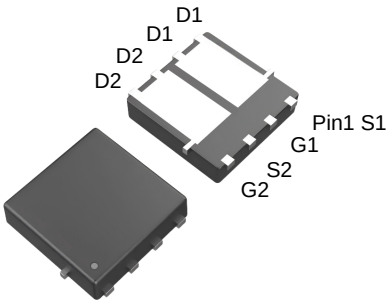
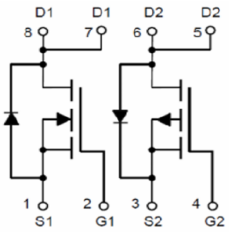
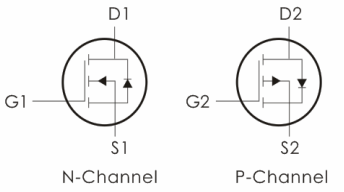
Description：

This N+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：

N-Channel:V_{DS}=30V,I_D=20A,$R_{DS(ON)}$<13mΩ @V_{GS}=10V（Typ：9mΩ）

P-Channel: V_{DS}=-30V,I_D=-20A,$R_{DS(ON)}$<25mΩ @V_{GS}=-10V（Typ：15mΩ）

1) Low gate charge.
2) Green device available.
3) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
4) Excellent package for good heat dissipation.
5) MSL3

Package Marking and Ordering Information：

Part NO.	Marking	Package	Packing
DOZ4616A-Y	Z4616A-Y	DFN3*3-8D	5000 pcs/Reel

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

Symbol	Parameter	N-Channel	P-Channel	Units
V_{DS}	Drain-Source Voltage	30	-30	V
V_{GS}	Gate-Source Voltage	±20	±20	V
I_D	Continuous Drain Current- T_C=25℃ [1]	20	-20	A
	Continuous Drain Current-T_C=100℃ [1]	14	-14	
I_{DM}	Pulsed Drain Current [2]	80	-80	A
E_{AS}	Single pulse avalanche energy[3]	24	31	mJ
P_D	Power Dissipation - T_C=25℃	27	34	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150		℃

Thermal Characteristics：

Symbol	Parameter	N-CH	P-CH	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Cast	4.6	3.7	℃/W

N-Channel 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	30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=30V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1.2	1.5	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance[4]	V_{GS}=10V,I_D=10A	---	9	13	mΩ
		V_{GS}=4.5V,I_D=5A	---	15	21	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz	---	770	---	pF
C_{oss}	Output Capacitance		---	118	---	
C_{rss}	Reverse Transfer Capacitance		---	98	---	
Switching Characteristics[4]						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=15V, I_D=20A, R_{REN} =10Ω ,V_{GS}=10V	---	9	---	ns
t_r	Rise Time		---	14	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	37	---	ns
t_f	Fall Time		---	16	---	ns
Q_g	Total Gate Charge	V_{GS}=4.5V, V_{DS}=24V, I_D=10A	---	8	---	nC
Q_{gs}	Gate-Source Charge		---	5	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	4	---	nC
Drain-Source Diode Characteristics						
I_S	Continuous Drain Current	V_D=V_G=0V	---	----	16.6	A
I_{SM}	Pulsed Drain Current		---	---	33.3	A
V_{SD}	Source-Drain Diode Forward Voltage	V_{GS}=0V,I_S=20A	---	---	1.2	V
Trr	Reverse Recovery Time	I_F=3A,T_J=25℃ dI/dt=100A/us	---	16	---	ns
Qrr	Reverse Recovery Charge		---	10	---	nC

Notes:

1. Computed continuous current assumes the condition of $T_{j,Max}$ while the actual continuous current depends on the thermal & electro-mechanical application board design
2. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
3. EAS condition : TJ=25℃,VDD=15V,V_G=10V,L=0.5mH
4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Test Circuit

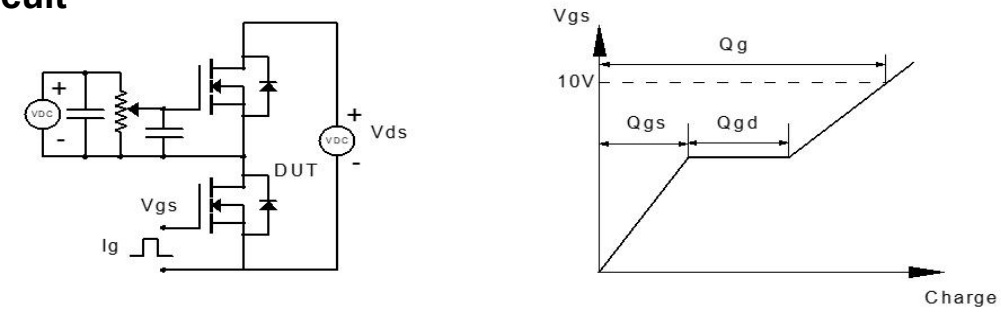


Figure 1: Gate Charge Test Circuit & Waveform

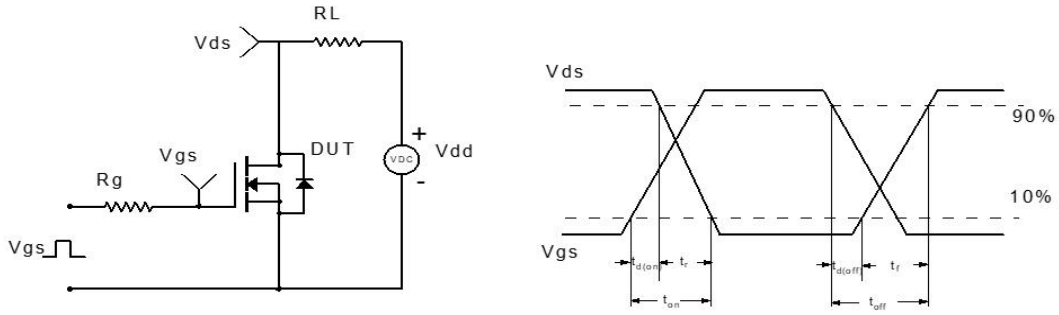


Figure 2: Resistive Switching Test Circuit & Waveform

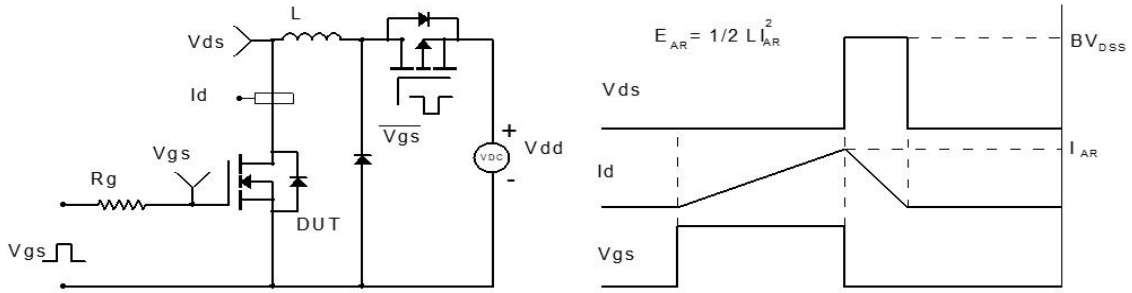


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

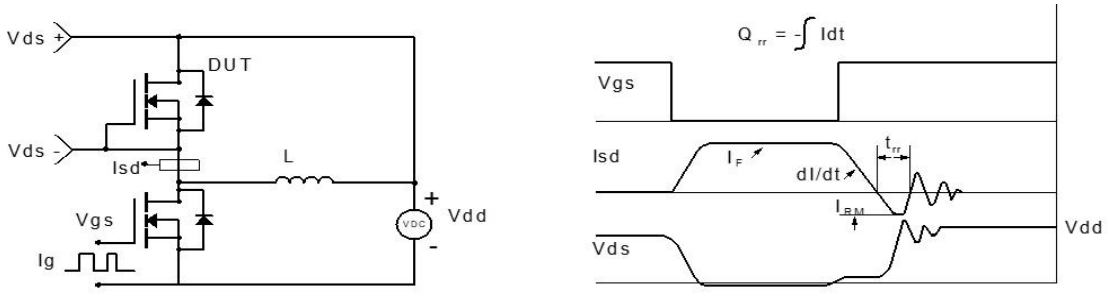


Figure 4: Diode Recovery Test Circuit & Waveform

P-Channel Electrical Characteristics: (T_A=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	-30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=-30V	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	-1	-1.6	-2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance[4]	V_{GS}=-10V,I_D=-10A	---	15	25	mΩ
		V_{GS}=-4.5V,I_D=-5A	---	22	40	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1MHz	---	1000	---	pF
C_{oss}	Output Capacitance		---	110	---	
C_{rss}	Reverse Transfer Capacitance		---	92	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DD}= -15V， I_D=-10A V_{GS}= -10V, R_{GEN}=3Ω	---	3	---	ns
t_r	Rise Time		---	6	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	19	---	ns
t_f	Fall Time		---	5	---	ns
Q_g	Total Gate Charge	V_{GS}=-10V,V_{DS}=-15V, I_D=-10A	---	50	---	nC
Q_{gs}	Gate-Source Charge		---	4.5	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	3.3	---	nC
Drain-Source Diode Characteristics						
I_S	Continuous Drain to Source Diode	V_D=V_G=0V	---	---	-16.6	A
I_{SM}	Pulsed Drain to Source Diode		---	---	-33.3	---
Trr	Reverse Recovery Time	I_F=11A,T_J=25℃ dI/dt=100A/us	---	7	---	ns
Qrr	Reverse Recovery Charge		---	5.9	---	nC
V_{SD}	Source-Drain Diode Forward Voltage	V_{GS}=0V,I_S=-11A	---	---	-1.2	V

Notes:

1. Computed continuous current assumes the condition of $T_{j,Max}$ while the actual continuous current depends on the thermal & electro-mechanical application board design
2. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
3. EAS condition : TJ=25℃,VDD=-15V,V_G=-10V,L=0.5mH
4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Test Circuit

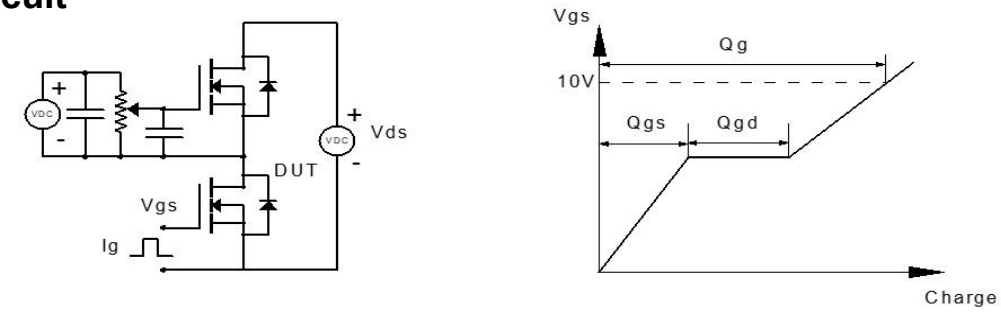


Figure 1: Gate Charge Test Circuit & Waveform

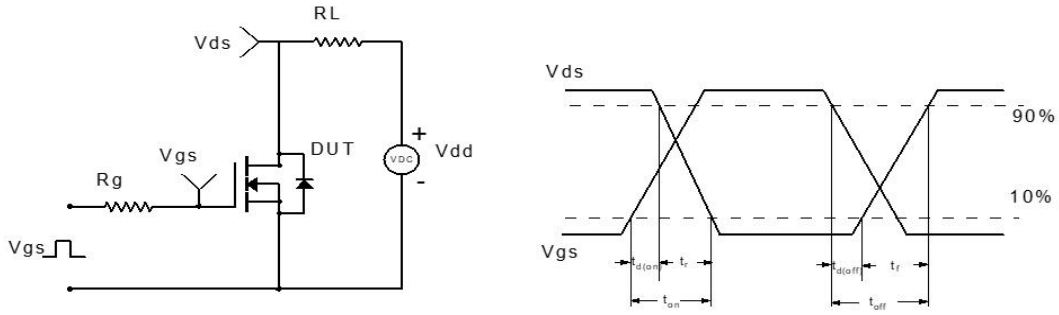


Figure 2: Resistive Switching Test Circuit & Waveform

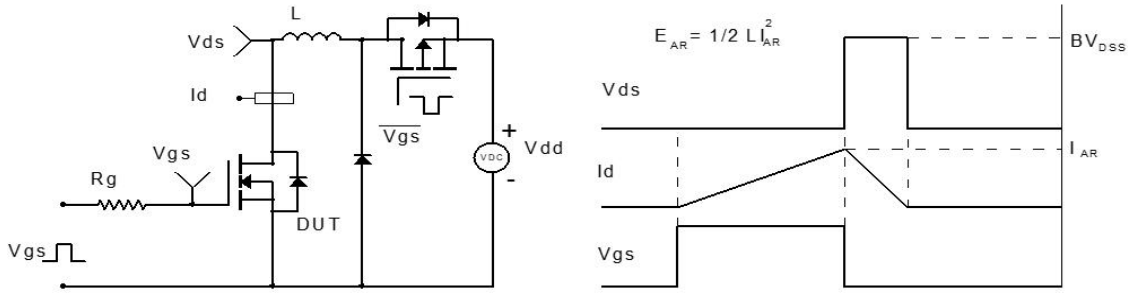


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

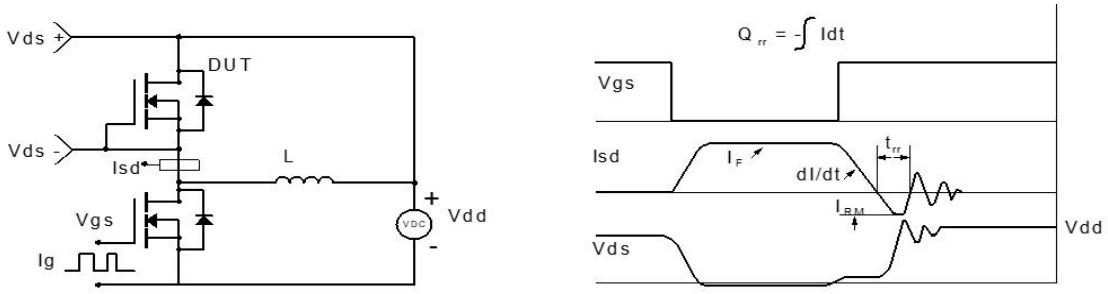
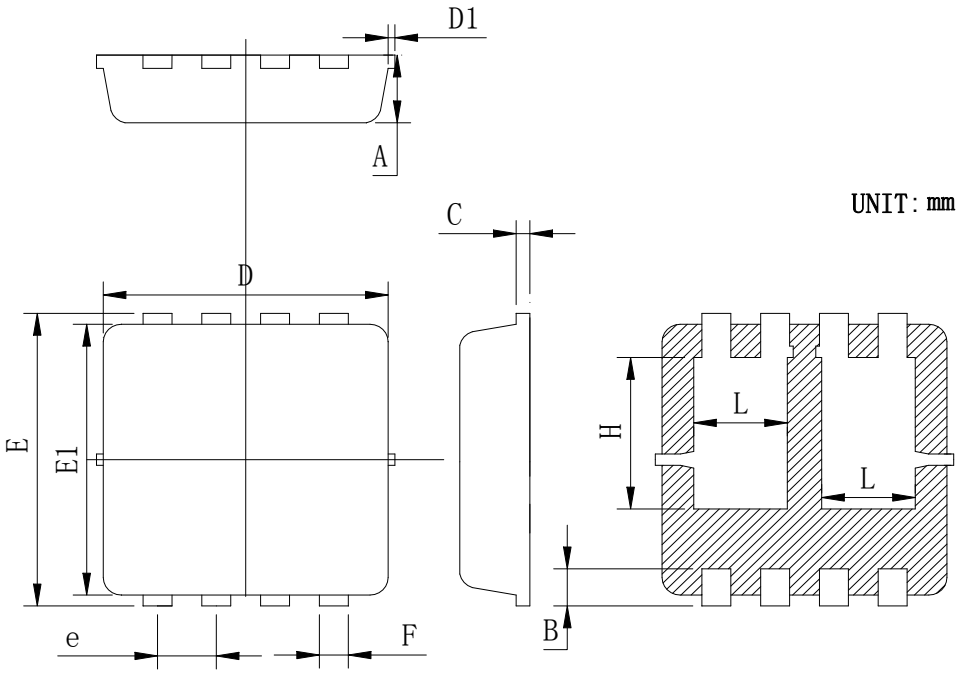


Figure 4: Diode Recovery Test Circuit & Waveform

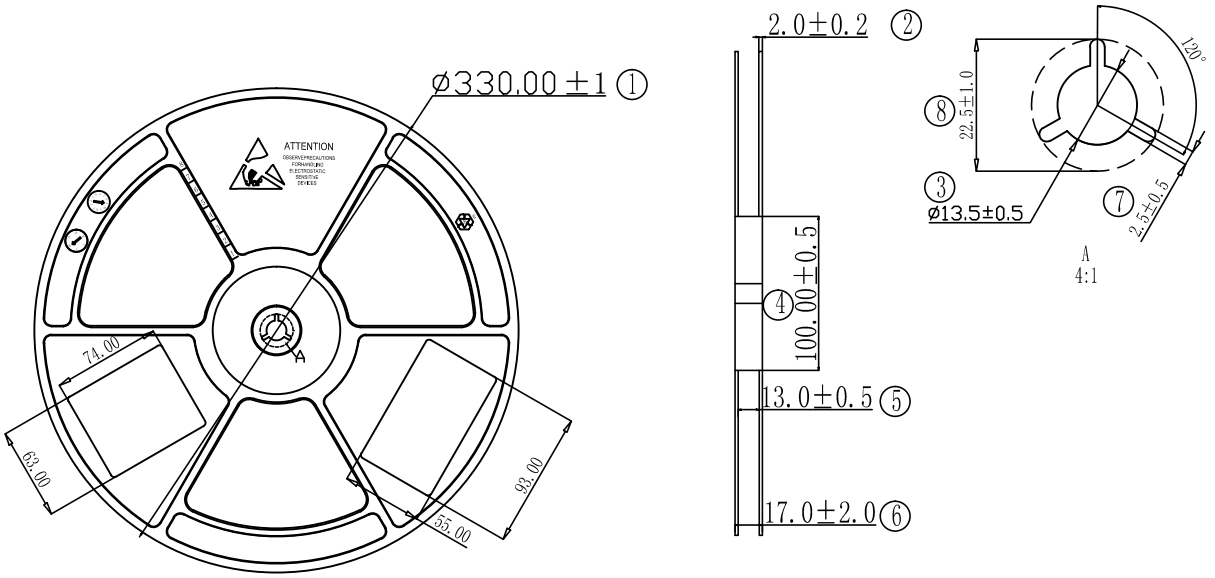
DFN3X3-8DPackage Outline Data



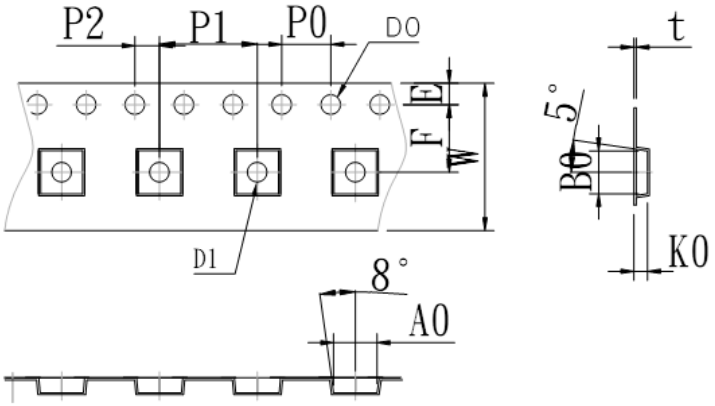
Symbol	Min	Typ	Max
A	0.725	0.775	0.825
B	0.28	0.38	0.48
C	0.13	0.15	0.20
D	3.05	3.15	3.25
D1			0.10
E	3.25	3.35	3.45
E1	3.0	3.1	3.2
e	0.60	0.65	0.70
F	0.27	0.32	0.37
H	1.63	1.73	1.83
L	0.93	1.03	1.13

Tape & Reel Information

Dimensions in mm



Symbol	A0	B0	K0	D0	D1	P0	P1	10*P0
Spec	3.55±0.10	3.45±0.10	1.13±0.10	1.55±0.10	1.55±0.10	4.00±0.10	8.00±0.10	40.0±0.10
Symbol	W	E	F	P2	t			
Spec	12.00±0.10	1.75±0.10	5.50±0.10	2.00±0.10	0.20±0.05			



Pulling direction

Marking Information：

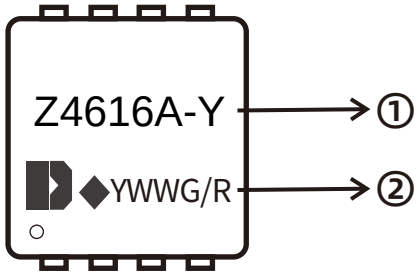
①:Part NO.

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	2026-08-02	Release of final version

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