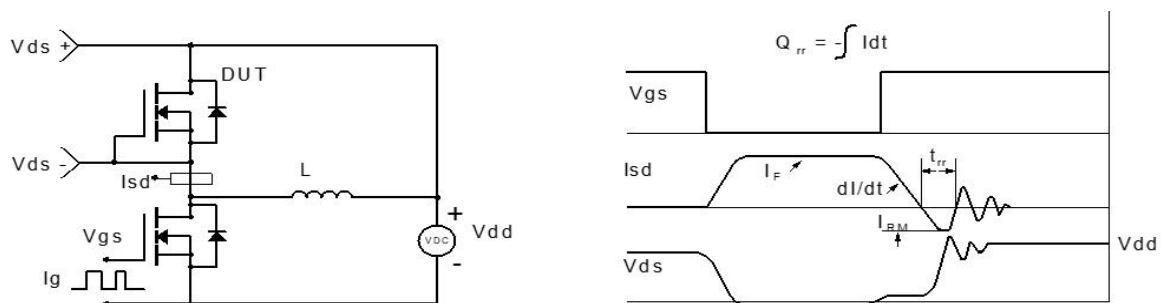
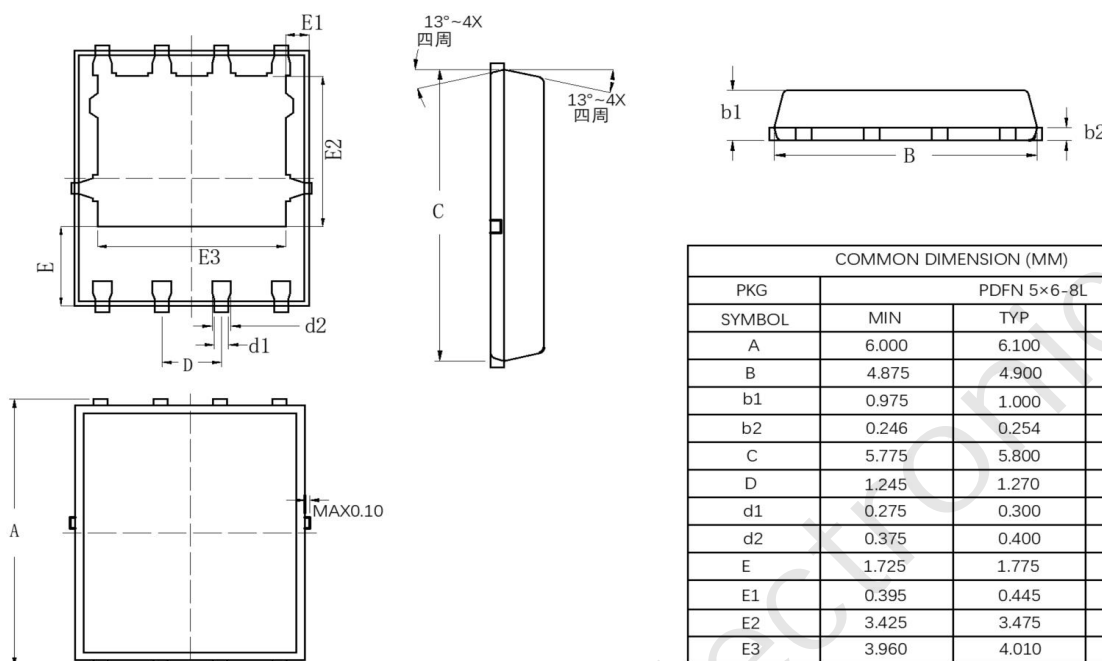


Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(PDFN5x6-8L)




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