BRCS045N10SHRA

Rev.A Feb.-2023

DATA SHEET

‶Yث / Descriptions

TO-220 N

N-CHANNEL MOSFET in a TO-220 Plastic Package.

• È / Features

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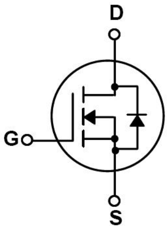
High frequency switching and synchronous rectification, BMS, Motor.

Лق ᾱ ؛ ع / Equivalent Circuit



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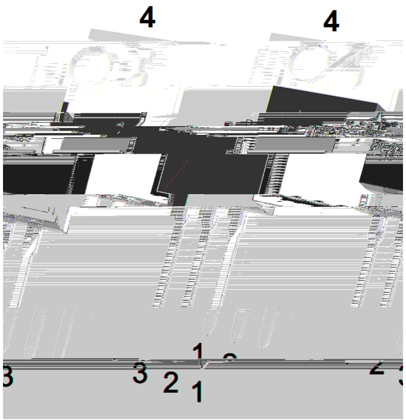

PIN1 G PIN 2 4 D PIN 3 S\

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See Marking Instructions.

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	100	V
Drain Current		I_D(Tc=25)	150	A
Pulsed Drain Current		I_{DM}	319	A
Gate-Source Voltage		V_{GS}	± 20	V
Single Pulsed Avalanche Energy(L=0.5mH)		E_{AS}	381	mJ
Avalanche Current		I_{AS}	33	A
Total Power Dissipation		P_D(Tc=25)	180	W
Junction and Storage Temperature Range		T_J,T_{STG}	-55 to 150	
Thermal Resistance-Junction to Ambient	t ≤ 10s	$R_{θJA}$	17	/W
	Steady-State		62.5	
Thermal Resistance-Junction to Case	Steady-State	$R_{θJC}$	0.69	

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V	I_D=250μA	100	109		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V	V_{GS}=0V			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V	V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}	I_D=250μA	2	2.6	4	V
Static Drain-Source On-Resistance	$R_{DS(on)1}$	V_{GS}=10V	I_D=20A		3.2	4.5	mΩ
	$R_{DS(on)2}$	V_{GS}=6V	I_D=10A		4.2	6.5	mΩ
Forward On Voltage	V_{SD}	V_{GS}=0V	I_S=1A			1.2	V
Gate resistance	R_g	f=1MHz			1.3		Ω

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V V_{DS}=50V R_L=2.5Ω R_{GEN}=3Ω		27		ns
Turn-On Rise Time	t_r			20		
Turn-Off Delay Time	$t_{d(of}$					

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[illegible] / Electrical Characteristic Curve

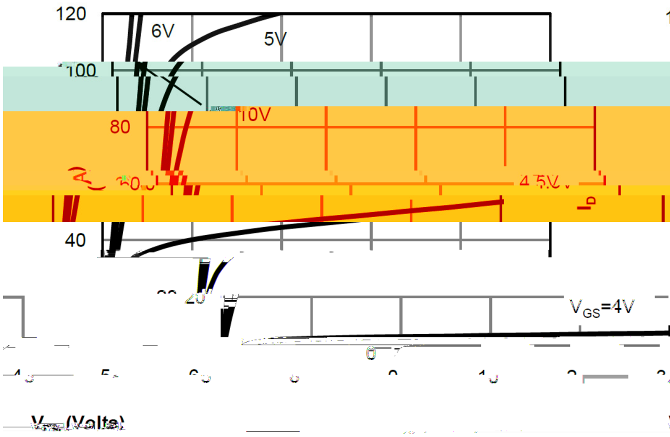


Figure 1: On-Region Characteristics

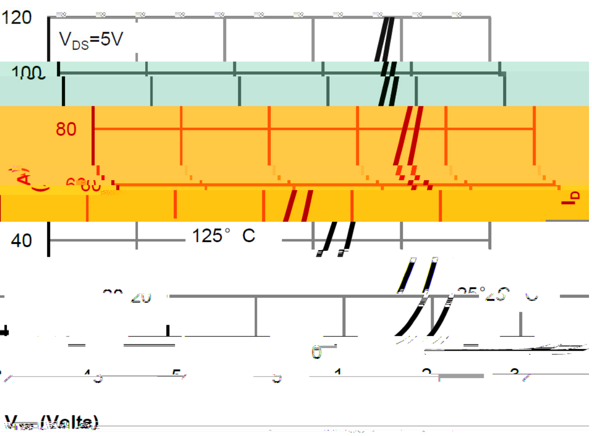
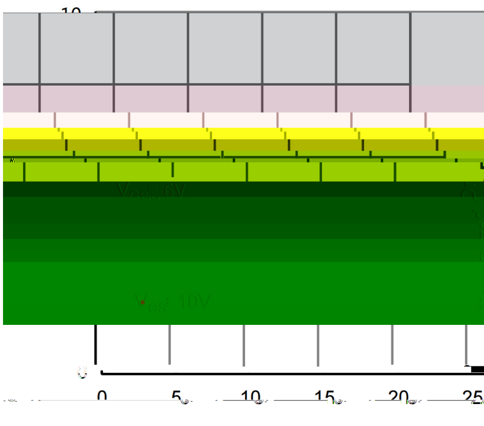
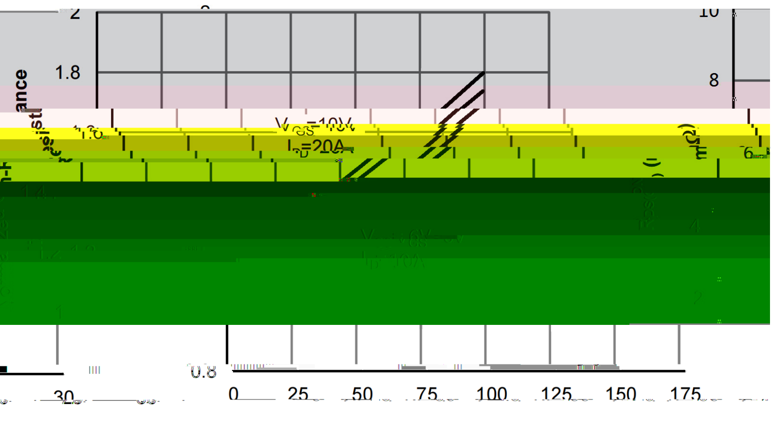


Figure 2: Transfer Characteristics





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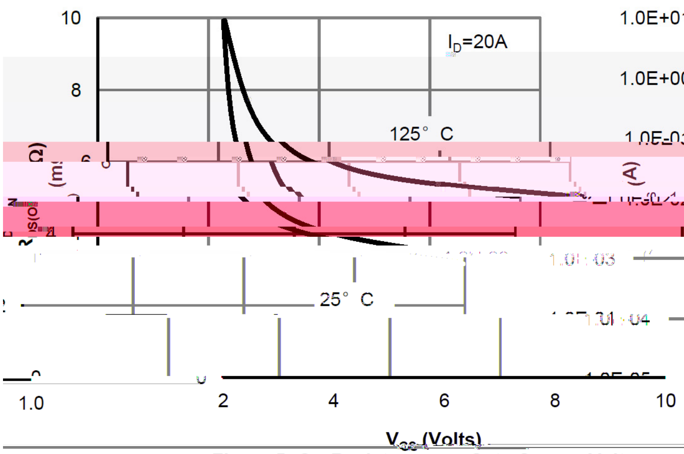

Figure 5: On-Resistance vs. Gate-Source Voltage

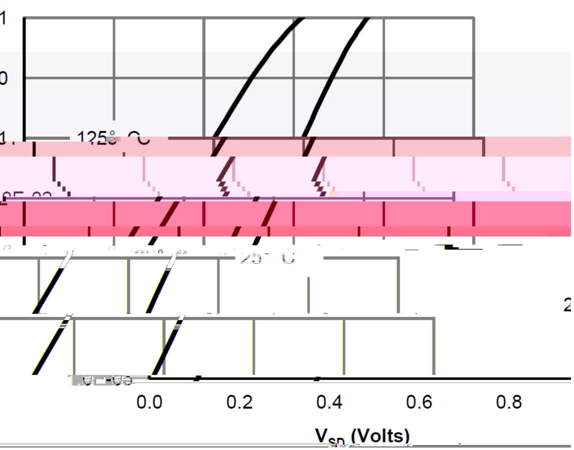

Figure 6: Body-Diode Characteristics

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