

BRCS120P04YBQ
Rev.A Dec.-2022



DATA SHEET

Absolute Maximum Ratings(Ta=25 ;)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	-40	V
Drain Current - Continuous	I _D (T _c =25)	-41	A
Drain Current – Pulsed	I _{DM}	-72	A
Gate-Source Voltage	V _{GS}	f 20	V
Power Dissipation	P _D (T _c =25)	30	W
Single Pulse Avalanche Energy(L=0.5mH)	E _{AS}	317.5	mJ
Avalanche Current(L=0.5mH)	I _{AS}	-31.5	A
Junction and Storage Temperature Range	T _j , T _{stg}	-55 to 150	-
Thermal resistance, junction - ambient	t 0 10s	22	/ W
	Steady-State	55	
Thermal resistance, junction - case	Steady-State	4.2	

Electrical Characteristics(Ta=25 ;)

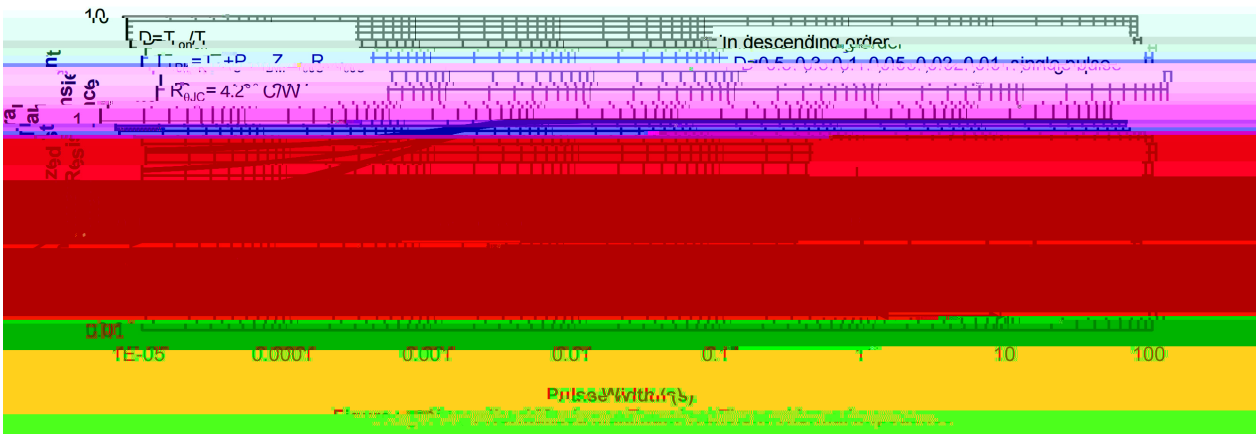
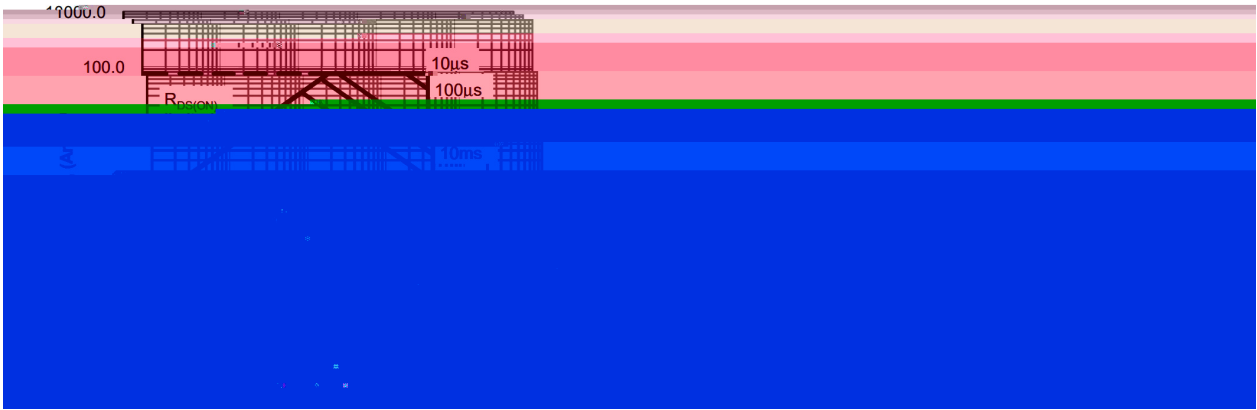
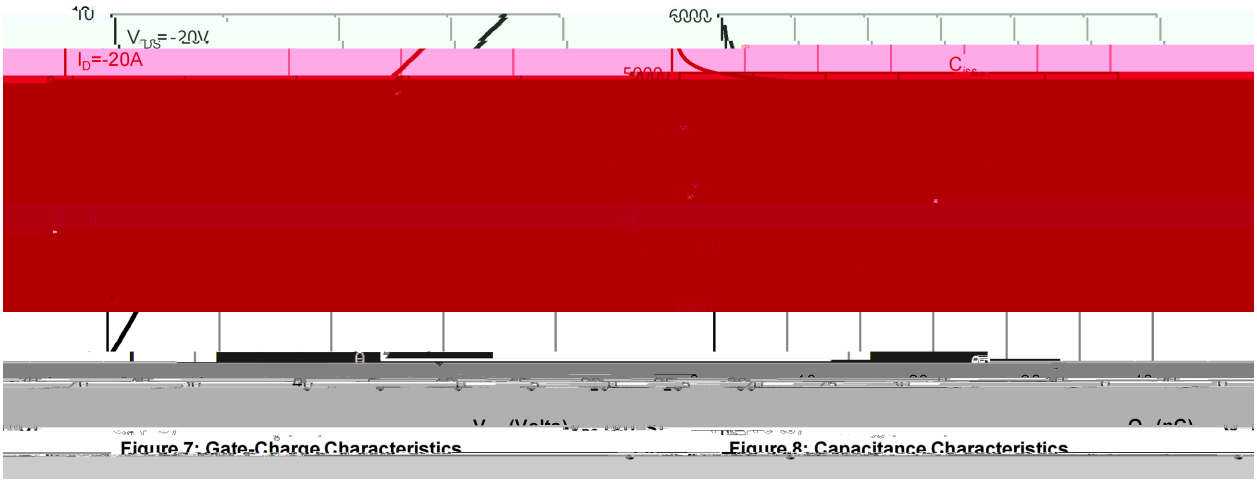
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =-250 A V _{GS} =0V	-40	-48		V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-40V V _{GS} =0V			-1	uA
Gate-Body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} = ±20V			± 100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250 A	-1	-1.7	-2.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-20A		11.6	13.5	m S
		V _{GS} =-4.5V, I _D =-10A		15	25	
Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V			-1.2	V
Input Capacitance	C _{iss}	V _{DS} =-25V V _{GS} =0V f=1.0MHz		4760		pF
Output Capacitance	C _{oss}			2800		
Reverse Transfer Capacitance	C _{rss}			1960		
Gate resistance	R _g	V _{GS} =0V V _{DS} =0V f=1MHz		17.5		
Total Gate Charge	Q _{g(10V)}	V _{GS} =-10V, V _{DS} =-20V, I _D =-20A		34		nC
Total Gate Charge	Q _{g(4.5V)}			17.5		
Gate Source Charge	Q _{gs}			5.8		
Gate Drain Charge	Q _{gd}			9		

Electrical Characteristics($T_a=25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-10\text{V}$ $V_{DS}=-20\text{V}$ $R_L=0.75\ \Omega$ $R_{GEN}=3\ \Omega$		11		ns
Turn-On Rise Time	t_r			7.8		
Turn-Off Delay Time	$t_{d(off)}$			44		
Turn-Off Fall Time	t_f			18		

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Electrical Characteristic Curve



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 - BR y , [W A
 - Q y V ñ —)í D } ö œ
 - 120P04 y ° Z W A
 - y ÿ D Z W A k š ÿ D Z J
- Note:
- BR: Company Code
 - Q: Automobile halogen-free product Code
 - 120P04: Product Type Code
 - ****: Lot No. Code, code change with Lot No

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