

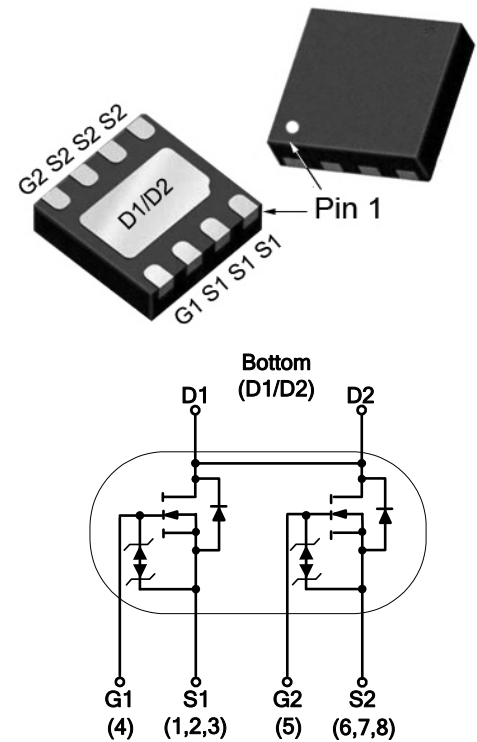
Description:

This Dual N-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) $V_{DS}=18V, I_D=50A, R_{DS(on)} < 4.7m\Omega @ V_{GS}=4.5V$ (Typ: $3m\Omega$)
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(on)}$.
- 5) Excellent package for good heat dissipation.
- 6) ESD Protection
- 7) MSL3



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
QAB4R7DNG	AB4R7DN	DFN3*3-8E	5000 pcs/Reel

Absolute Maximum Ratings: ($T_c=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	18	V
V_{GS}	Gate-Source Voltage	± 10	V
I_D	Continuous Drain Current ¹	50	A
	Continuous Drain Current- $T_c=100^\circ C$ ¹	35	
I_{DM}	Pulsed Drain Current ²	200	
E_{AS}	Single pulse avalanche energy ³	36	mJ
P_D	Power Dissipation	26	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	4.8	$^\circ C/W$

Electrical Characteristics: ($T_c=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Sourtce Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	18	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =18V	---	---	1	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 10V, V _{DS} =0A	---	---	± 10	μ A
On Characteristics						
V _{GS(th)}	Gate-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	0.5	0.7	1	V
R _{DS(on)}	Drain-Source On Resistance ⁴	V _{GS} =4.5V, I _D =10A	---	3	4.7	m Ω
		V _{GS} =2.5V, I _D =7A	---	5.5	7.2	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =6V, V _{GS} =0V, f=1MHz	---	1632	---	pF
C _{oss}	Output Capacitance		---	350	--	
C _{rss}	Reverse Transfer Capacitance		---	296	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =10V, I _D =3A, R _G =3 Ω ,V _{GS} =4.5V	---	0.5	---	ns
t _r	Rise Time		---	1.3	---	ns
t _{d(off)}	Turn-Off Delay Time		---	3.3	---	ns
t _f	Fall Time		---	3.2	---	ns
Q _g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =10V, I _D =3A	---	32	---	nC
Q _{gs}	Gate-Source Charge		---	9	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	12	---	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	---	---	41.6	A
I _{SM}	Pulsed Drain Current		---	---	166.6	A

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 : $T_J=25^{\circ}C, V_{DD}=9V, V_G=4.5V, L=0.5mH$
4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

Test Circuit

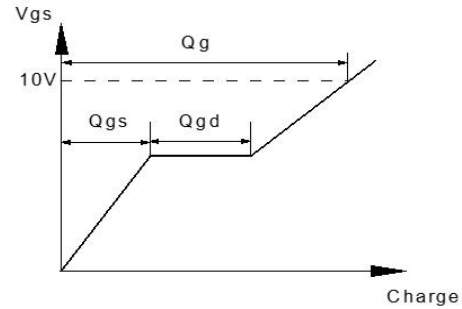
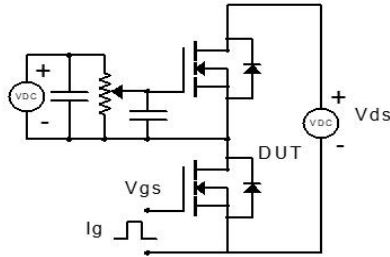


Figure 1: Gate Charge Test Circuit & Waveform

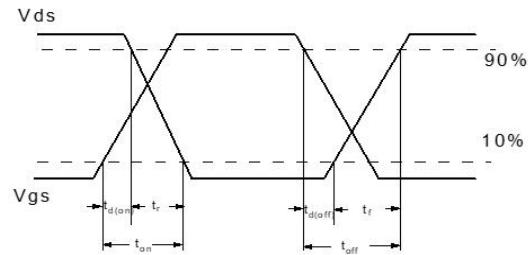
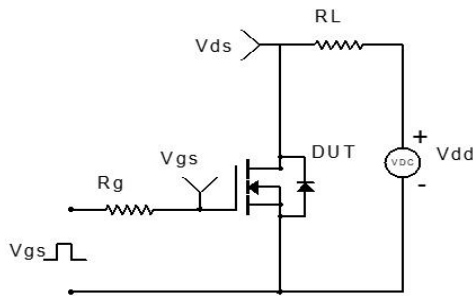


Figure 2: Resistive Switching Test Circuit & Waveform

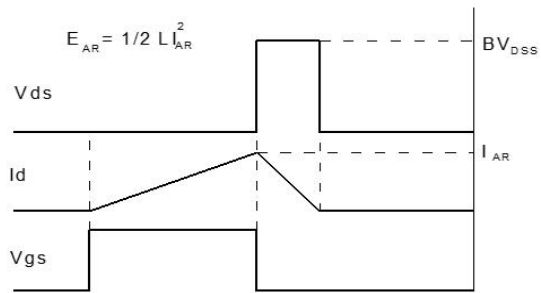
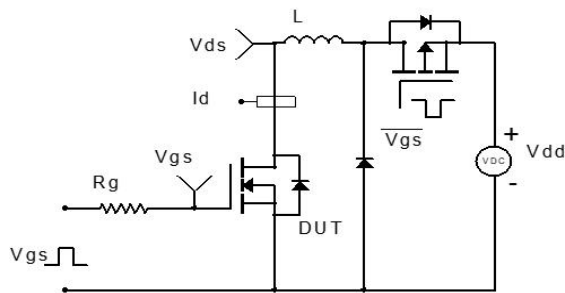


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

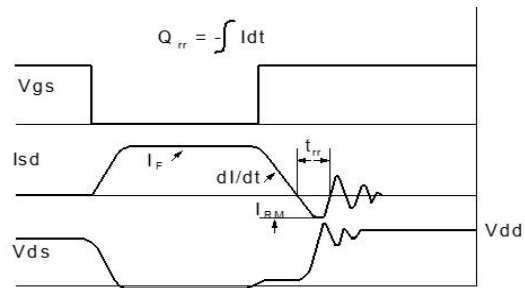
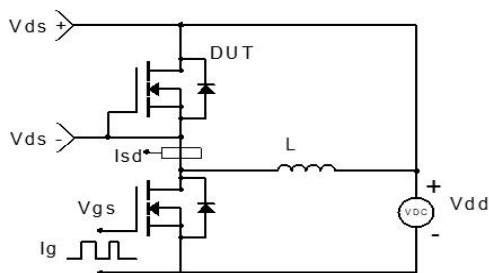
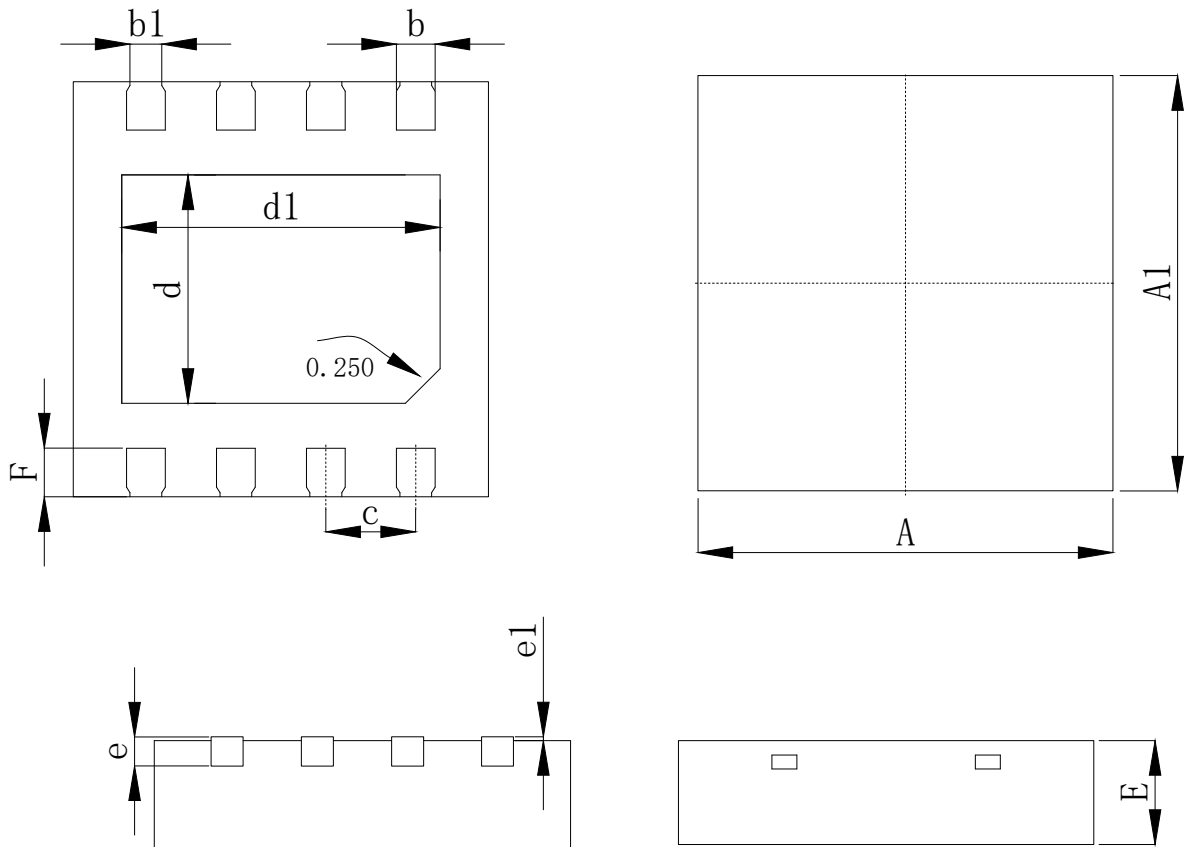


Figure 4: Diode Recovery Test Circuit & Waveform

DFN3X3-8E PackageOutlineData



COMMON DIMENSION (MM)			
PKG	DFN 3×3		
SYMBOL	MIN	TYP	MAX
A	2.950	3.000	3.050
A1	2.950	3.000	3.050
b	0.255	0.280	0.305
b1	0.200	0.230	0.260
c	0.625	0.650	0.675
d	1.625	1.650	1.675
d1	2.275	2.300	2.325
e	0.195	0.203	0.233
e1	—	0.020	0.050
E	0.720	0.750	0.780
F	0.320	0.350	0.380

Marking Information:

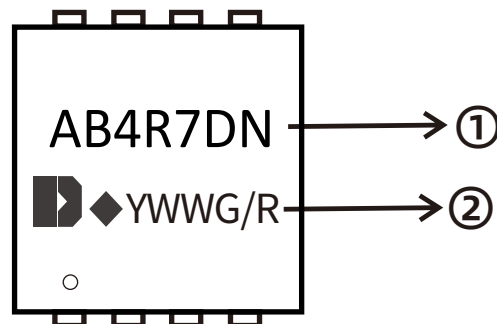
①:Part NO.

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)
1.1	2026-02-02	Release of final version

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