

芯伯乐®
X I N B O L E

Product Specification

AON7403

P-Channel Enhancement Mode MOSFET

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Descriptions

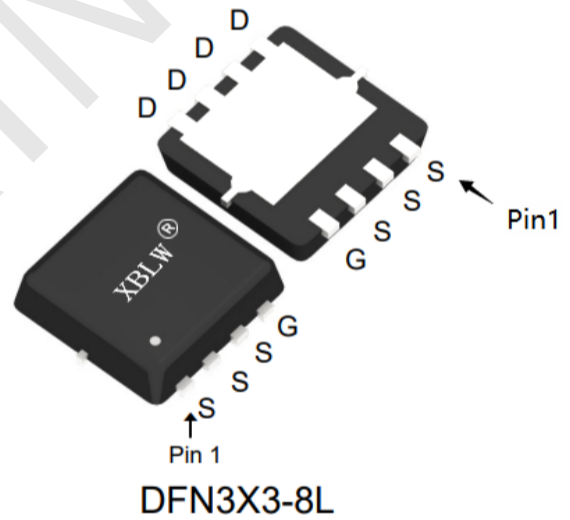
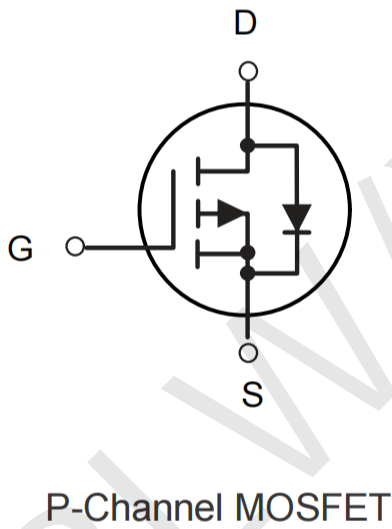
The AON7403 uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This device is well suited for high current load applications.

Features

- $V_{DS} = -30V, I_D = -35A$
- $R_{DS(ON)} < 15m\Omega @ V_{GS} = -10V$
- $R_{DS(ON)} < 26m\Omega @ V_{GS} = -4.5V$

Applications

- High side switch for full bridge converter
- DC/DC converter for LCD display



Ordering Information

Product Model	Package Type	Marking	Packing	Packing Qty
AON7403	DFN3x3-8L	AON7403	Tape	5000Pcs/Reel

Absolute Maximum Ratings ($T_J=25\text{ °C}$ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_A=25\text{ °C}$	Drain Current ³ , V_{GS} @ 10V	-35	A
$I_D@T_A=70\text{ °C}$	Drain Current ³ , V_{GS} @ 10V	-25	A
I_{DM}	Pulsed Drain Current ¹	-120	A
$P_D@T_A=25\text{ °C}$	Total Power Dissipation	15	W
TSTG	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C
Rthj-c	Maximum Thermal Resistance, Junction-case	6	°C/W
Rthj-a	Maximum Thermal Resistance, Junction-ambient ³	66	°C/W

Electrical Characteristics (T_J=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D = -250μA	-30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -30V, V _{GS} =0V,	-	-	-1	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±20V	-	-	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D = -250μA	-1.0	-1.6	-2.5	V
R _{DS(on)}	Static Drain-Source on-Resistance <small>Note3</small>	V _{GS} = -10V, I _D = -10A	-	12	15	mΩ
		V _{GS} = -4.5V, I _D = -5A	-	18	26	
C _{iss}	Input Capacitance	V _{DS} = -15V, V _{GS} =0V, f=1.0MHz	-	1330	-	pF
C _{oss}	Output Capacitance		-	183	-	pF
C _{rss}	Reverse Transfer Capacitance		-	156	-	pF
Q _g	Total Gate Charge	V _{DS} = -15V, I _D = -5A, V _{GS} = -10V	-	22	-	nC
Q _{gs}	Gate-Source Charge		-	1.0	-	nC
Q _{gd}	Gate-Drain("Miller") Charge		-	1.8	-	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} = -15V, I _D = - 10A, V _{GS} =-10V, R _{GEN} =2.5Ω	-	9	-	ns
t _r	Turn-on Rise Time		-	13	-	ns
t _{d(off)}	Turn-off Delay Time		-	48	-	ns
t _f	Turn-off Fall Time		-	20	-	ns
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-35	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-90	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S = -15A	-	-0.8	-1.2	V
t _{rr}	Reverse Recovery Time	T _J =25°C,	-	64	-	ns
Q _{rr}	Reverse Recovery Charge	V _{DD} = -24V, I _F =-2.8A, dI/dt=-100A/μs	-	25	-	nC

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

2. EAS condition: T_J=25°C, V_{GS}=10V, V_G=10V, R_G=25Ω, L=0.5mH, I_{AS}=-12.7A.

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

Typical Characteristics

Fig 1. Output Characteristics

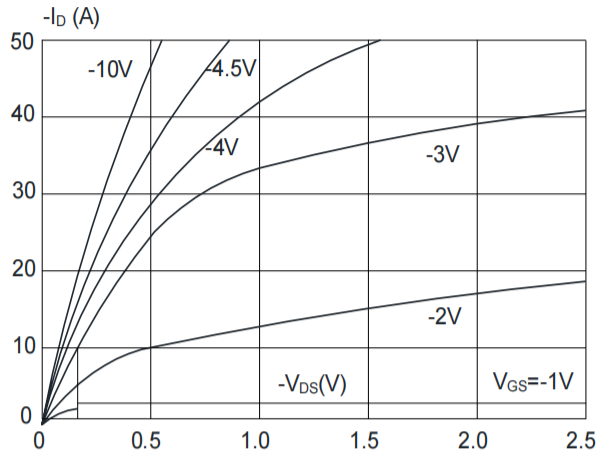


Fig 2. Typical Transfer Characteristics

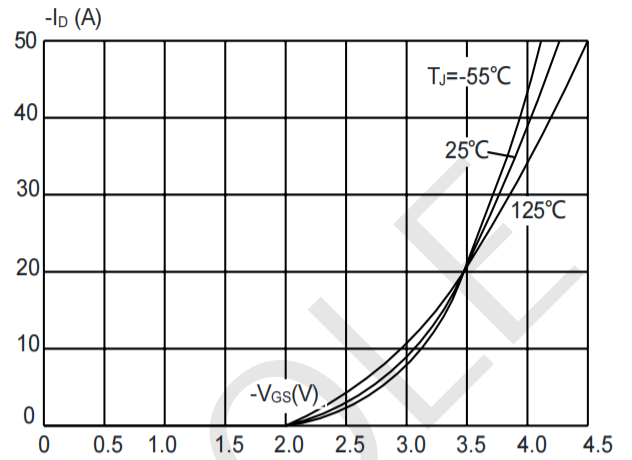


Fig 3. On-resistance vs. Drain Current

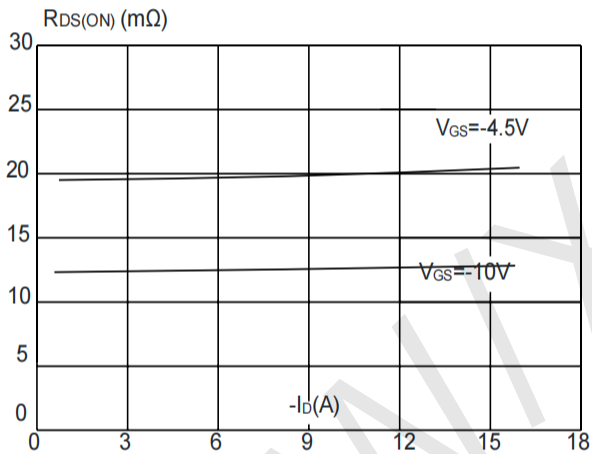


Fig 4. Body Diode Characteristics

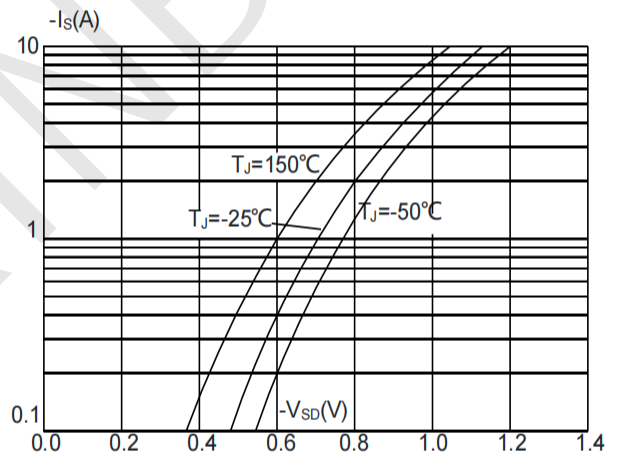


Fig 5. Gate Charge Characteristics

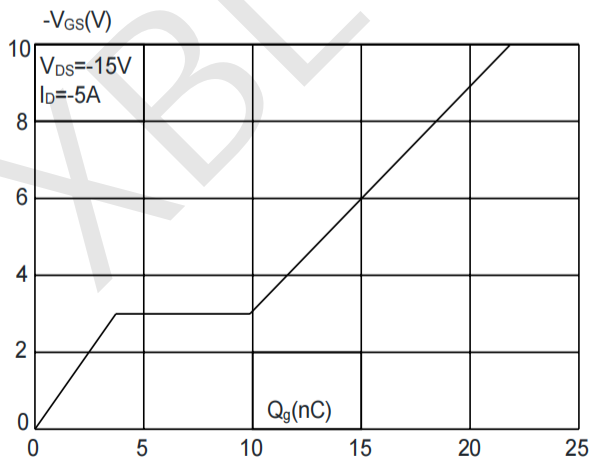


Fig 6. Capacitance Characteristics

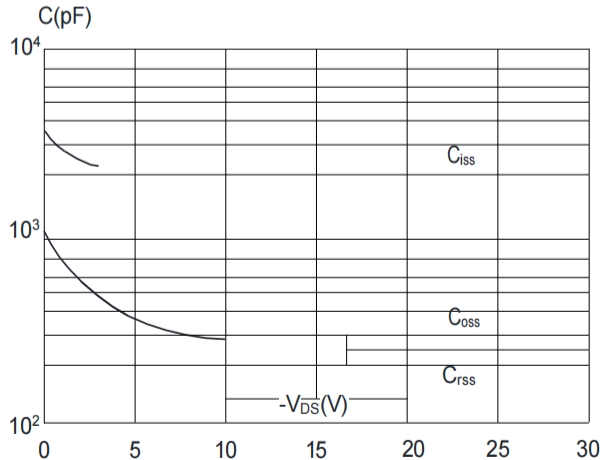


Fig 7. Normalized Breakdown Voltage vs. Junction Temperature

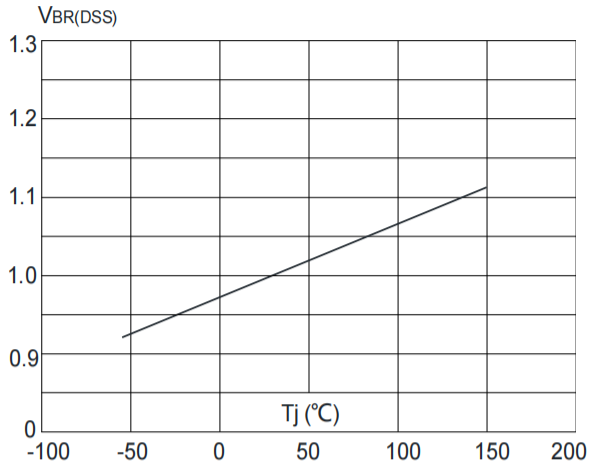


Fig 8. Normalized on Resistance vs. Junction Temperature

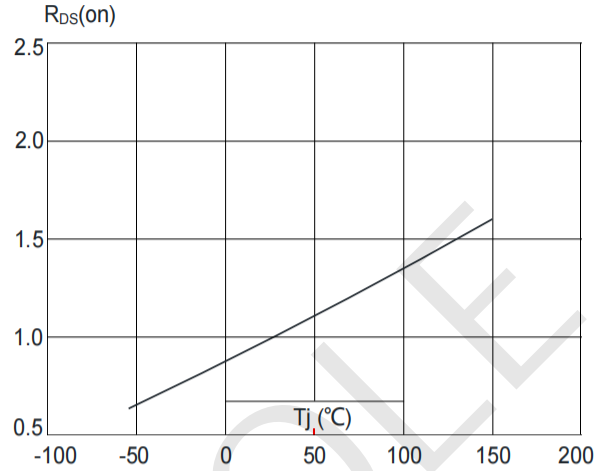


Fig 9. Maximum Safe Operating Area

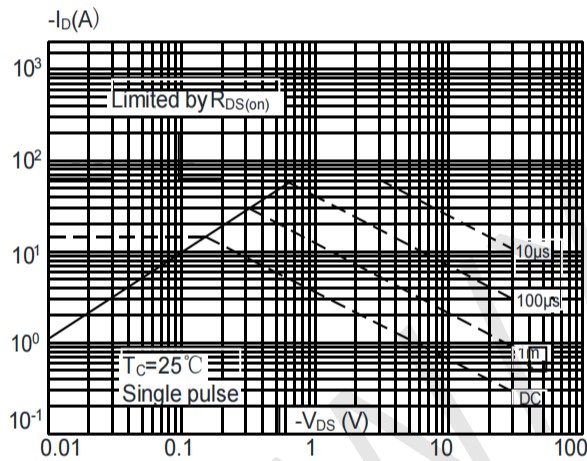


Fig 10. Maximum Continuous Drain Current vs. Case Temperature

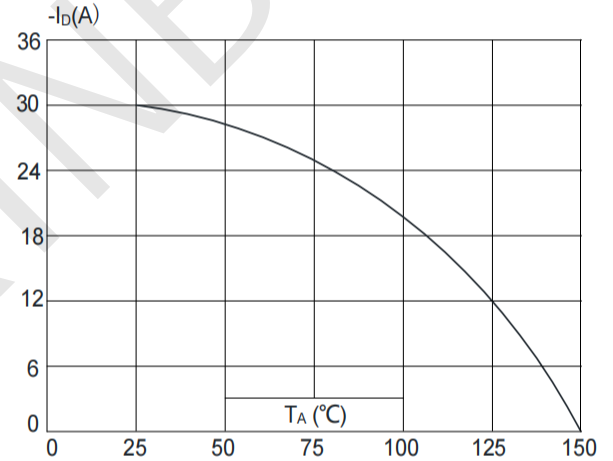
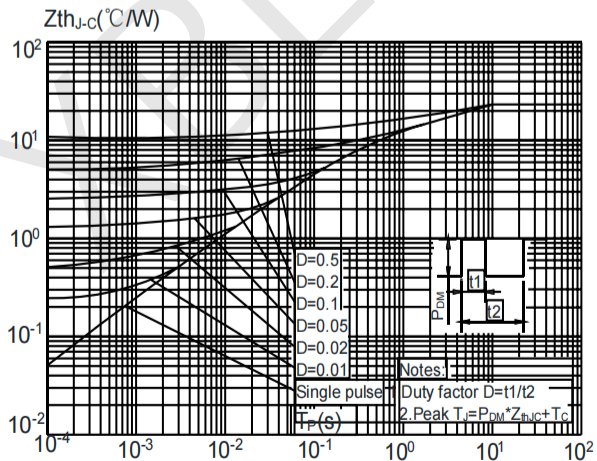
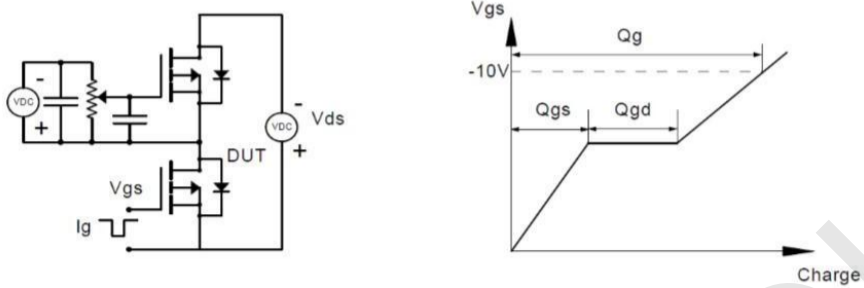


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Case

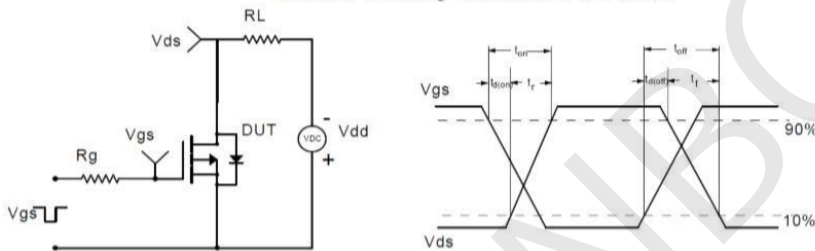


Test Circuit

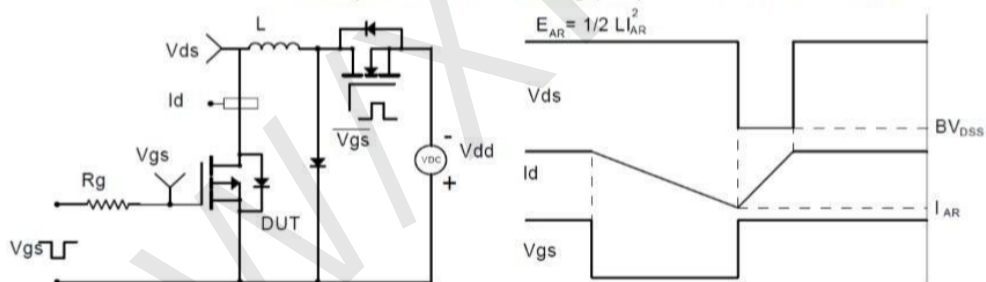
Gate Charge Test Circuit & Waveform



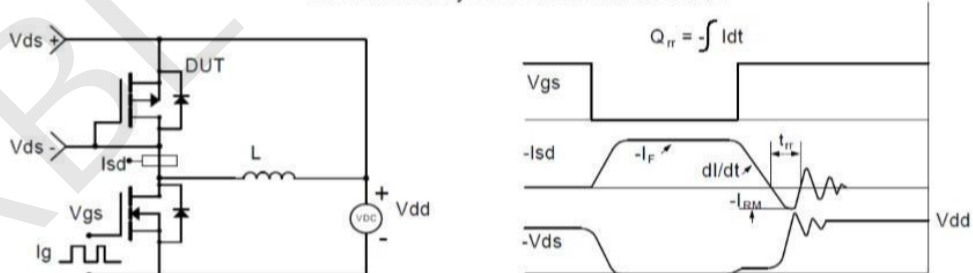
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



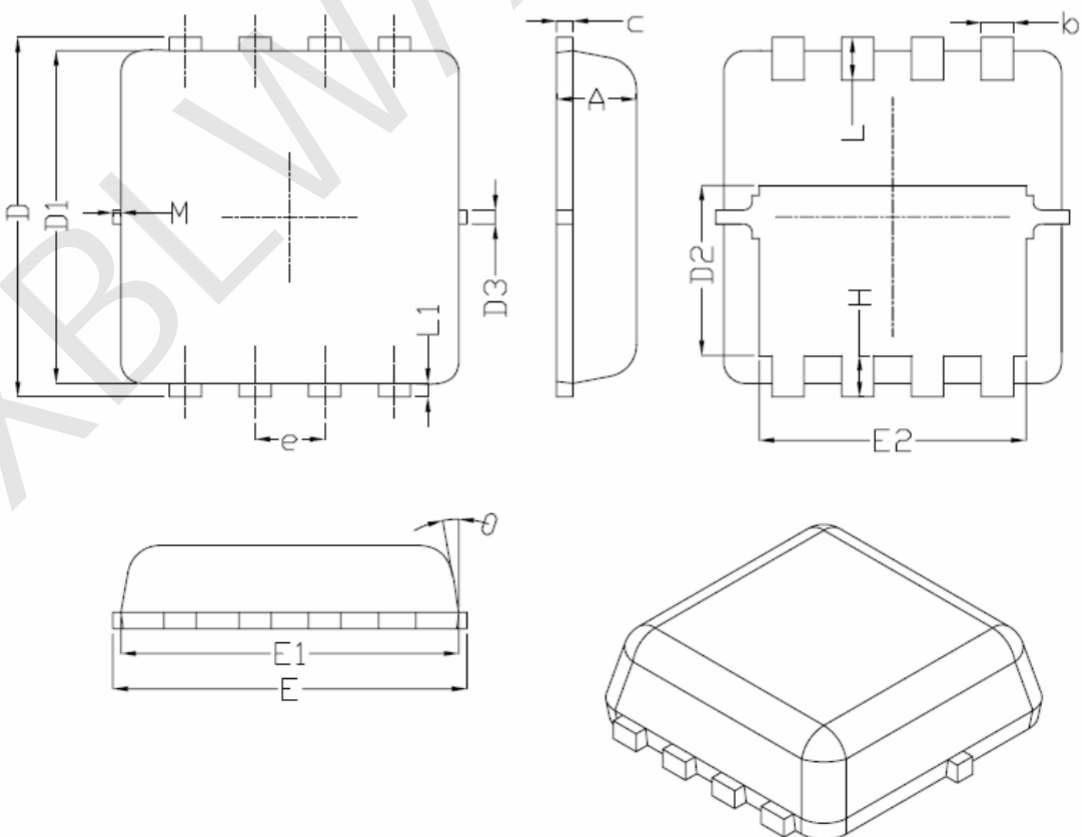
Diode Recovery Test Circuit & Waveforms



Package Information

DFN3X3-8L

Symbol	Dimensions In Millimeters		
	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	1.48	1.58	1.68
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	-
M	*	*	0.15
θ		10°	12°



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