

BRCS100N10SZC

Rev.A Jun.-2024

/ Descriptions

PDFN5 6 N

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

/ Features

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

$R_{DS(ON)}@10V \leq 10m\Omega$ (Typ.9m Ω)

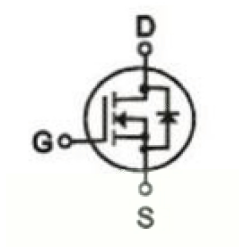
$R_{DS(ON)}@4.5V \leq 15m\Omega$ (Typ.11m Ω)

HF Product.

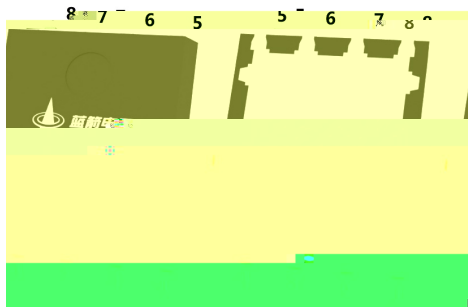
/ Applications

High Frequency Switching and Synchronous Rectification.

/ Equivalent Circuit



/ Pinning



PIN1 2 3 S PIN4 G PIN5 6 7 8 D

/ Marking

See Marking Instructions.

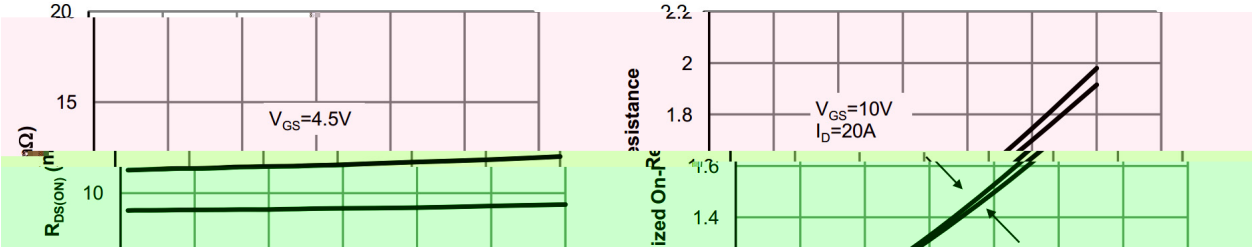
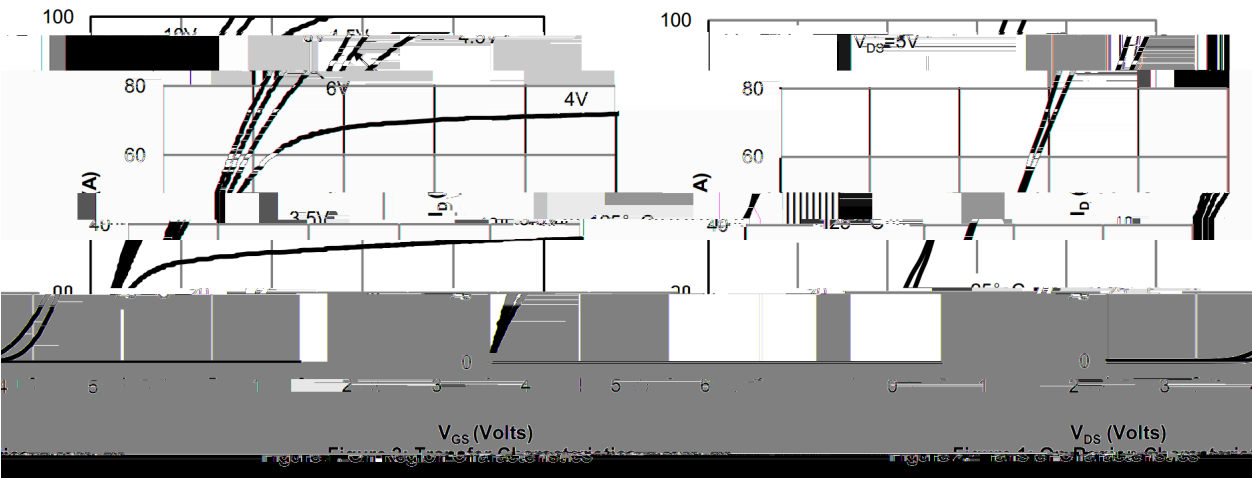
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Drain Current		$I_D(T_c=25^\circ\text{C})$	62.5	A
Pulsed Drain Current		I_{DM}	161	A
Gate-Source Voltage		V_{GS}	± 20	V
Single Pulsed Avalanche Energy $L=0.5\text{mH}$		E_{AS}	1200	mJ
Avalanche Current		I_{AS}	25	A
Total Power Dissipation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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0\text{V}$ $I_D=250\mu\text{A}$	100	108		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100\text{V}$ $V_{GS}=0\text{V}$			1.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20\text{V}$ $V_{DS}=0\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu\text{A}$	1	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}$ $I_D=20\text{A}$		9	10	$\text{m}\Omega$
	$R_{DS(on)}$	$V_{GS}=4.5\text{V}$ $I_D=10\text{A}$		11	15	$\text{m}\Omega$
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0\text{V}$ $I_S=1\text{A}$			1.2	V
Gate resistance	R_g	$V_{GS}=0\text{V}$ $V_{DS}=0\text{V}$, $f=1\text{MHz}$		1.3		Ω
Input Capacitance	C_{iss}	$V_{DS}=25\text{V}$ $V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		2200		pF
Output Capacitance	C_{oss}			800		
Reverse Transfer Capacitance	C_{rss}			70		
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10\text{V}$, $V_{DS}=50\text{V}$, $I_D=20\text{A}$		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	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=50V$ $R_L=2.5\Omega$ $R_{GEN}=3\Omega$		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

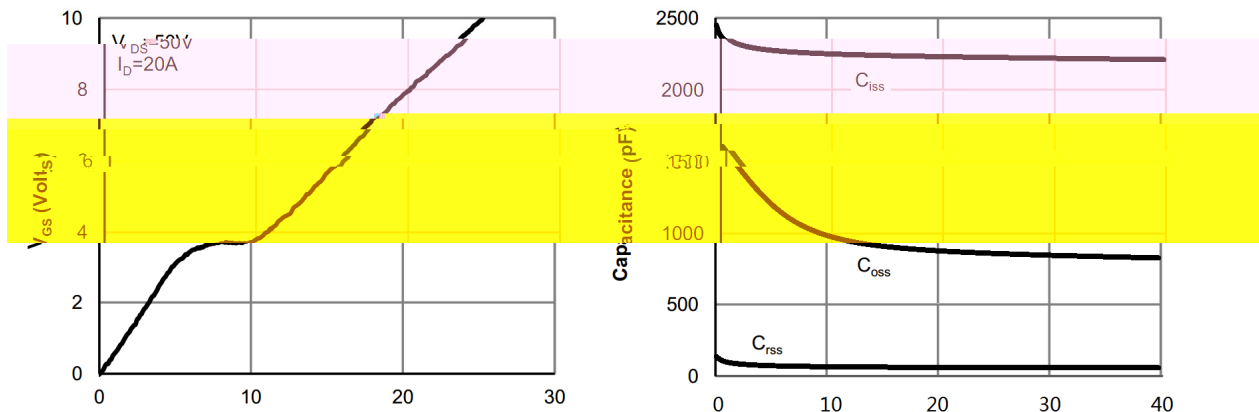


Figure 8: Capacitance Characteristics

Figure 7: Gate-Charge Characteristics

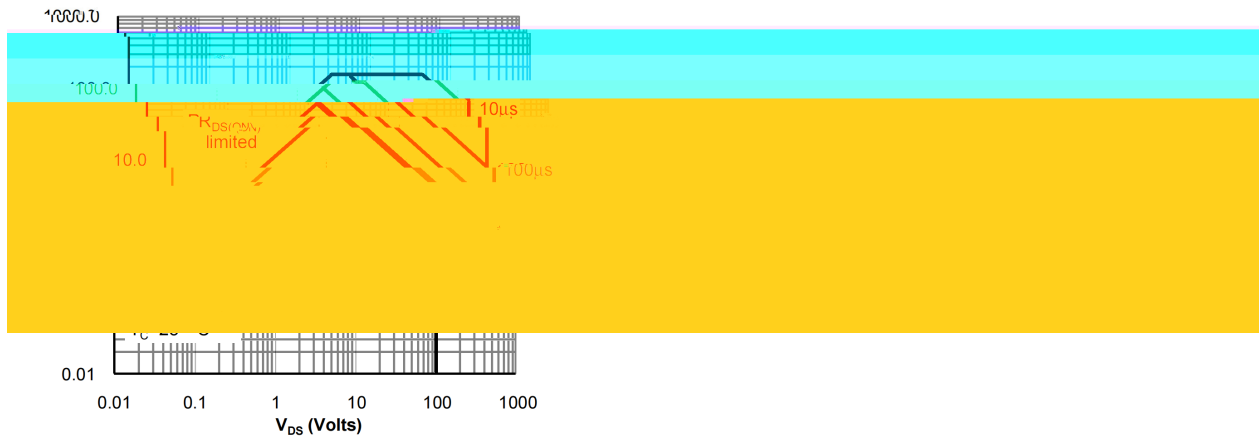


Figure 9: Maximum Forward Biased Safe Operating Area

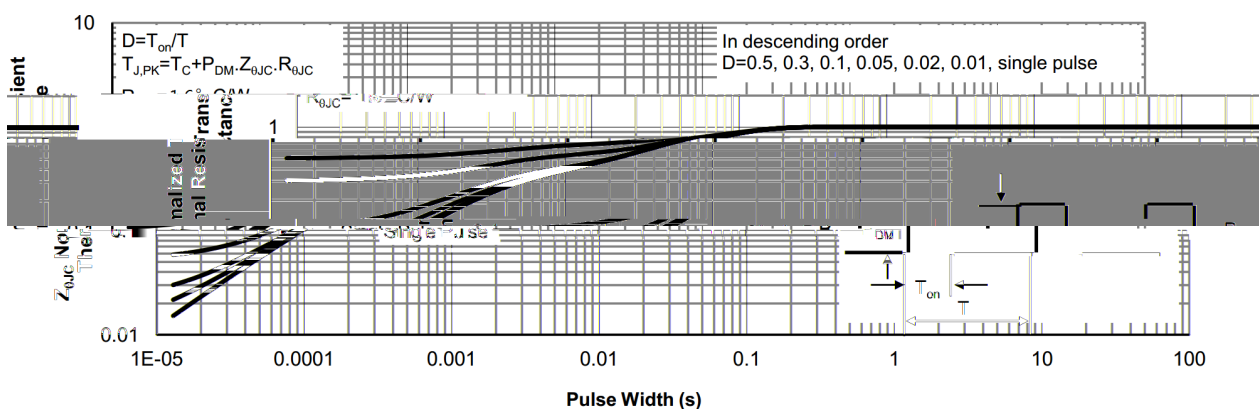
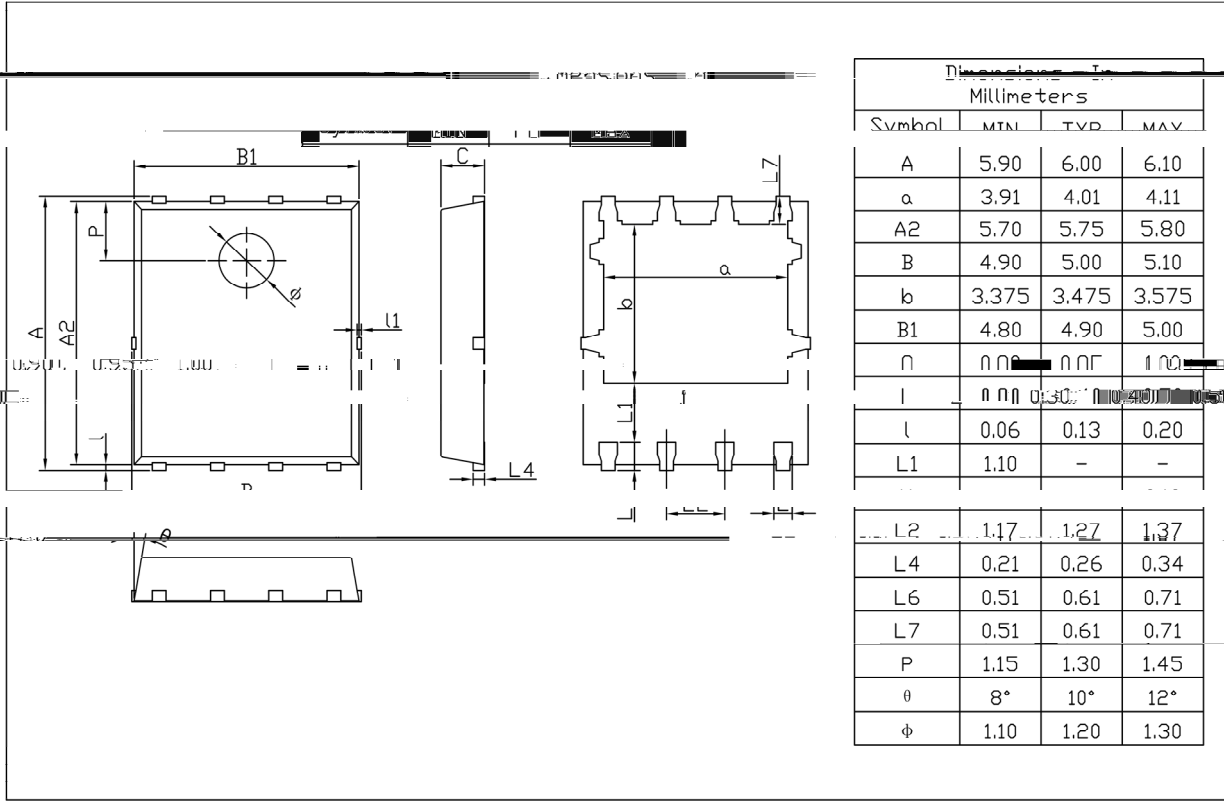


Figure 10: Normalized Maximum Transient Thermal Impedance

I Package Dimensions

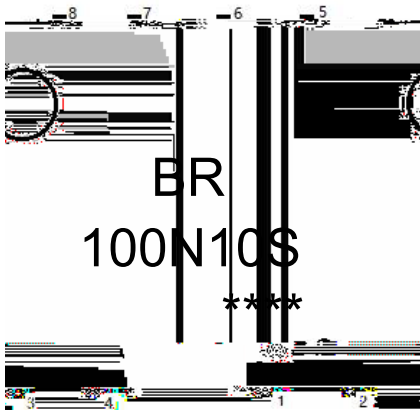
PDFN5 X6

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

/ Packaging SPEC.

/ REEL