

# BRCS200N20SHRA

Rev. 1.0

## 5. Descriptions

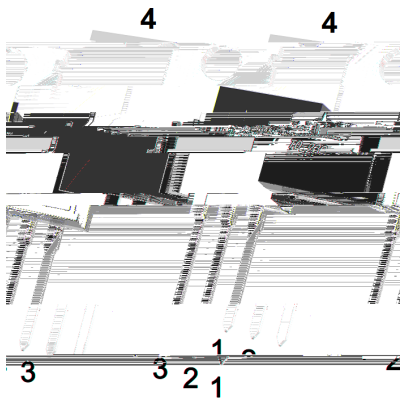
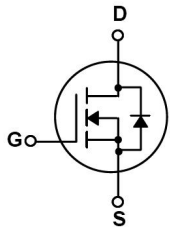
BRCS200N20SHRA is a 20V, 67A, N-channel MOSFET.

## 6. Features

- $V_{DS} = 20V$ ,  $I_D = 67A$  ( $V_{GS} = 10V$ )
- $R_{\theta(j-c)} < 0.15^\circ C/W$
- $R_{\theta(c-a)} < 0.15^\circ C/W$
- High Frequency

## 7. Applications

DC-DC Converter



Pin 1: Drain, Pin 2: Source, Pin 3: Gate

## 8. Marking

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## Absolute Maximum Ratings(Ta=25 °C)

Symbol	Unit	Parameter	Value	Notes
$V_{DS}$	V	Drain-Source Voltage	200	
$I_{D(25)}$	A	Drain Current (Ta=25 °C)	67	
		Drain Current (Ta=100 °C)	42	
$I_{DM}$	A	Maximum Drain Current	175	
$V_{GS}$	V	Gate-Source Voltage	±20	
$E_{AS}$	mJ	Single Pulse Avalanche Energy (V <sub>DD</sub> =50V, t <sub>AV</sub> ≤1.0μs)	685	
$I_S$	A	Source Current	67	
$P_{D(25)}$	W	Power Dissipation (Ta=25 °C)	227	
$T_{J(TC)}$	°C	Storage Temperature Range	-55 to 150	
$R_{JA}$	°C/W	Thermal Resistance (junction to ambient)	42	
$R_{JC}$	°C/W	Thermal Resistance (junction to case)	0.55	

Notes:  
 \* Pulse width limited by SOA.  
 \*\* See Figure 1 for SOA.

## Electrical Characteristics(Ta=25 °C)

Symbol	Unit	Parameter	Value	Notes
$V_{DS(BV)}$	V	Drain-Source Breakdown Voltage	200	V <sub>GS</sub> =0V, I <sub>D</sub> =250A
$I_{D(160)}$	A	Drain Current (V <sub>DS</sub> =160V, V <sub>GS</sub> =0V)	1	
$I_{D(20)}$	A	Drain Current (V <sub>GS</sub> =20V, V <sub>DS</sub> =0V)	100	
$V_{GS}$	V	Gate-Source Voltage	±20	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250A
$R_{DS(on)}$	mΩ	$R_{DS(on)}$	17	V <sub>GS</sub> =10V, I <sub>D</sub> =30A
		$R_{DS(on)}$	19	V <sub>GS</sub> =6V, I <sub>D</sub> =20A
$V_{GS}$	V	Gate-Source Voltage	±20	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>S</sub> =30A
$t_{tr}$	ns	Turn-on Time	118	I <sub>DS</sub> =30A, V <sub>GS</sub> =0V
$t_{d}$	ns	Turn-off Time	441	I <sub>DS</sub> =30A, V <sub>GS</sub> =0V
$f_{sw}$	kHz	$f_{sw}$	3517	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V
		$f_{sw}$	200	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V
		$f_{sw}$	30	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V
$f_{sw}$	kHz	$f_{sw}$	59	V <sub>DS</sub> =100V, V <sub>GS</sub> =10V
		$f_{sw}$	20	V <sub>DS</sub> =100V, V <sub>GS</sub> =10V
		$f_{sw}$	14	V <sub>DS</sub> =100V, V <sub>GS</sub> =10V

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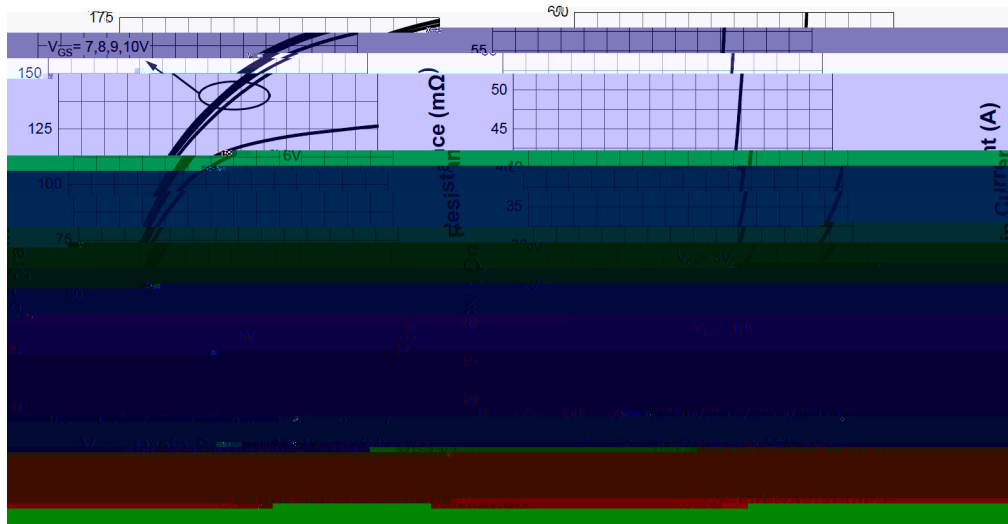
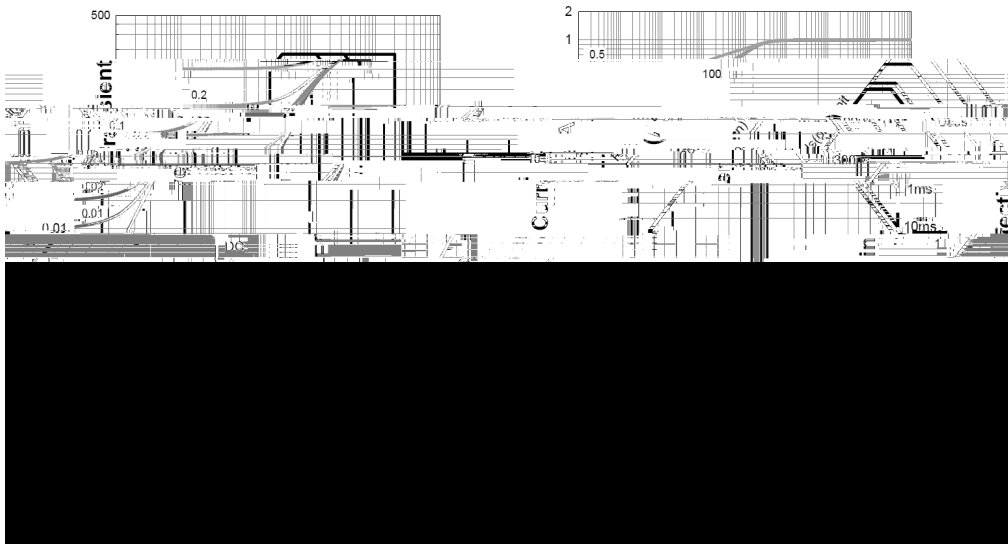
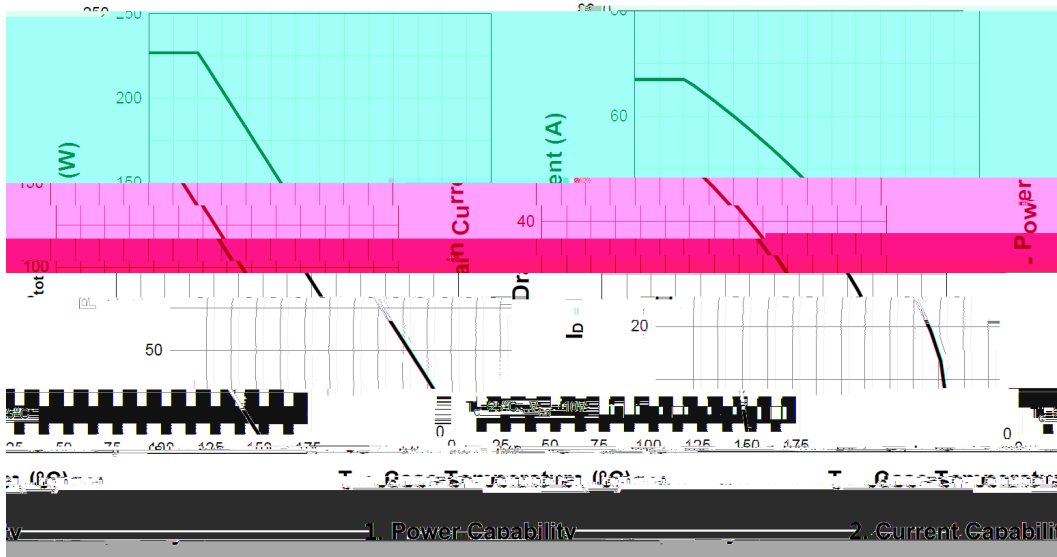


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## Electrical Characteristics (Ta=25°C)

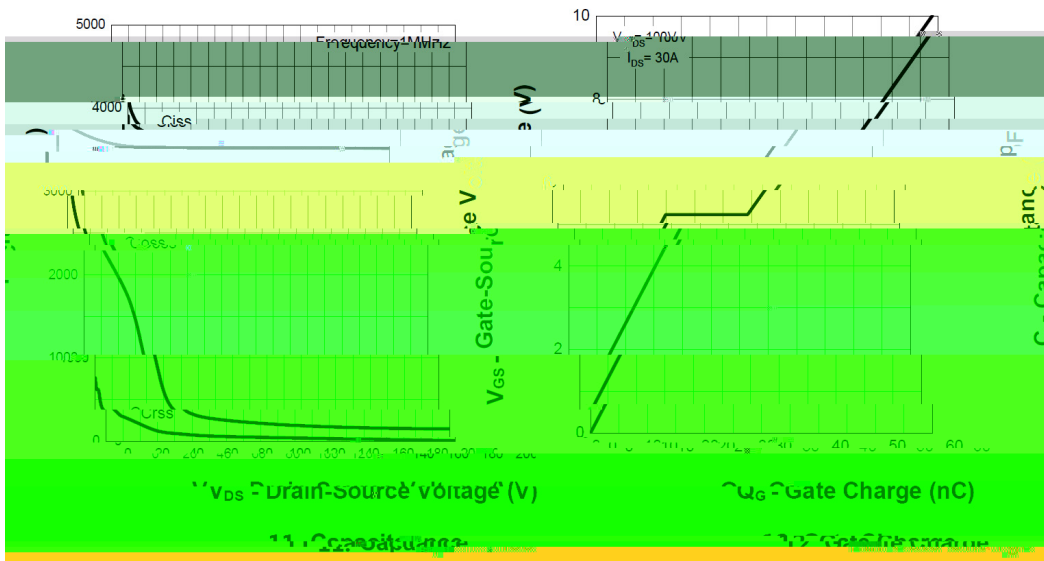
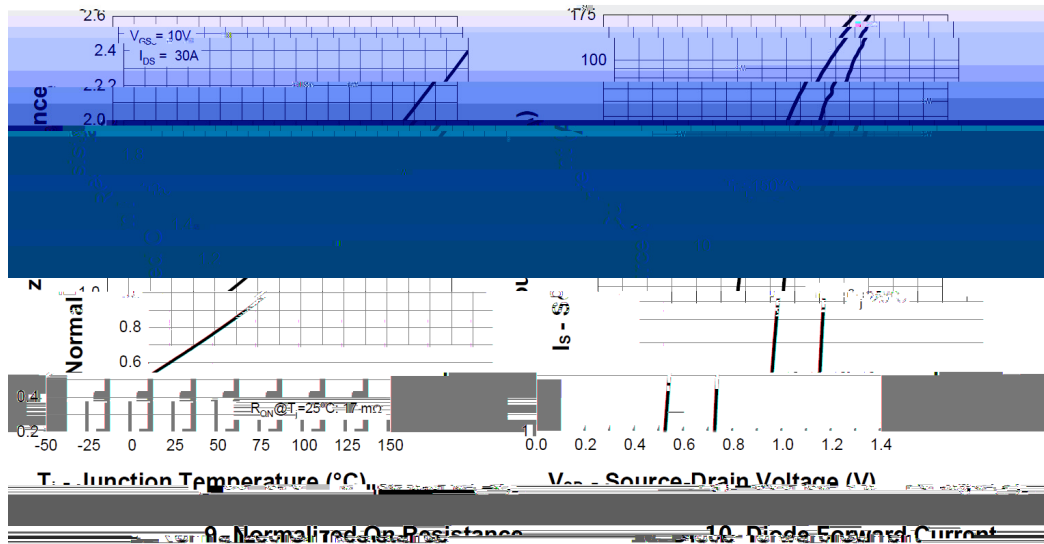
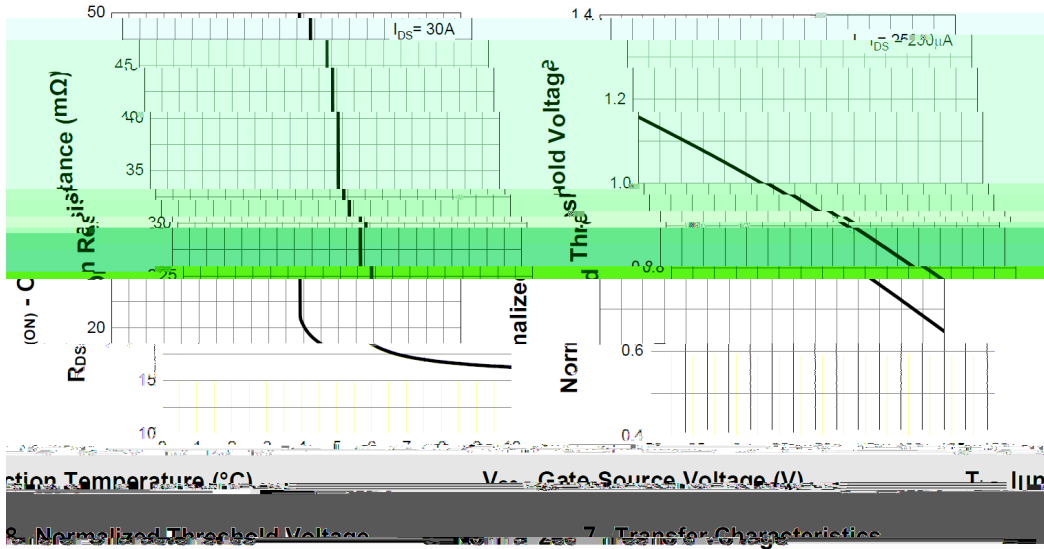
Symbol	Parameter	Unit	Min	Typ	Max
Switching	Turn-on delay time	t <sub>on</sub>		16	
	Turn-off delay time	t <sub>off</sub>		82	
	Turn-on time	t <sub>on</sub>		38	
	Turn-off time	t <sub>off</sub>		86	
Test conditions: V <sub>GEN</sub> =10V V <sub>DS</sub> =100V R <sub>L</sub> =3.3Ω R <sub>G</sub> =3.9Ω I <sub>DS</sub> =30A					

Electrical Characteristic Curve





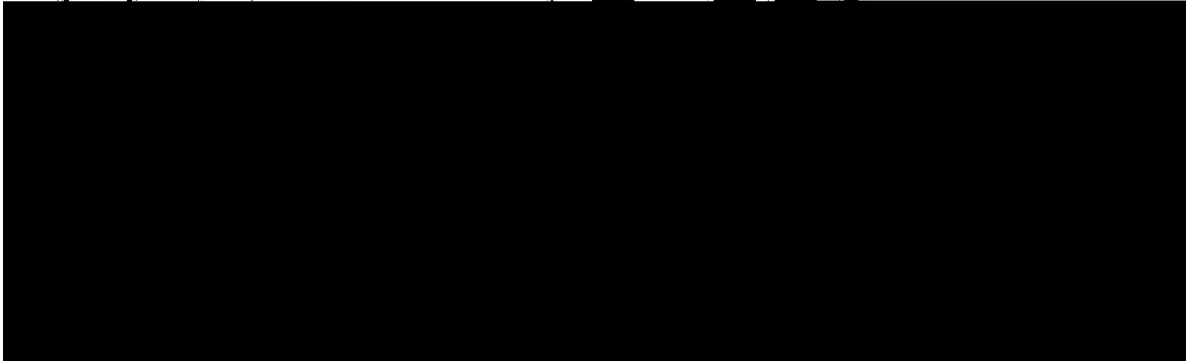
Electrical Characteristic Curve



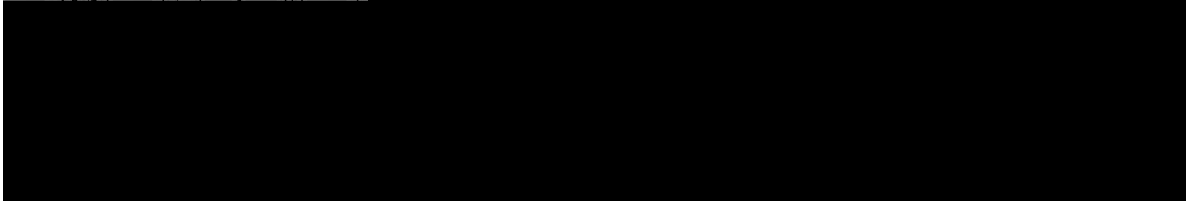
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Ø/ ) ☉ / Package Dimensions



Symbol	Min	Max	Symbol	Min	Max
$a$	1.2	1.4	$A$	9.8	10.2
$B$	6.3	6.7	$R$	3.56	3.64
$a1$	9.4	9.6	$h$	12.6	13.6
$b1$	15.7	16.1			
$C1$	2.6	2.8			



# **BRCS200N20SHRA**

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