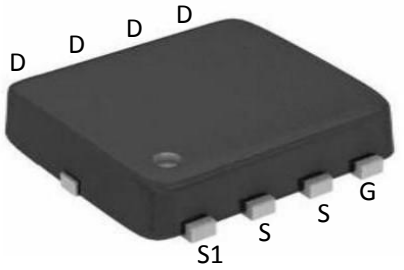
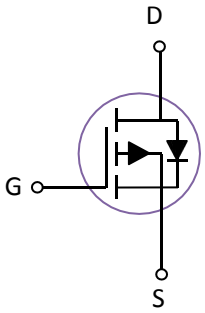
Description：

This P-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.





Features：

1) V_{DS}=-20V,I_D=-40A,$R_{DS(ON)}$<9m Ω @V_{GS}=-4.5V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.

Package Marking and Ordering Information：

Part NO.	Marking	Package	Packing
DOZ40P02	40P02	DFN3*3-8	5000 pcs/Reel

Absolute Maximum Ratings： (T_c=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D	Continuous Drain Curren	-40	A
	Continuous Drain Current-T_c=100℃	-28	
I_{DM}	Pulsed Drain Current[1]	-220	
P_D	Power Dissipation	42	W
E_{AS}	Single pulse avalanche energy[2]	43	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case	3	℃/W

Electrical Characteristics: (T_c=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	-20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=-20V	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±12V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	-0.4	-0.65	-1	V
$R_{DS(ON)}$	Drain-Source On Resistance[3]	V_{GS}=-4.5V,I_D=-40A	---	7	9	mΩ
		V_{GS}=-2.5V,I_D=-40A	---	9	11	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-10V, V_{GS}=0V, f=1MHz	---	2697	---	pF
C_{oss}	Output Capacitance		---	308	--	
C_{rss}	Reverse Transfer Capacitance		---	270	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=-10V, I_D=-13A, R_{ENG}=2.7Ω,V_{GS}=-10V	---	12	---	ns
t_r	Rise Time		---	104	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	144	---	ns
t_f	Fall Time		---	149	---	ns
Q_g	Total Gate Charge	V_{GS}=-4.5V, V_{DS}=-4.5V, I_D=-15A	---	53	---	nc
Q_{gs}	Gate-Source Charge		---	6	---	nc
Q_{gd}	Gate-Drain “Miller” Charge		---	13	---	nc
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_{SD}=-10A	---	---	-1.2	V
I_S	Continuous Drain Curren	V_D=V_G=0V	---	---	-40	A
I_{SM}	Pulsed Drain Current		---	---	-220	A

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. E_{AS} condition: Starting T_J=25C, V_{DD}=-10V, V_G=-10V, R_G=25ohm, L=0.5mH, I_{AS}=13A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

Typical Characteristics: (T_c=25℃ unless otherwise noted)

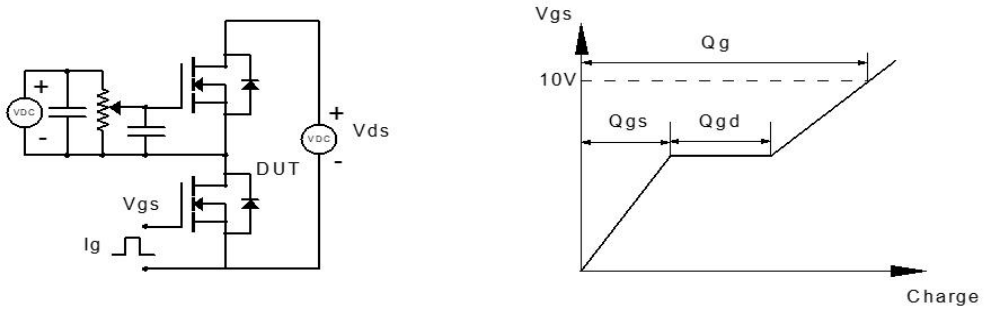


Figure 1: Gate Charge Test Circuit & Waveform

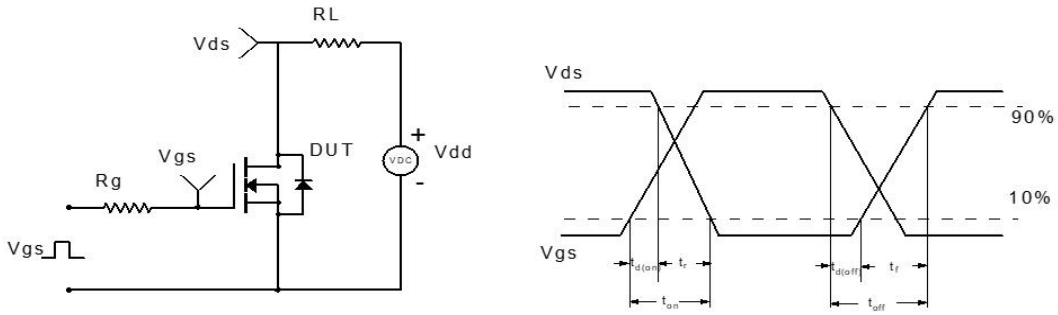


Figure 2: Resistive Switching Test Circuit & Waveform

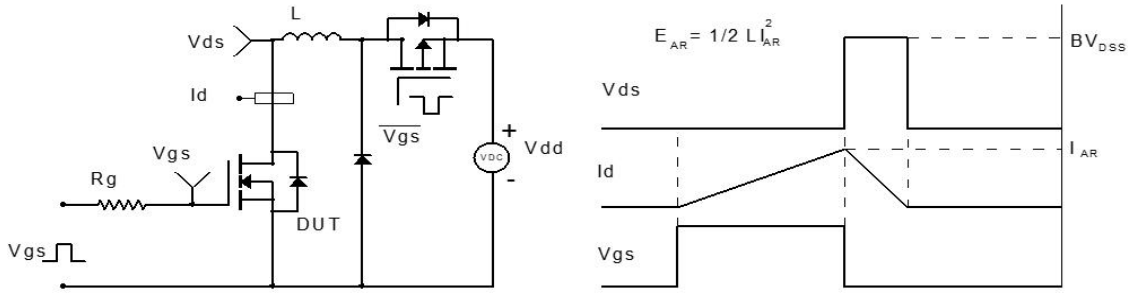


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

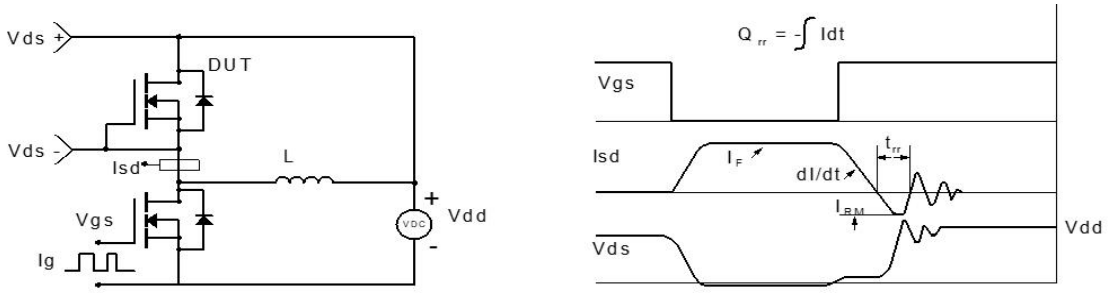
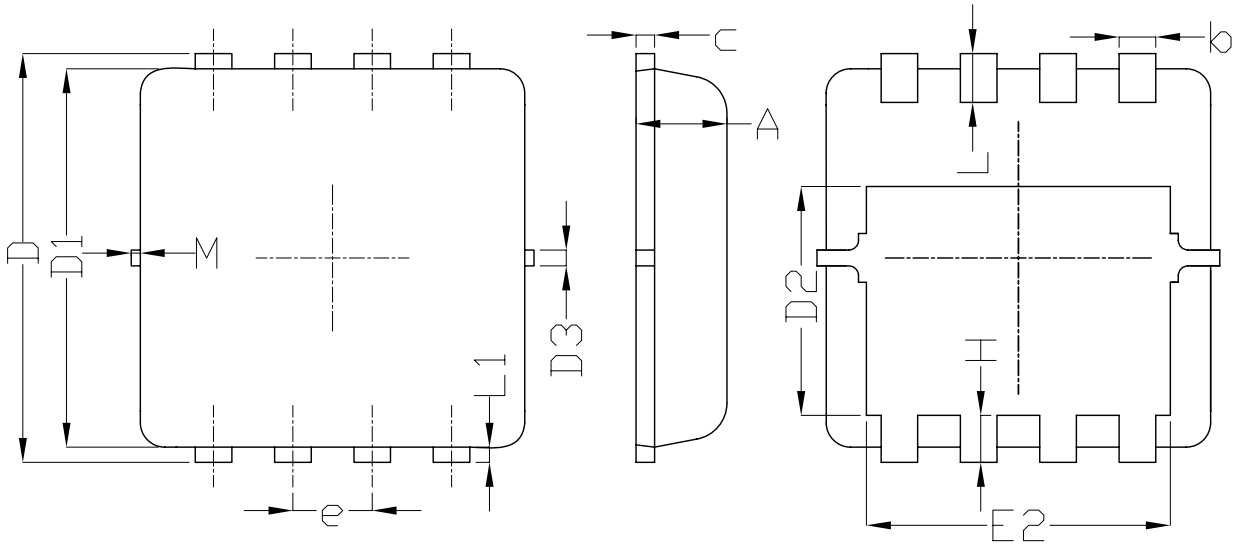
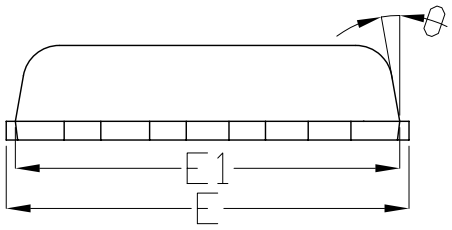
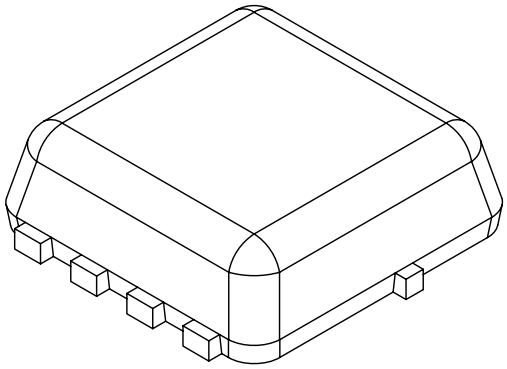


Figure 4: Diode Recovery Test Circuit & Waveform

DFN3X3-8 Package Information：

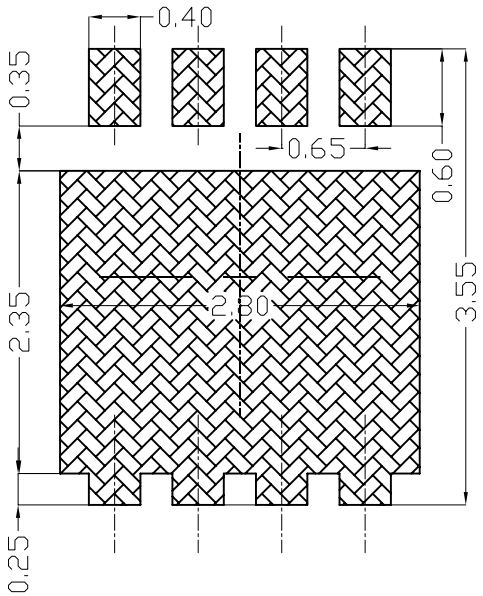






SYMBOL	DIMENSIONAL REQMTS		
	MIN	NOM	MAX
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
D3	---	0.13	---
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	---	0.13	---
θ	---	10°	12°
M	*	*	0.15

* Not specified



UNIT: mm

Marking Information：

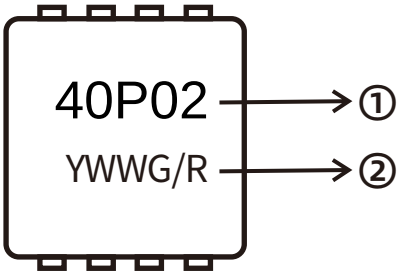
①. Part NO.

②. Date Code(YWWG / R)

Y：Year Code，last digit of the year

WW：Week Code(01-53)

G/R：G(Green) /R(Lead Free)



Previous Version

Version	Date	Subjects (major changes since last revision)
1.0	2024-06-08	Release of final version

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