

# BRCS100N10SZC

Rev.A Jun.-2024

## / Descriptions

PDFN5 6 N

N-Channel MOSFET in a PDFN5×6 Plastic Package.

## / Features

$V_{DS}$  (V) = 100V  $I_D$  =62.5A

$R_{DS(ON)}$ @10V 10m (Typ.9m )

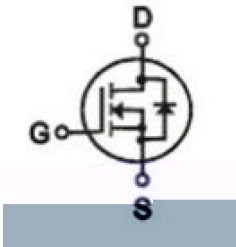
$R_{DS(ON)}$ @4.5V 15m (Typ.11m )

HF Product.

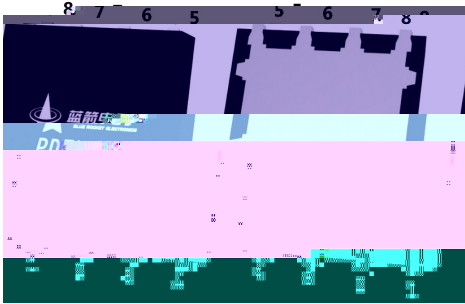
## / Applications

High Frequency Switching and Synchronous Rectification.

## / Equivalent Circuit



## / Pinning



PIN1 2 3 S PIN4 G PIN5 6 7 8 D

## / Marking

See Marking Instructions.

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DATA SHEET

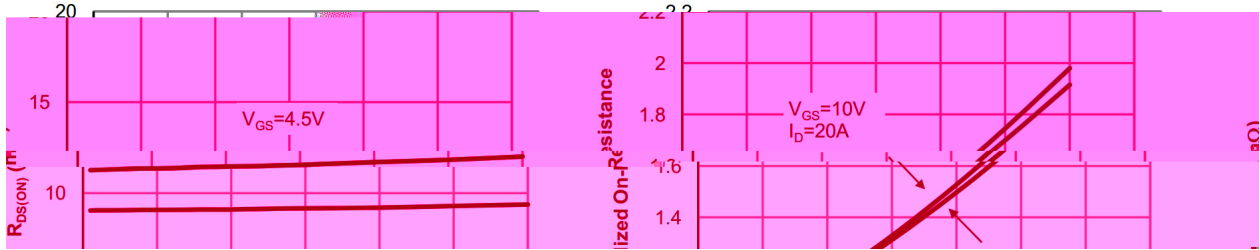
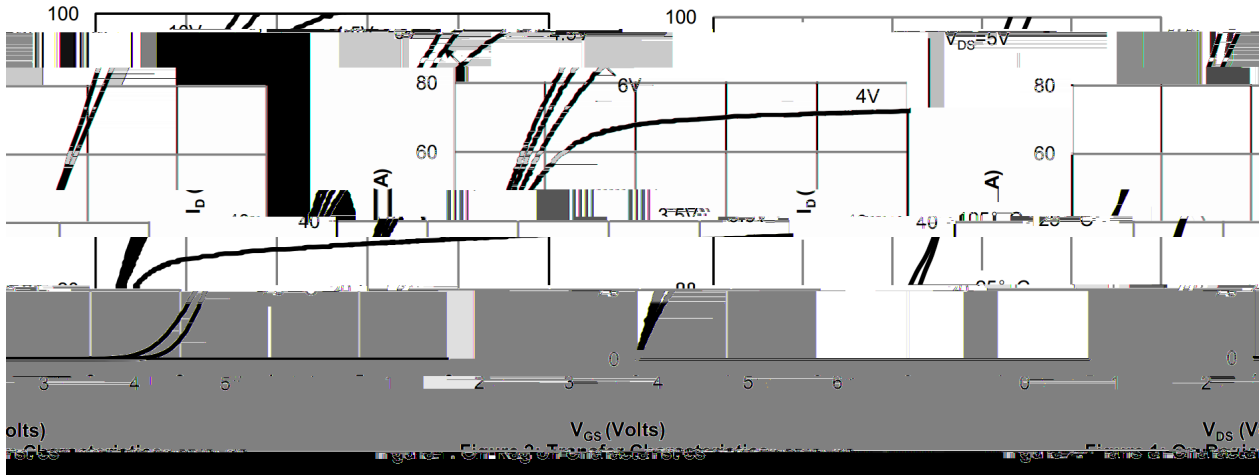
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		$V_{DSS}$	100	V
Drain Current		$I_D(T_c=25^\circ\text{C})$	62.5	A
Pulsed Drain Current		$I_{DM}$	161	A
Gate-Source Voltage		$V_{GS}$	$\pm 20$	V
Single Pulsed Avalanche Energy L=0.5mH		$E_{AS}$	1200	mJ
Avalanche Current		$I_{AS}$	25	A
Total Power Dissipation		$P_D(T_c=25^\circ\text{C})$	78	W
Junction and Storage Temperature Range		$T_J, T_{STG}$	-55 to 150	
Thermal Resistance-Junction to Ambient	t 10s	$R_{JA}$	25	/W
	Steady-State		55	
Thermal Resistance-Junction to Case	Steady-State	$R_{JC}$	1.6	

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V$ $I_D=250\text{ A}$	100	108		V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=100V$ $V_{GS}=0V$			1.0	A
Gate-Body Leakage Current Forward	$I_{GSS}$	$V_{GS}=\pm 20V$ $V_{DS}=0V$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\text{ A}$	1	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=20A$		9	10	m
	$R_{DS(on)}$	$V_{GS}=4.5V$ $I_D=10A$		11	15	m
Drain-Source Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V$ $I_S=1A$			1.2	V
Gate resistance	$R_g$	$V_{GS}=0V$ $V_{DS}=0V,$ $f=1MHz$		1.3		
Input Capacitance	$C_{iss}$	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		2200		pF
Output Capacitance	$C_{oss}$			800		
Reverse Transfer Capacitance	$C_{rss}$			70		
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V,$ $V_{DS}=50V,$ $I_D=20A$		26		nC
Total Gate Charge	$Q_{g(4.5V)}$			12.9		
Gate Source Charge	$Q_{gs}$			6.5		
Gate Drain Charge	$Q_{gd}$			4.2		

**/ Electrical Characteristics(Ta=25 )**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=50V$ $R_L=2.5$ $R_{GEN}=3$		8.7		ns
Turn-On Rise Time	$t_r$			3.5		
Turn-Off Delay Time	$t_{d(off)}$			25		
Turn-Off Fall Time	$t_f$			4.2		

/ Electrical Characteristic Curve



**/ Electrical Characteristic Curve**

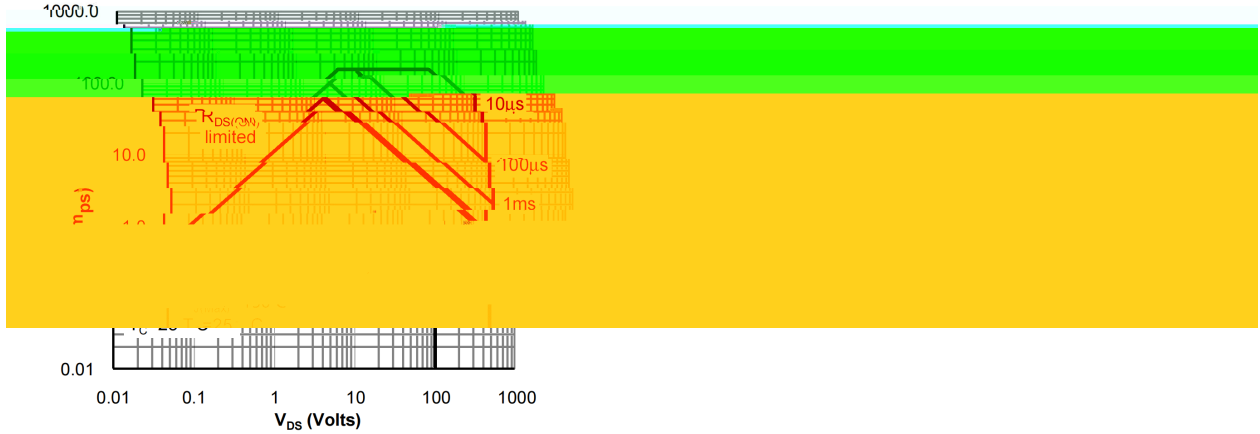
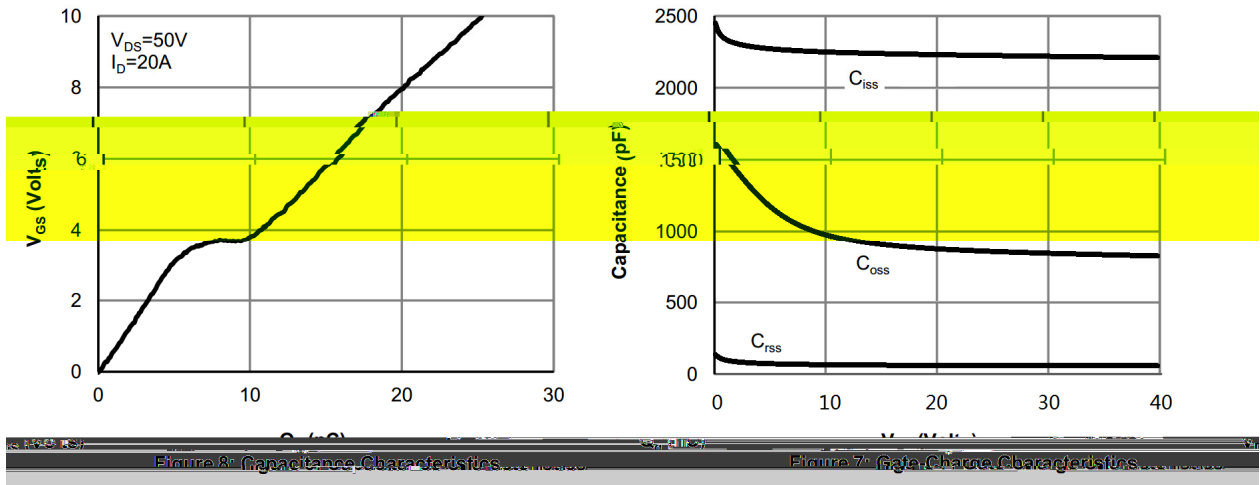


Figure 9: Maximum Forward Biased Safe Operating Area

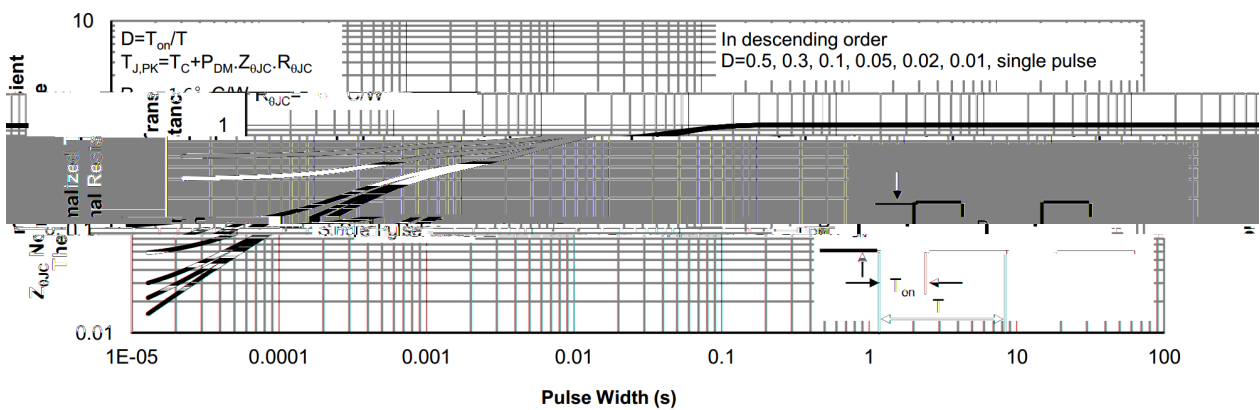
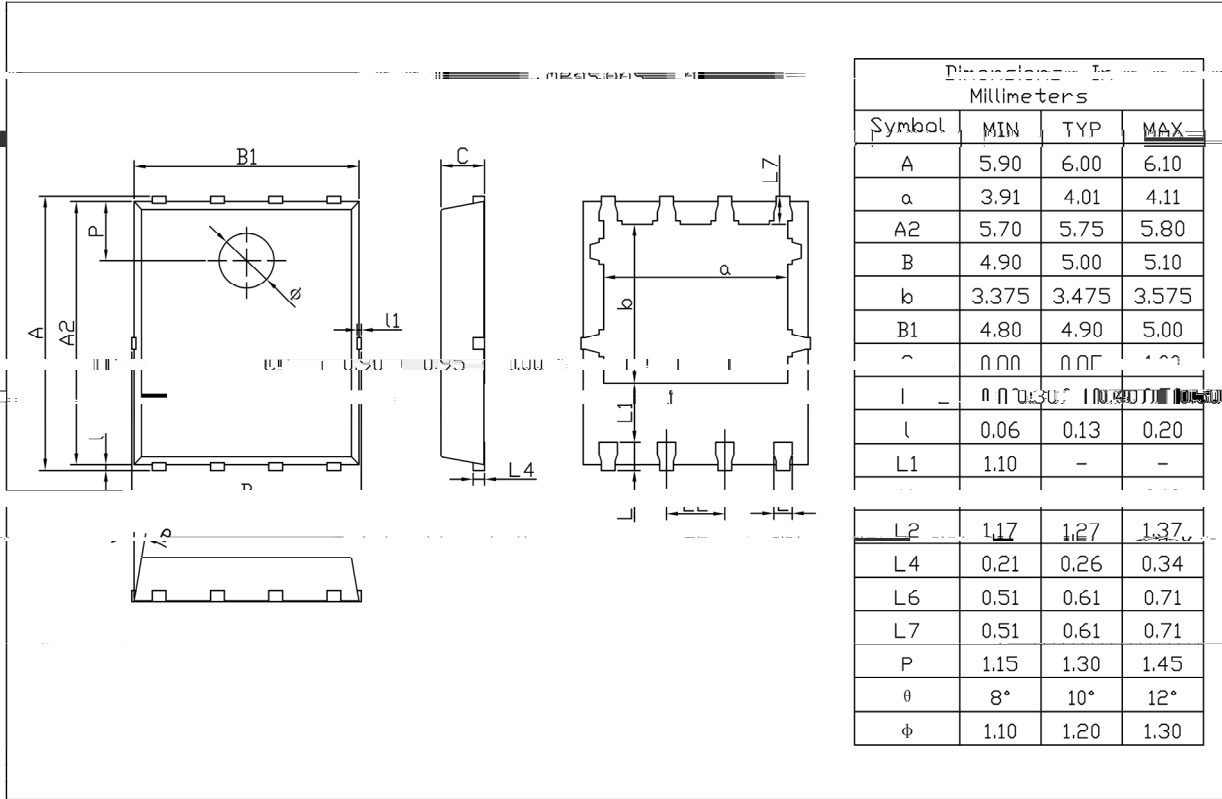


Figure 10: Normalized Maximum Transient Thermal Impedance

**/ Package Dimensions**

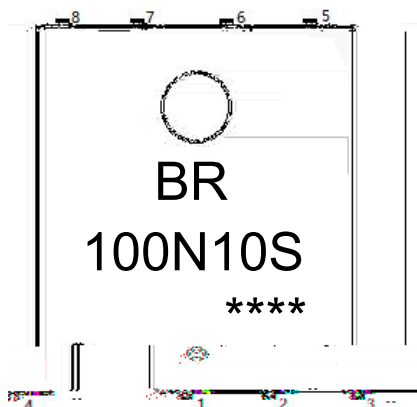
PDFN5 X6

Unit:mm



Rev.01 202209

**/ Marking Instructions**



100N10S

Note

BR	Company Code
100N10S	Product Type Code
****.	Lot No. Code, code change with Lot No

**( ) / 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
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**/ Packaging SPEC.**

/ REEL