祥瑞微
CRM Microelectronics

CRMPGL1025A

N-Channel 100V, 20mΩ Typ. Power MOSFET

Description

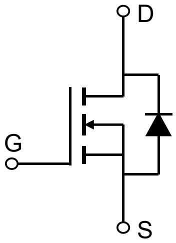
Features

- 100V, 7.5A

  $R_{DS(ON)}$ Typ = 20mΩ @ V_{GS} = 10V

  $R_{DS(ON)}$ Typ = 26mΩ @ V_{GS} = 4.5V
- Advanced Split Gate Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead Free
- 100% UIS TESTED!
- 100% ΔVds TESTED!

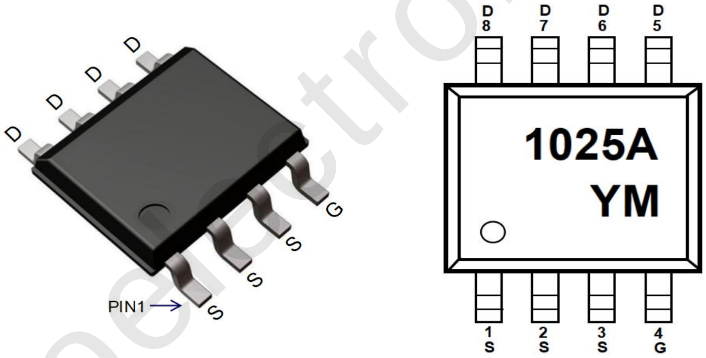
RoHS



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)
CRMPGL1025A	1025A	SOP-8	TAPING	13"	4000	40000

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_A = 25°C	7.5	A
		T_A = 100°C	4.5	A
I_{DM}	Pulsed Drain Current (1)		30	A
E_{AS}	Single Pulsed Avalanche Energy (2)		31	mJ
P_D	Power Dissipation	T_A = 25°C	2.5	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient(3)		50	°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	$I_D = 250\mu A, V_{GS} = 0V$	100	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 100V, V_{GS} = 0V$	-	-	1.0	µA
I_{GSS}	Gate-Body Leakage Current	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.2	1.8	2.4	V
$R_{DS(ON)}$	Static Drain-Source ON-Resistance$^{(4)}$	$V_{GS} = 10V, I_D = 5A$	-	20	26	mΩ
		$V_{GS} = 4.5V, I_D = 3A$	-	26	34	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{GS} = 0V, V_{DS} = 25V,$ f = 1MHz	-	660	-	pF
C_{oss}	Output Capacitance		-	375	-	pF
C_{rss}	Reverse Transfer Capacitance		-	21	-	pF
Q_g	Total Gate Charge	V_{GS} = 0 to 10V $V_{DS} = 50V, I_D = 7.5A$	-	25	-	nC
Q_{gs}	Gate Source Charge		-	6	-	nC
Q_{gd}	Gate Drain("Miller") Charge		-	5	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-On DelayTime	$V_{GS} = 10V, V_{DD} = 50V$ $I_D = 7.5A, R_{GEN} = 3\Omega$	-	14	-	ns
t_r	Turn-On Rise Time		-	12	-	ns
$t_{d(off)}$	Turn-Off DelayTime		-	23	-	ns
t_f	Turn-Off Fall Time		-	6	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	7.5	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	30	A
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS} = 0V, I_S = 7.5A$	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I_F = 7.5A, di/dt = 100A/us	-	50	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	90	-	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}=11A
3. $R_{\theta JA}$ is measured with the device mounted on a 1inch^2 pad of 2oz copper FR4 PCB
4. Pulse Test: Pulse Width≤300µs, Duty Cycle≤0.5%.

Test Circuit

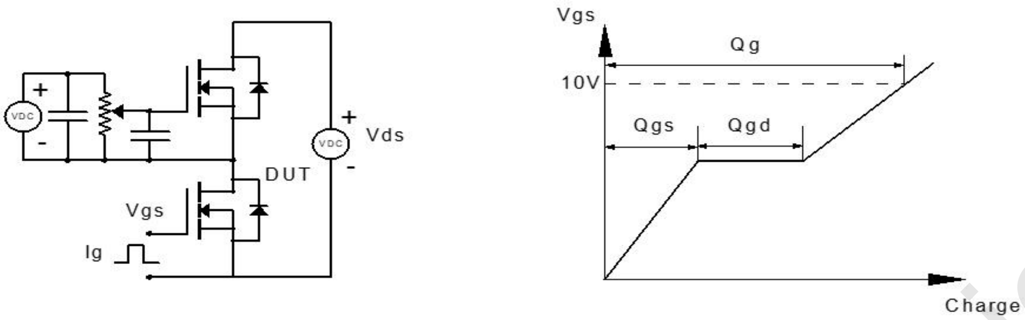


Figure 1: Gate Charge Test Circuit & Waveform

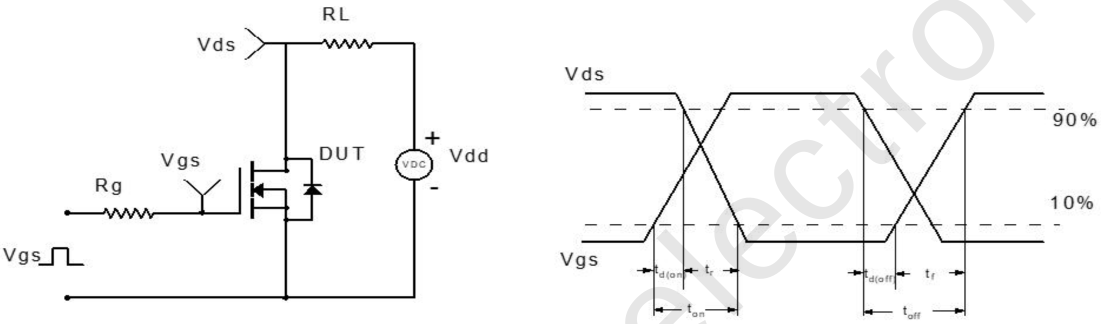


Figure 2: Resistive Switching Test Circuit & Waveform

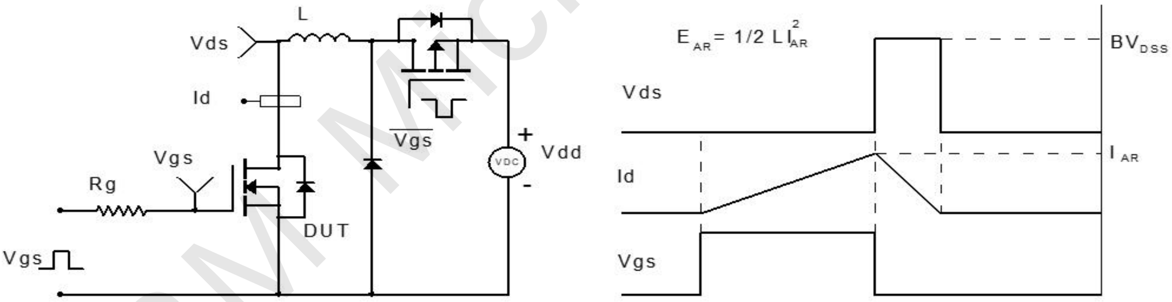


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

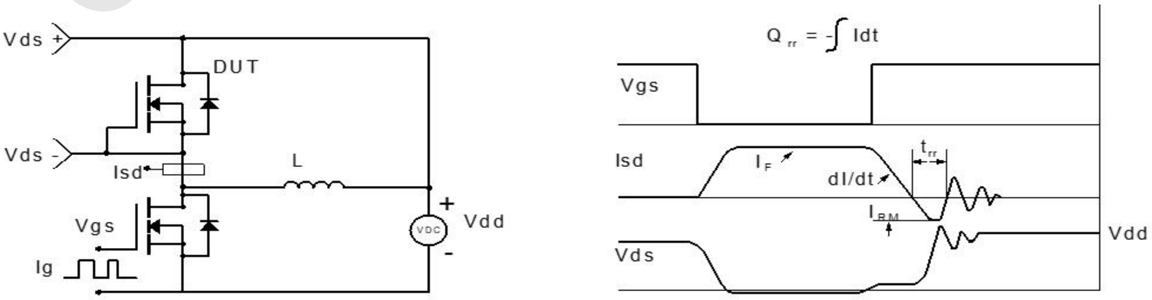
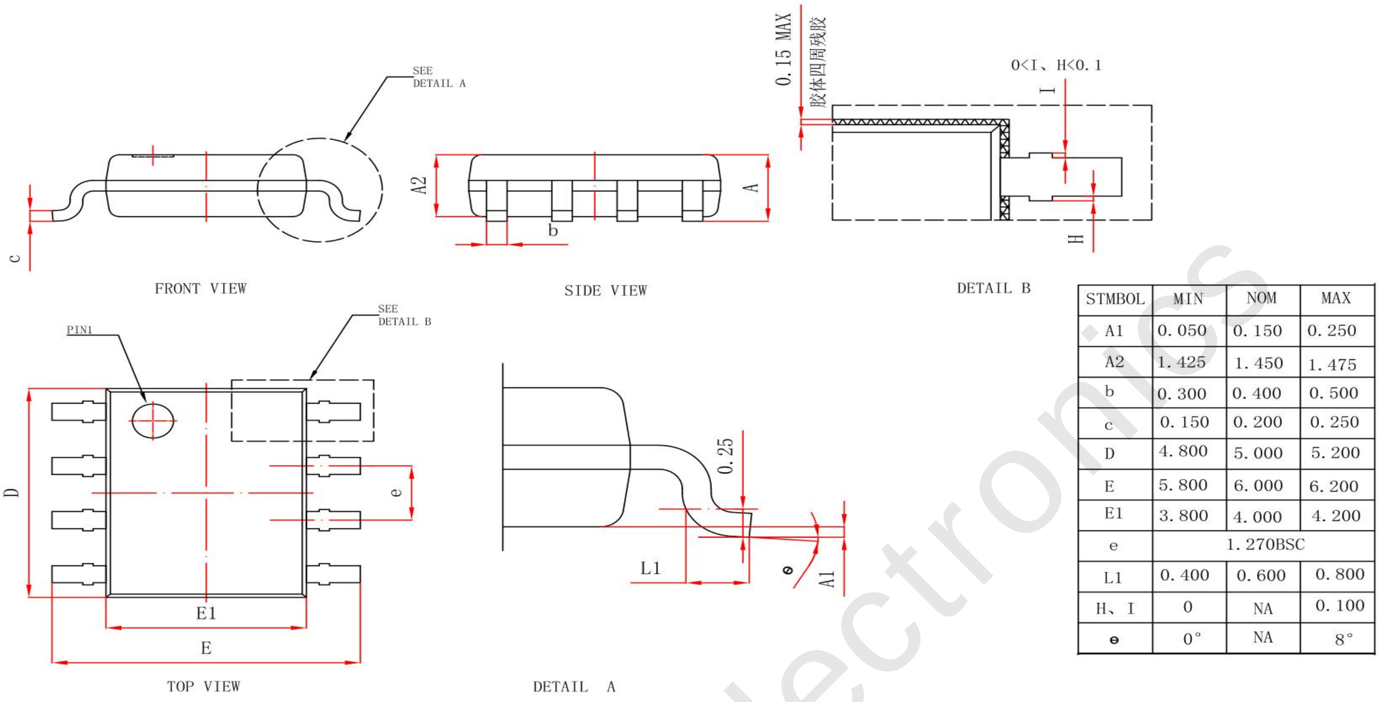


Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(SOP-8)



STMBOL	MIN	NOM	MAX
A1	0.050	0.150	0.250
A2	1.425	1.450	1.475
b	0.300	0.400	0.500
c	0.150	0.200	0.250
D	4.800	5.000	5.200
E	5.800	6.000	6.200
E1	3.800	4.000	4.200
e	1.270BSC		
L1	0.400	0.600	0.800
H、I	0	NA	0.100
θ	0°	NA	8°

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