

BRCS050N04YB

Rev.A Jul.-2023

DATA SHEET

/ Descriptions

PDFN 3×3A-8L N MOS

N-Channel Enhancement Mode Field Effect Transistor in a PDFN 3×3A-8L Plastic Package.

/ Features

$V_{DS} (V) = 40V$ $I_D = 57A (V_{GS} = \pm 20V)$

$R_{DS(ON)} @ 10V = 5m\Omega (Typ. 4.5m\Omega)$

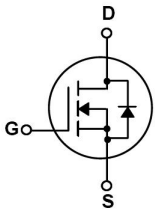
$R_{DS(ON)} @ 4.5V = 10m\Omega (Typ. 6.2m\Omega)$

HF Product.

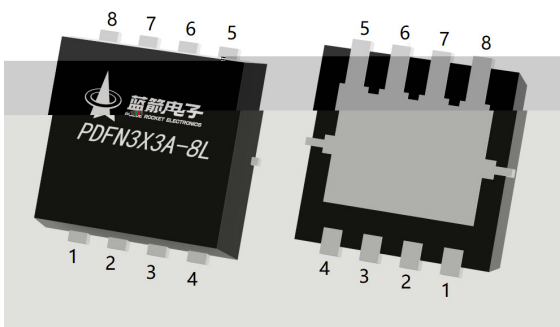
/ Applications

Load Switch Applications, Battery Power Management.

/ Equivalent Circuit



/ Pinning



出脚	定义
Pin1	S
Pin2	S
Pin3	S
Pin4	G
Pin5	D
Pin6	D
Pin7	D
Pin8	D

/ Marking

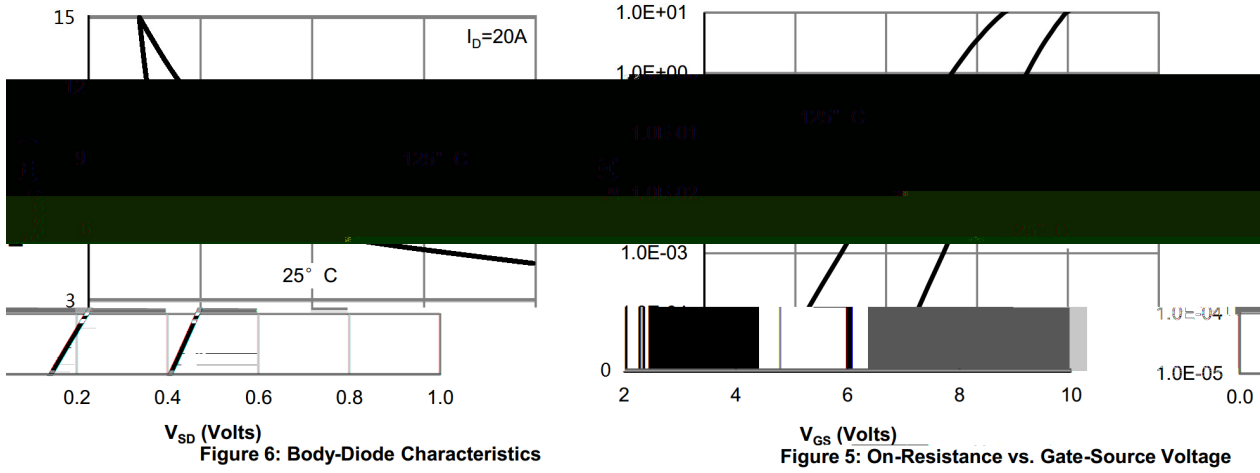
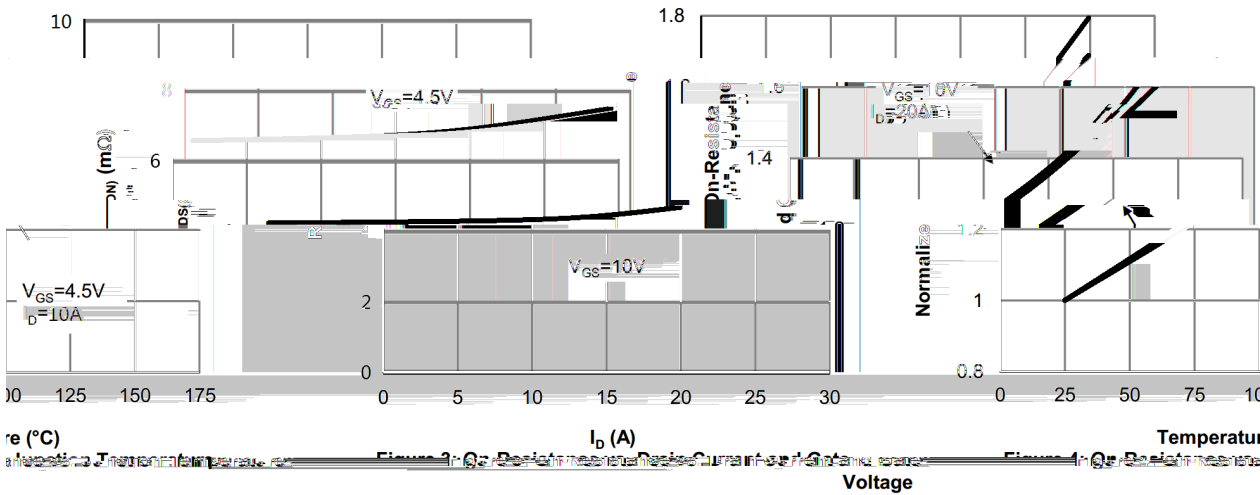
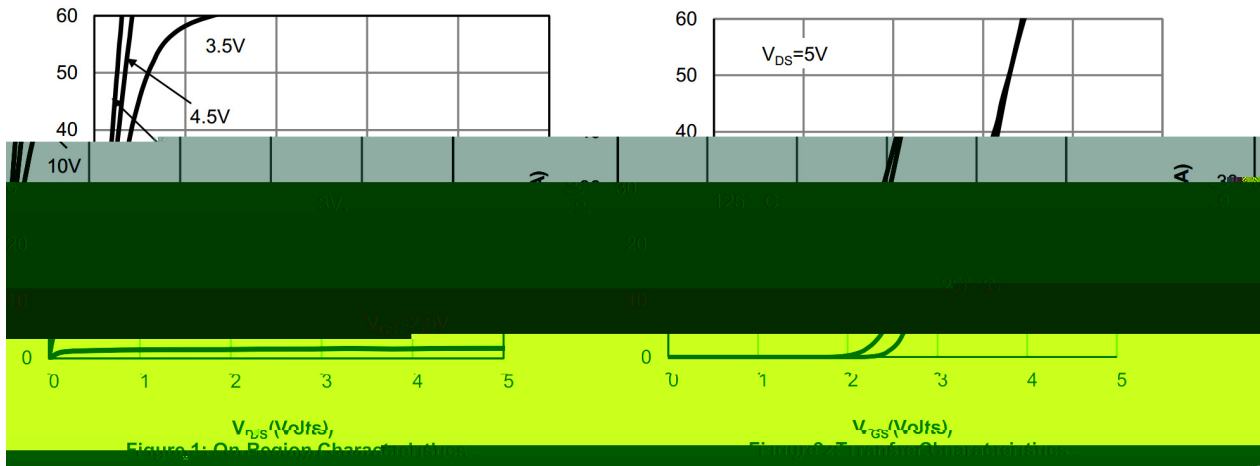
See Marking Instructions.

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	40	V
Drain Current	I_D		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$	$I_D=250 A$	40	43		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=40V$	$V_{GS}=0V$			1	A
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$	$V_{DS}=0V$			± 0.1	A
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$	$I_D=250 A$	1.0	1.7	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$	$I_D=20A$		4.5	5	m
		$V_{GS}=4.5V$	$I_D=10A$		6.2	10	m
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$	$I_S=1A$			1.2	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $f=1.0MHz$	$V_{GS}=0V$		2900		pF
Output Capacitance	C_{oss}				210		
Reverse Transfer Capacitance	C_{rss}				200		
Gate resistance	R_g	$V_{GS}=0V$ $f=1MHz$	$V_{DS}=0V$		2.5		
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V$ $I_D=20A$	$V_{DS}=20V$		70		nC
Total Gate Charge	$Q_{g(4.5V)}$				15		
Gate Source Charge	Q_{gs}				15		
Gate Drain Charge	Q_{gd}				22		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $R_L=1$	$V_{DS}=20V$ $R_{GEN}=3.0$		15		ns
Turn-On Rise Time	t_r				30		
Turn-Off Delay Time	$t_{d(off)}$				54		
Turn-Off Fall Time	t_f				20		

/ Electrical Characteristic Curve



/ Electrical Characteristic Curve

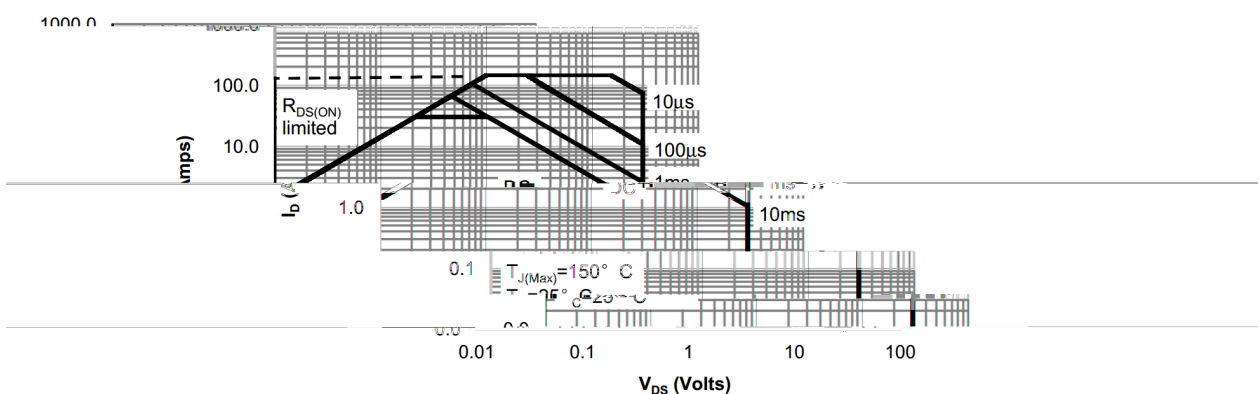
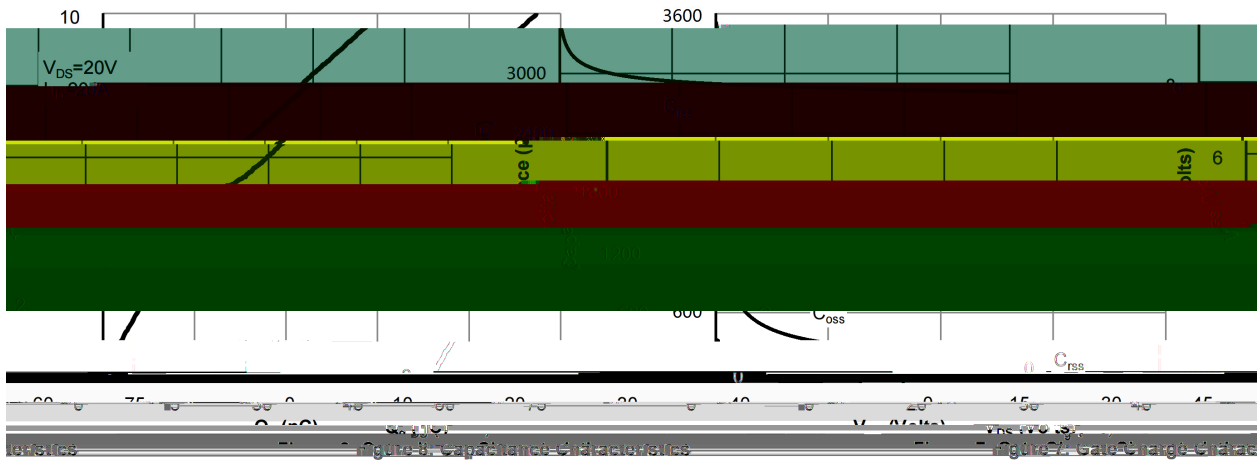


Figure 9: Maximum Forward Bias Safe Operating Area

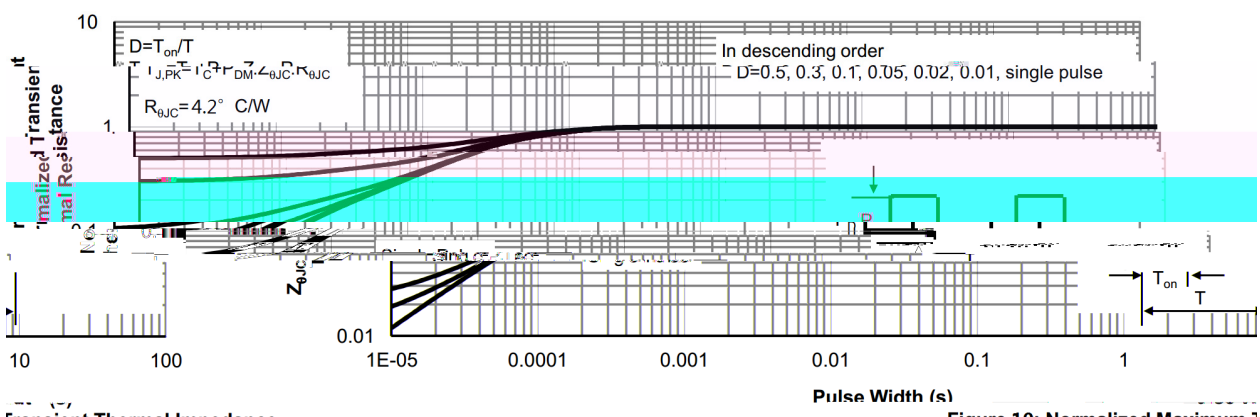
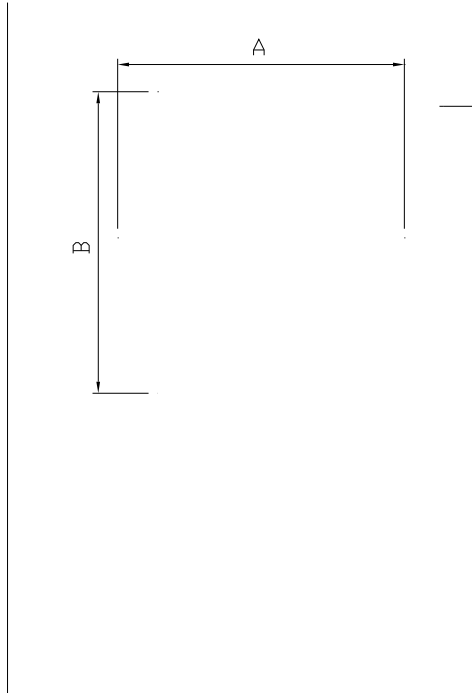


Figure 10: Normalized Maximum Thermal Impedance

/ Package Dimensions

PDFN3X3A-8L

Unit:mm



Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	3.20	3.30	3.40
A1	3.10	3.15	3.20
B	3.20	3.30	3.40
B1	2.95	3.00	3.05

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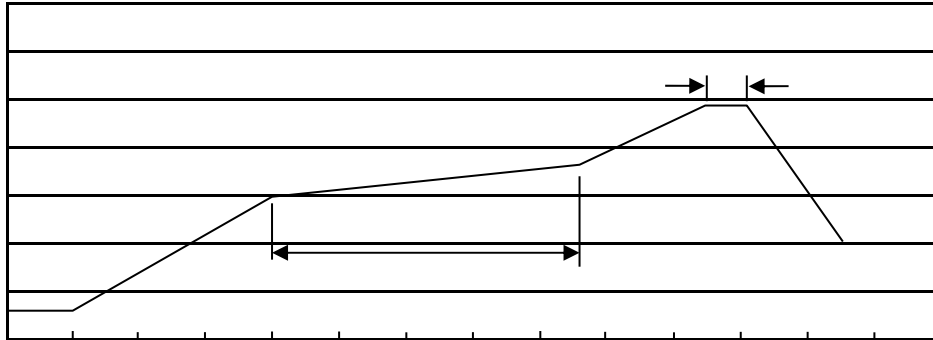
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() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- | | | | |
|---|---------|-----------|---|
| 1 | 150 180 | 60 90sec; | 1.Preheating:150~180 , Time:60~90sec. |
| 2 | 245±5 | 5±0.5sec; | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 | 2 10 | /sec. | 3. Cooling Speed: 2~10 /sec. |

/ Resistance to Soldering Heat Test Conditions

260±5 10±1 sec. Temp.:260±5 Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
PDFN 3x3A-8L	5,000	2	10,000	6	60,000	13 x12	360x360x50	380x335x366

/ Notices