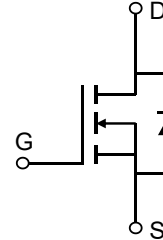


Description

Features

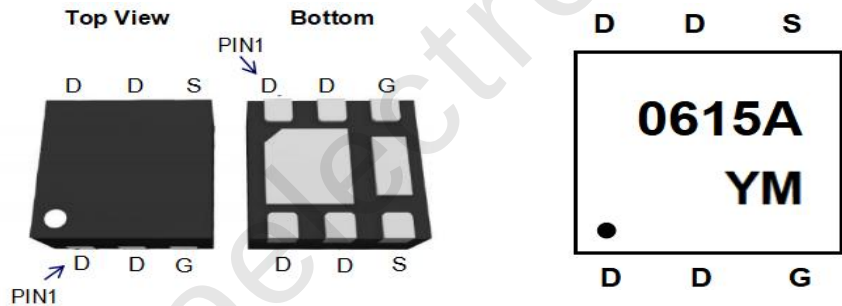
- 60V, 15A
 $R_{DS(ON)}$ Typ = 15.5mΩ @ $V_{GS} = 10V$
 $R_{DS(ON)}$ Typ = 22mΩ @ $V_{GS} = 4.5V$
- Advanced Split Gate Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead Free



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)
CRMVGL0615A	0615A	DFN2020-6L	TAPING	7"	3000	120000

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

Symbol	Parameter	Value	Units	
V _{DS}	Drain-to-Source Voltage	60	V	
V _{GS}	Gate-to-Source Voltage	±20	V	
I _D	Continuous Drain Current	T _C = 25°C	15	A
		T _C = 100°C	9	A
I _{DM}	Pulsed Drain Current ⁽¹⁾	60	A	
P _D	Power Dissipation	T _C = 25°C	8.6	W
R _{θJC}	Thermal Resistance, Junction to Case	14.5	°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
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Off Characteristics

V _{(BR)DSS}	Drain-Source Breakdown Voltage	I _D = 250μA, V _{GS} = 0V	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 60V, 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	1.5	2	V
R _{DS(ON)}	Static Drain-Source ON-Resistance ⁽²⁾	V _{GS} = 10V, I _D = 5A	-	15.5	20	mΩ
		V _{GS} = 4.5V, I _D = 3A	-	22	29	mΩ

Dynamic Characteristics

C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 30V, f = 1MHz	-	527	-	pF
C _{oss}	Output Capacitance		-	157	-	pF
C _{rss}	Reverse Transfer Capacitance		-	7.5	-	pF
Q _g	Total Gate Charge	V _{GS} = 0 to 10V V _{DS} = 30V, I _D = 15A	-	12.1	-	nC
Q _{gs}	Gate Source Charge		-	1.3	-	nC
Q _{gd}	Gate Drain("Miller") Charge		-	2.6	-	nC

Switching Characteristics

t _{d(on)}	Turn-On DelayTime	V _{GS} = 10V, V _{DD} = 30V I _D = 15A, R _{GEN} = 6Ω	-	3.3	-	ns
t _r	Turn-On Rise Time		-	4	-	ns
t _{d(off)}	Turn-Off DelayTime		-	14	-	ns
t _f	Turn-Off Fall Time		-	5.5	-	ns

Drain-Source Diode Characteristics and Max Ratings

I _S	Maximum Continuous Drain to Source Diode Forward Current	V _{GS} = 0V, I _S = 5A	-	-	15	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	60	A
V _{SD}	Drain to Source Diode Forward Voltage		-	-	1.2	V
t _{rr}	Body Diode Reverse Recovery Time		-	20	-	ns
Q _{rr}	Body Diode Reverse Recovery Charge		-	8.1	-	nC

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

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

Typical Performance Characteristics

Figure 1: Output Characteristics

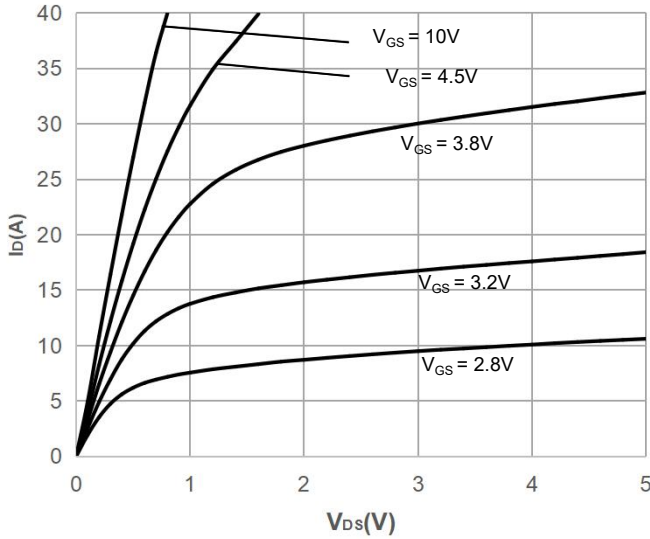


Figure 2: Typical Transfer Characteristics

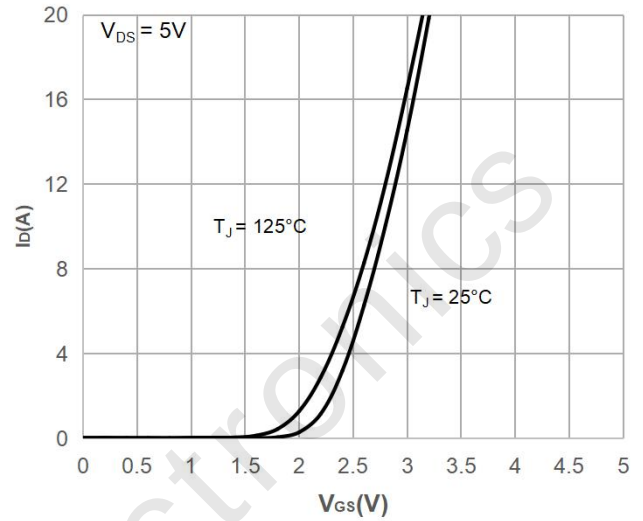


Figure 3: On-resistance vs. Drain Current

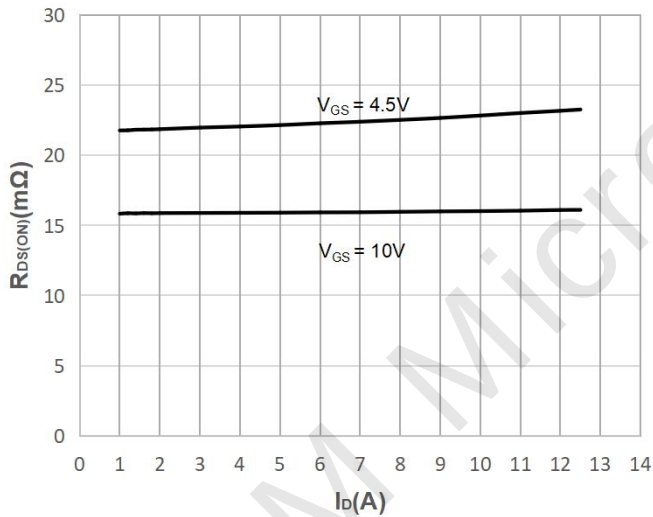


Figure 4: Body Diode Characteristics

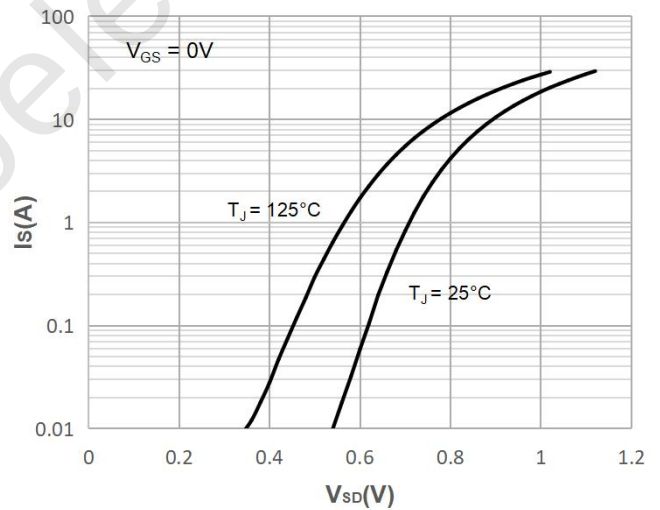


Figure 5: Gate Charge Characteristics

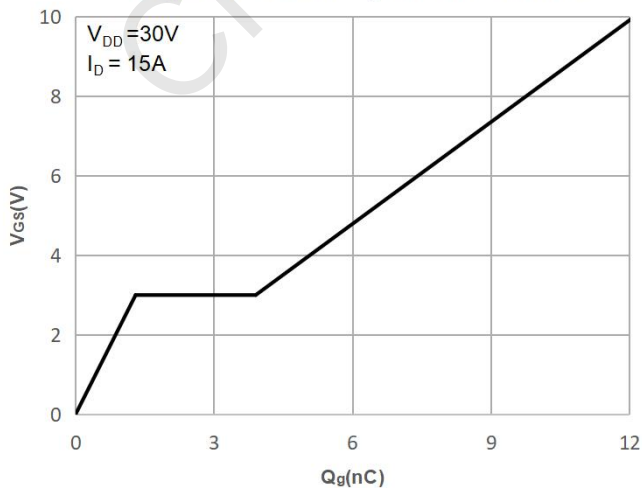
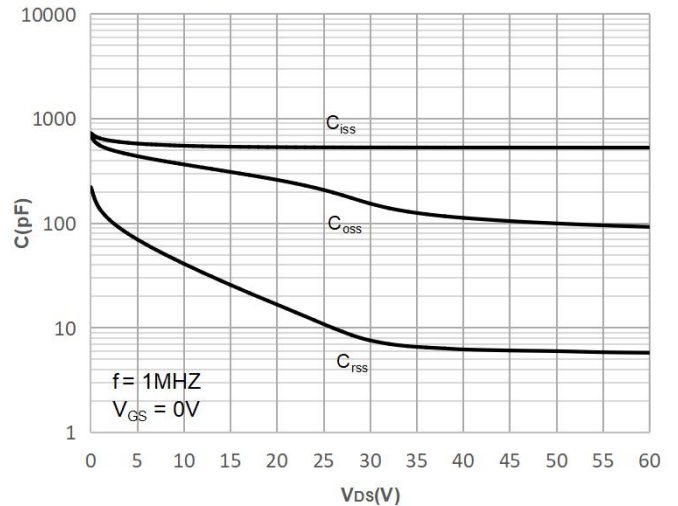


Figure 6: Capacitance Characteristics



Typical Performance Characteristics

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

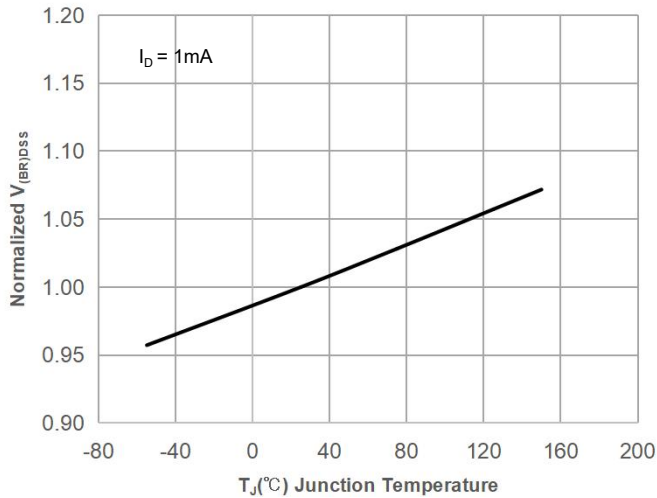


Figure 8: Normalized on Resistance vs. Junction Temperature

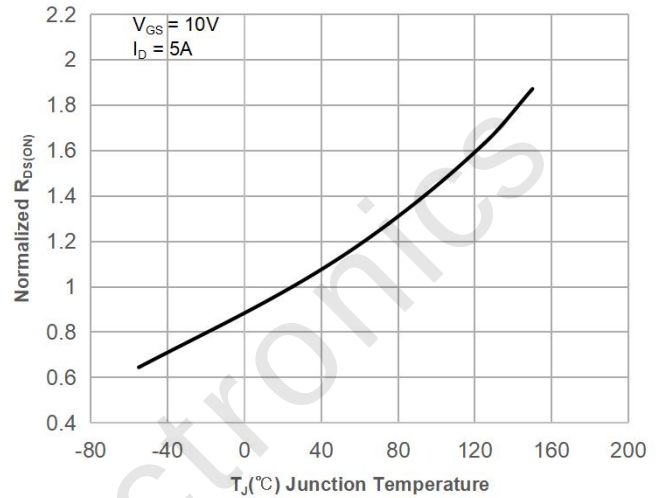


Figure 9: Maximum Safe Operating Area

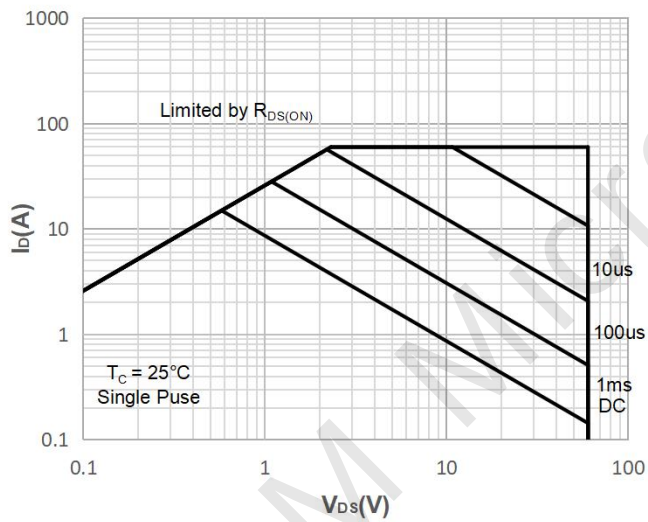


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

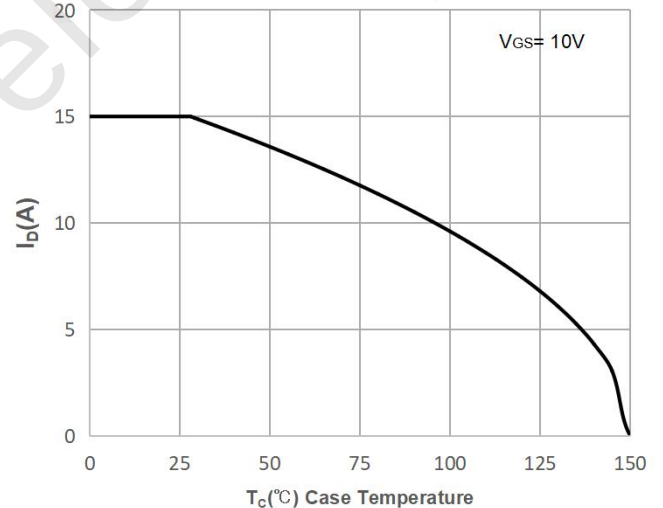


Figure 11: Normalized Maximum Transient Thermal Impedance

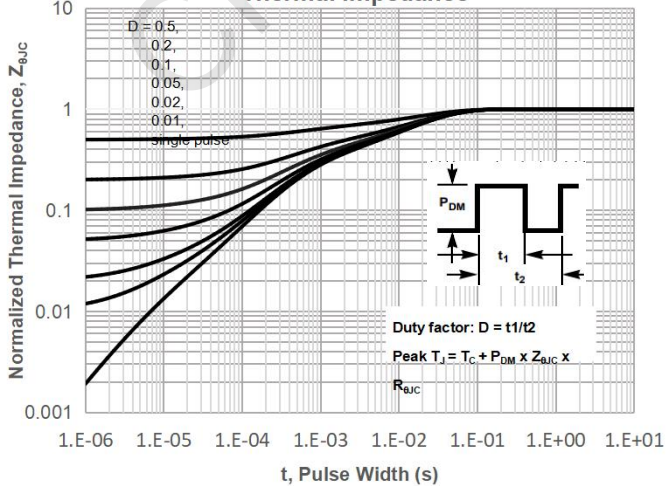
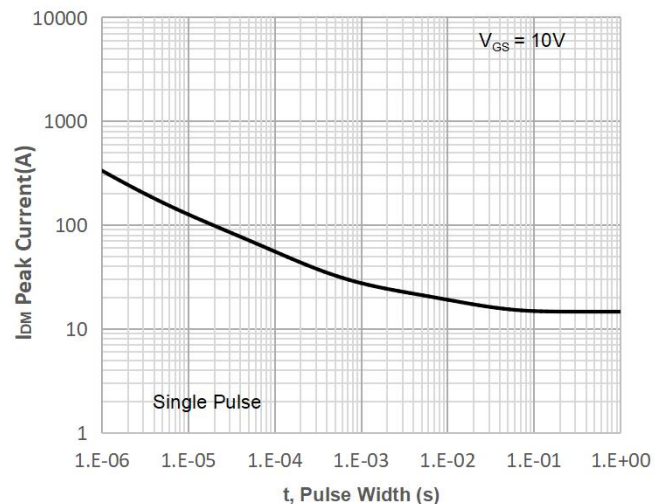


Figure 12: Peak Current Capacity



Test Circuit

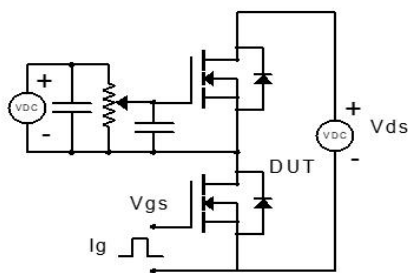


Figure 1: Gate Charge Test Circuit & Waveform

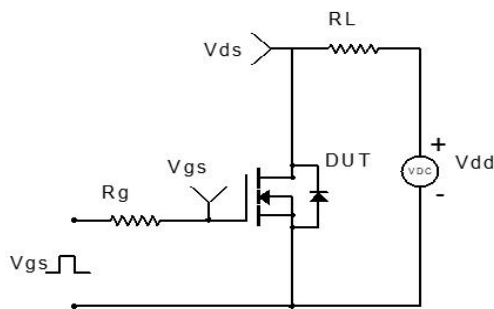


Figure 2: Resistive Switching Test Circuit & Waveform

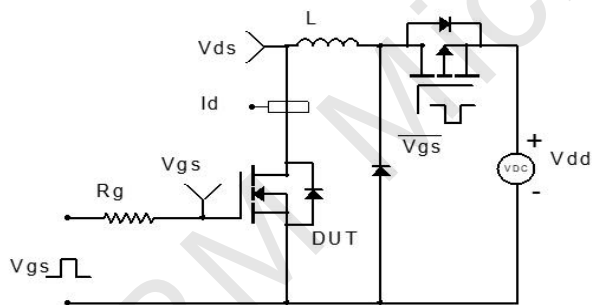


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

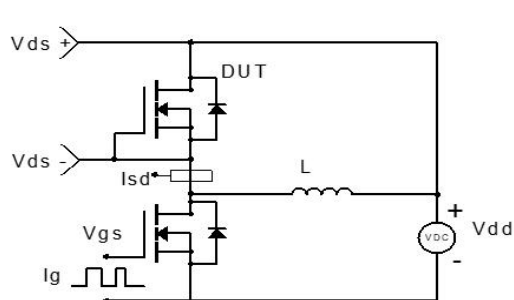
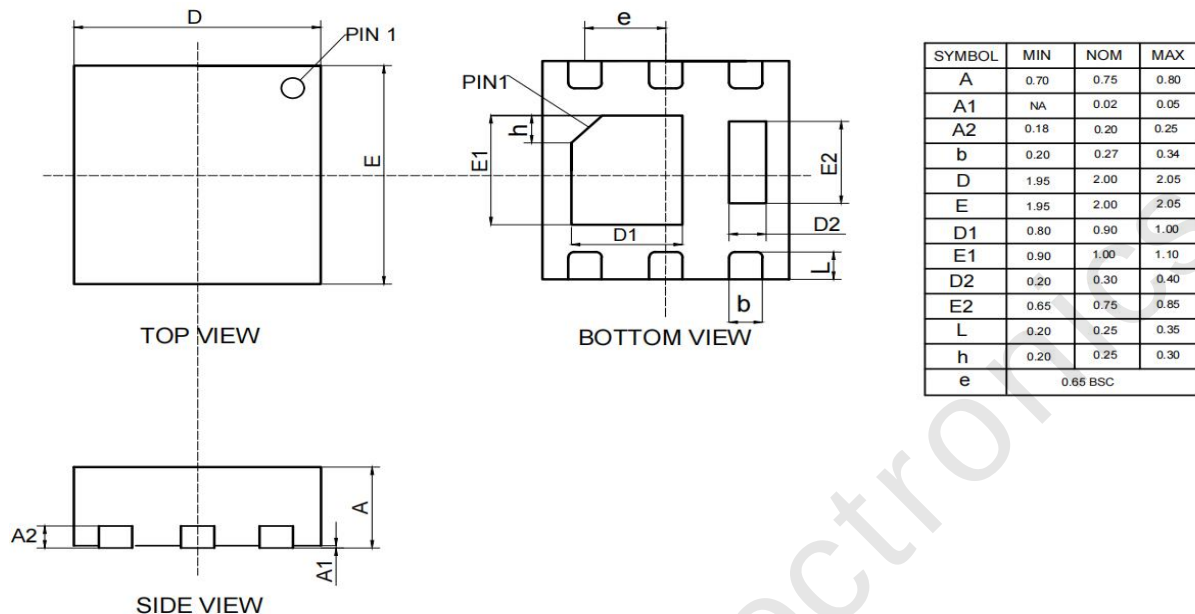


Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(DFN2020-6L)



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