TM07N03BF6

N-Channel Enhancement Mosfet

General Description

- Low $R_{DS(ON)}$
- RoHS and Halogen-Free Compliant

Applications

- Load switch
- PWM

General Features

V_{DS} =30 V I_D =7A

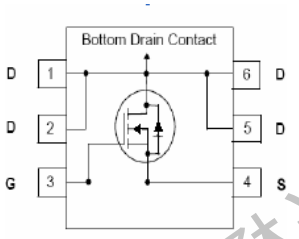
$R_{DS(ON)}$ =20 mΩ(typ.) @ V_{GS} =4.5V

100% UIS Tested

100% R_g Tested

Green Product

BF6: PDFN2*2-6L



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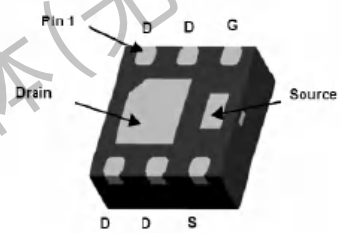

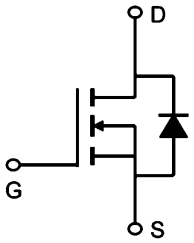

Absolute Maximum Ratings (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_A=25℃	Continuous Drain Current, V_{GS} @ 4. 5 V	7	A
I_D@T_A=100℃	Continuous Drain Current, V_{GS} @ 4. 5 V	3.8	A
I_{DM}	Pulsed Drain Current	35	A
P_D@T_A=25℃	Total Power Dissipation	1.5	W
T_{STG}	Storage Temperature Range	-55 to 175	℃
T_J	Operating Junction Temperature Range	-55 to 175	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	83.3	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-Case	---	---	℃/W

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Electrical Characteristics (T_J=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}=±12V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	0.9	1.2	1.5	V
$R_{DS(ON)}$	Drain-Source On Resistance[2]	V_{GS}=4.5V,I_D=4A	---	20	28	mΩ
		V_{GS}=2.5V,I_D=1A	---	24	32	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz	---	701	---	pF
C_{oss}	Output Capacitance		---	65	--	
C_{rss}	Reverse Transfer Capacitance		---	51	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=15V, I_D=4A, R_{ENG}=3Ω ,V_{GS}=4.5V	---	9	---	ns
t_r	Rise Time		---	26	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	25	---	ns
t_f	Fall Time		---	32	---	ns
Q_g	Total Gate Charge	V_{GS}=4.5V, V_{DS}=15V, I_D=4A	---	7.4	---	nc
Q_{gs}	Gate-Source Charge		---	1	---	nc
Q_{gd}	Gate-Drain “Miller” Charge		---	1	---	nc
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage[3]	V_{GS}=0V, I_{SD}=5.8A	---	---	1.2	V
I_S	Continuous Drain Curren	VD=VG=0V	---	---	7	A
I_{SM}	Pulsed Drain Current		---	---	35	A

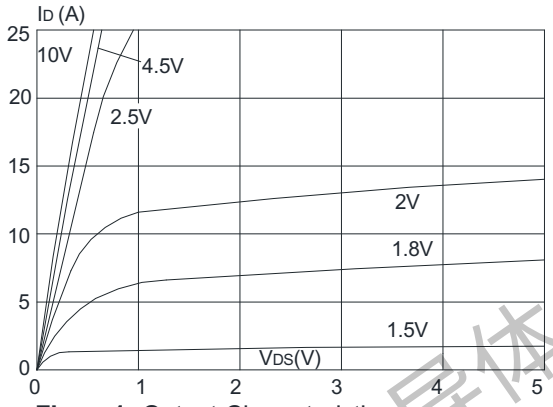


Figure1: Output Characteristics

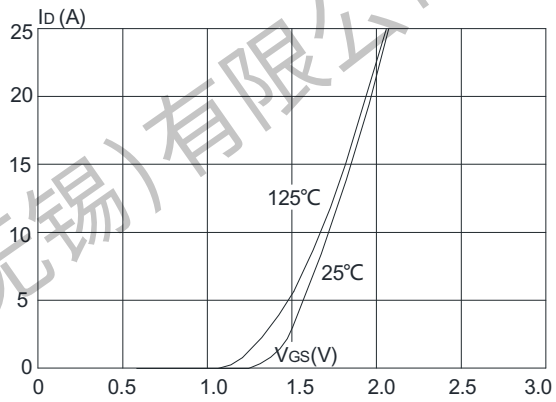


Figure 2: Typical Transfer Characteristics

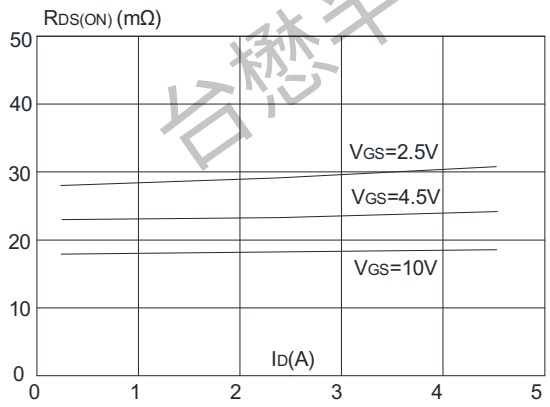


Figure 3: On-resistance vs. Drain Current

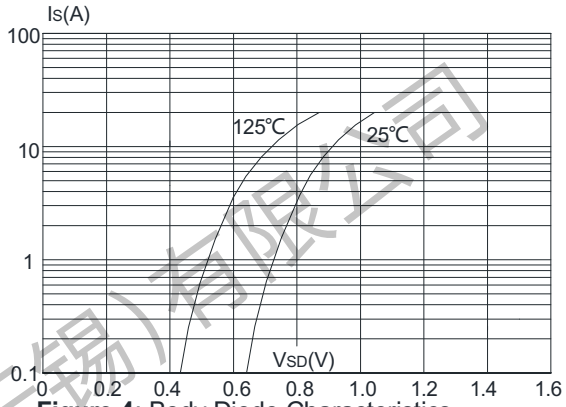


Figure 4: Body Diode Characteristics

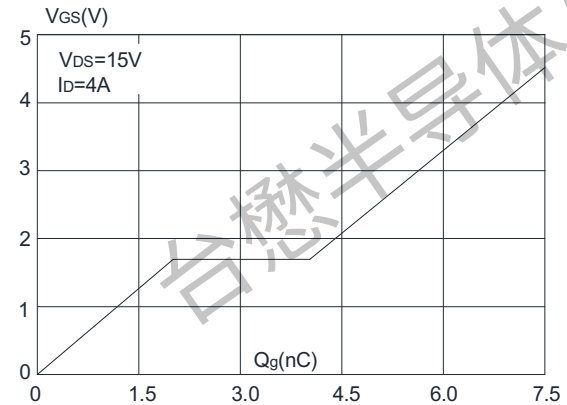


Figure 5: Gate Charge Characteristics

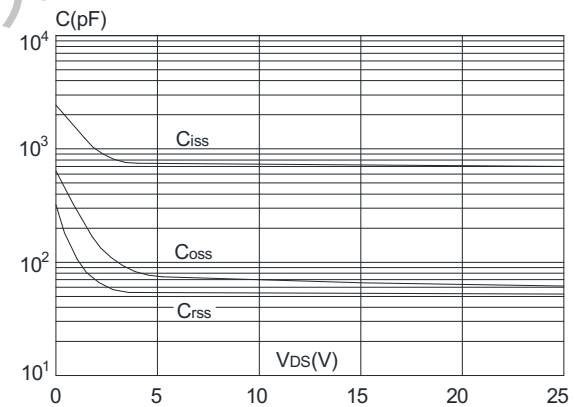


Figure 6: Capacitance Characteristics

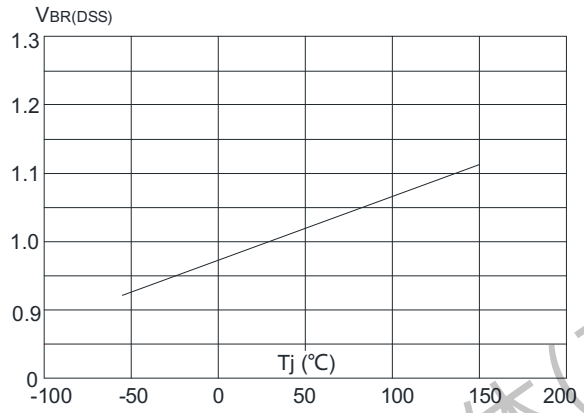


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

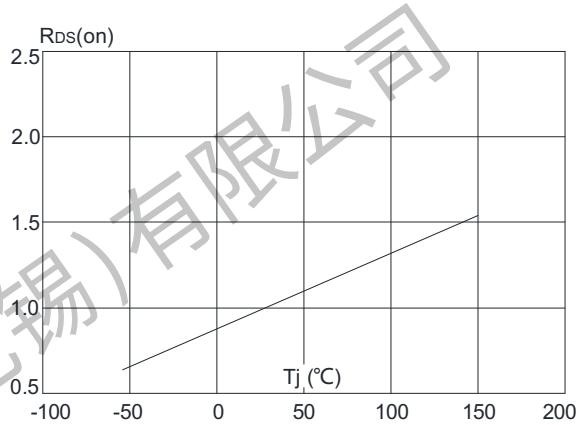


Figure 8: Normalized on Resistance vs. Junction Temperature

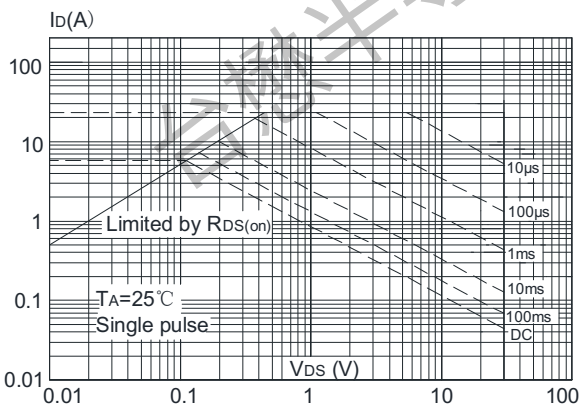


Figure 9: Maximum Safe Operating Area

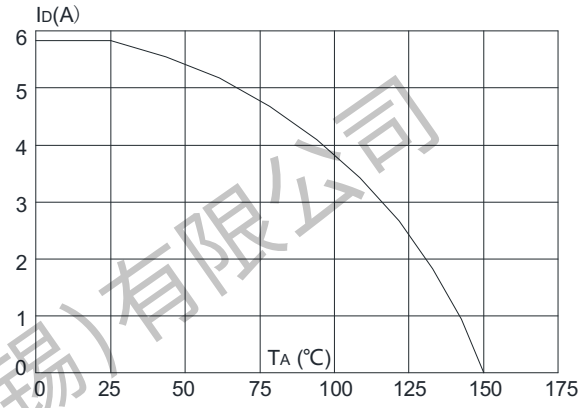


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

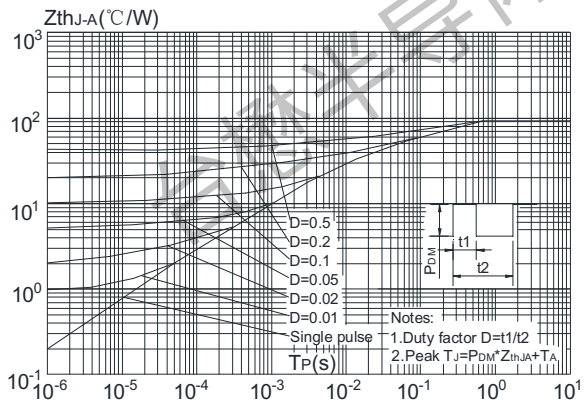
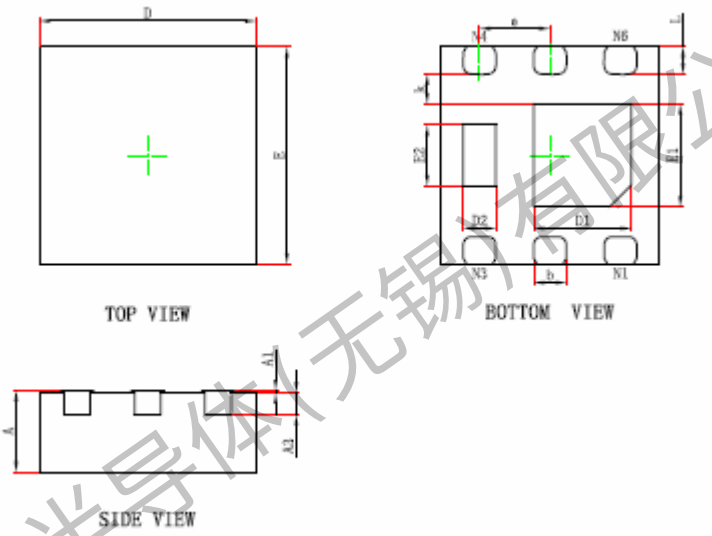


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

Package Mechanical Data: PDFN2*2-6L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.924	2.076	0.076	0.082
E	1.924	2.076	0.076	0.082
D1	0.800	1.000	0.031	0.039
E1	0.850	1.050	0.033	0.041
D2	0.200	0.400	0.008	0.016
E2	0.460	0.660	0.018	0.026
k	0.200MIN.		0.008MIN.	
b	0.250	0.350	0.010	0.014
e	0.650TYP.		0.026TYP.	
L	0.174	0.326	0.007	0.013

Notes

1. All dimensions are in millimeters.
2. Tolerance ±0.10mm (4 mil) unless otherwise specified
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.
4. Dimension L is measured in gauge plane.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.

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Revision history:

Date	Rev	Description	Page
2023.05.22	23.05	Original	