

BRCS045N10SHBD

Rev.A Feb.-2023

/ Descriptions

TO-263 N
N-CHANNEL MOSFET in a TO-263 Plastic Package.

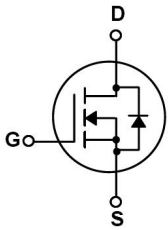
/ Features

Ultra Low On-Resistance,fast switching, HF Product.

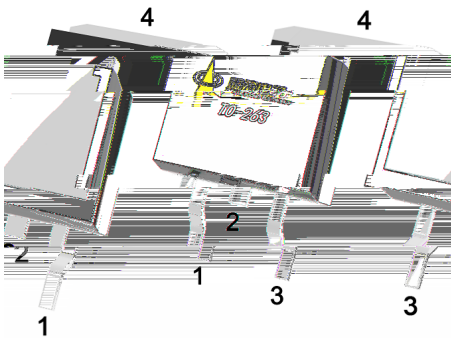
/ Applications

BMS
High frequency switching and synchronous rectification, BMS, Motor.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 4 D PIN 3 S

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	100	V
Drain Current		$I_D(T_C=25)$	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		$P_D(T_C=25)$	180	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	
Thermal Resistance-Junction to Ambient	t 10s	R_{JA}	17	/W
	Steady-State		62.5	
Thermal Resistance-Junction to Case	Steady-State	R_{JC}	0.69	

/ Electrical Characteristics(Ta=25)

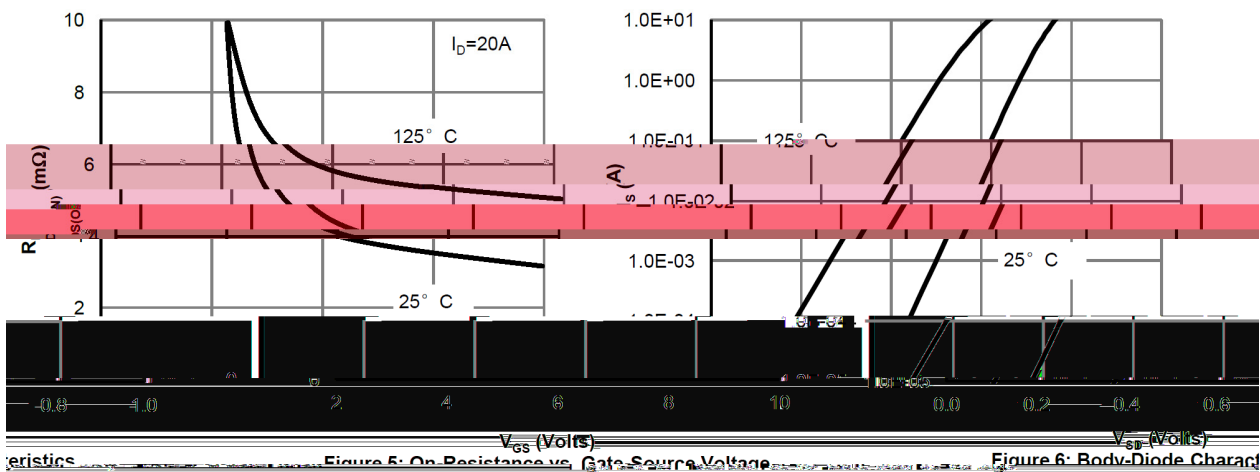
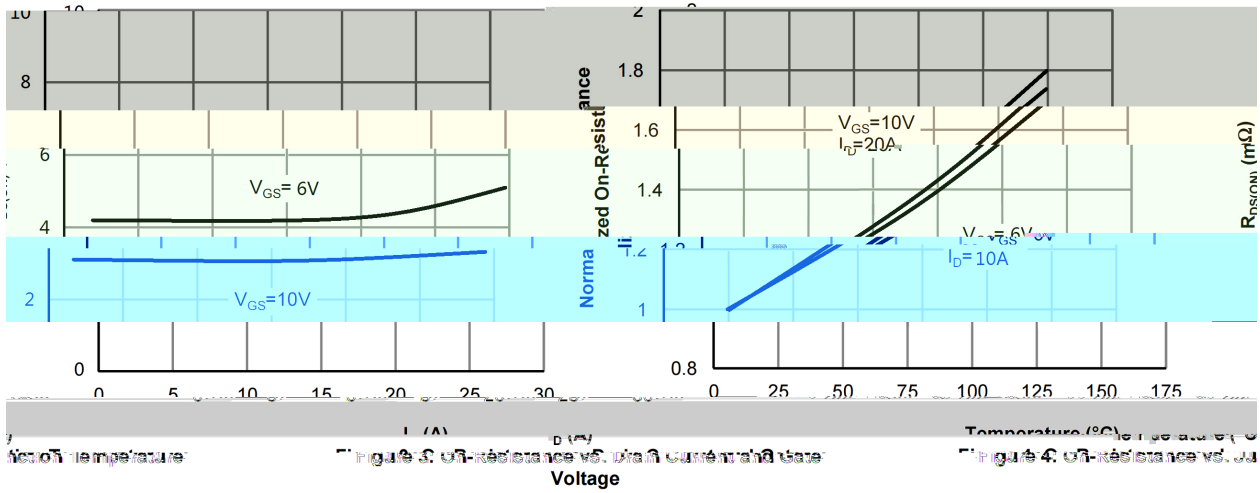
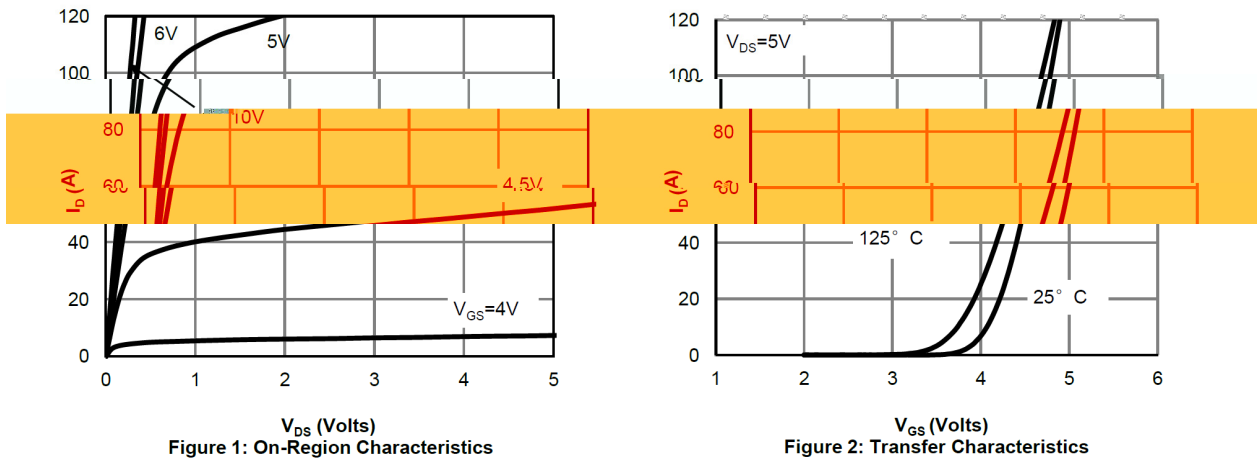
Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$	$I_D=250\mu A$	100	109		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V$	$V_{GS}=0V$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$	$V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$	$I_D=250\mu A$	2	2.6	4	V
Static Drain-Source On-Resistance	$R_{DS(on)1}$	$V_{GS}=10V$	$I_D=20A$		3.2	4.5	m
	$R_{DS(on)2}$	$V_{GS}=6V$	$I_D=10A$		4.2	6.5	m
Forward On Voltage	V_{SD}	$V_{GS}=0V$	$I_S=1A$			1.2	V
Gate resistance	R_g	f=1MHz			1.3		
Input Capacitance	C_{iss}	$V_{DS}=25V$ f=1MHz $V_{GS}=0V$			6950		pF
Output Capacitance	C_{oss}				955		
Reverse Transfer Capacitance	C_{rss}				124		
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V,$ $I_D=20A$ $V_{DS}=50V,$			90		nC
Gate Source Charge	Q_{gs}				28		
Gate Drain Charge	Q_{gd}				19		

BRCs045N10SHBD

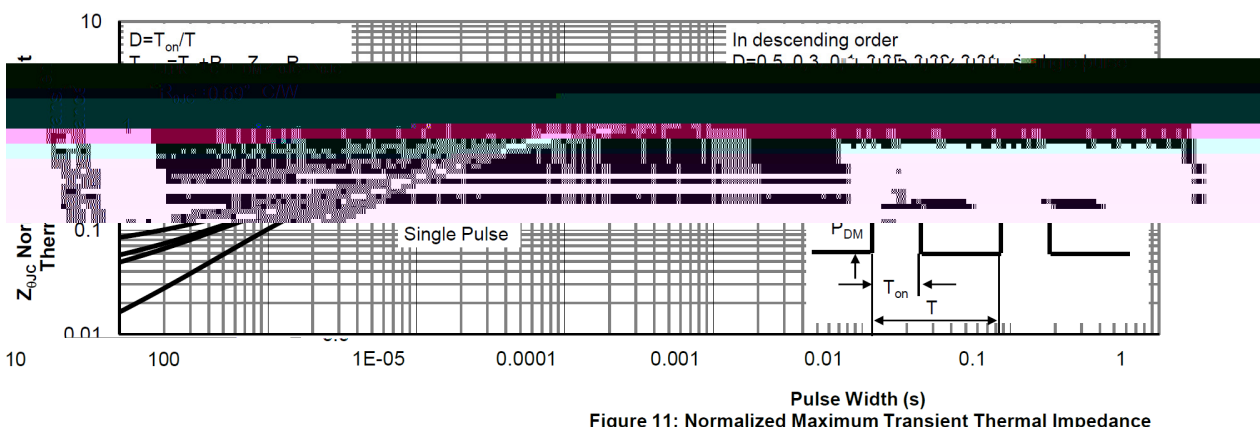
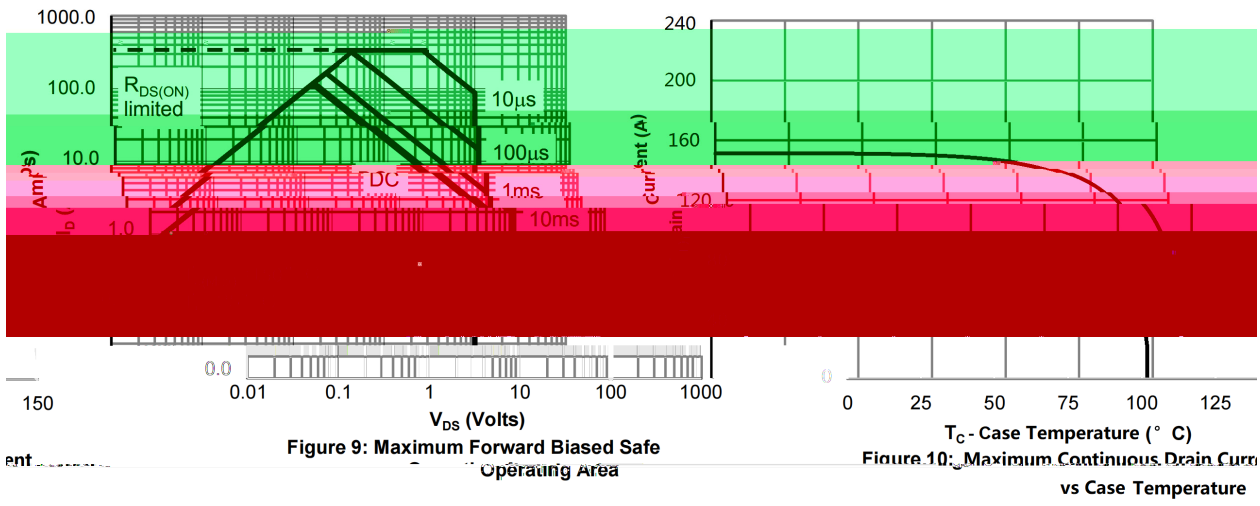
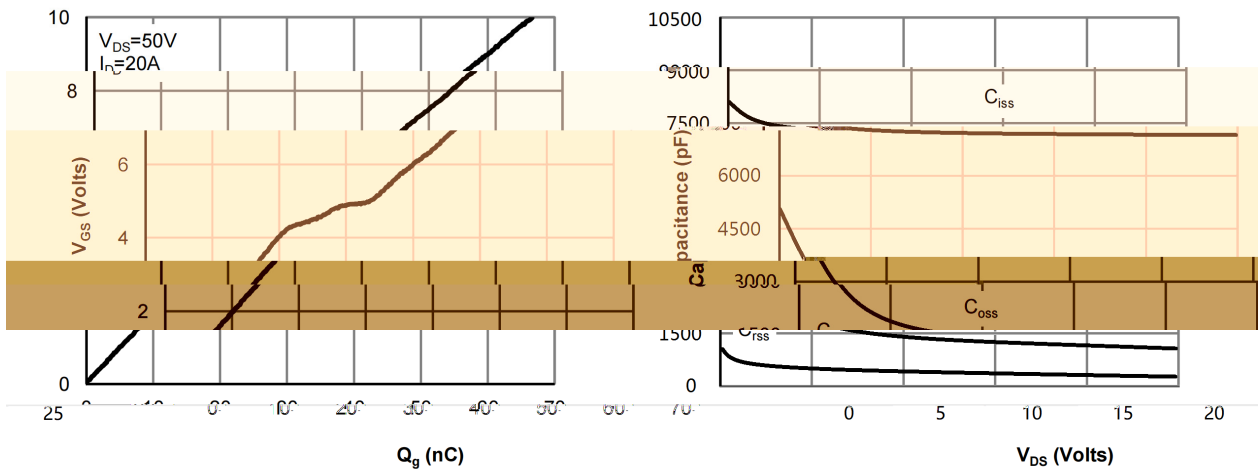
Rev.A Feb.-2023

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=50V$ $R_L=2.5$ $R_{GEN}=3$		27		ns
Turn-On Rise Time	t_r			20		
Turn-Off Delay Time	$t_{d(off)}$			50		
Turn-Off Fall Time	t_f			25		

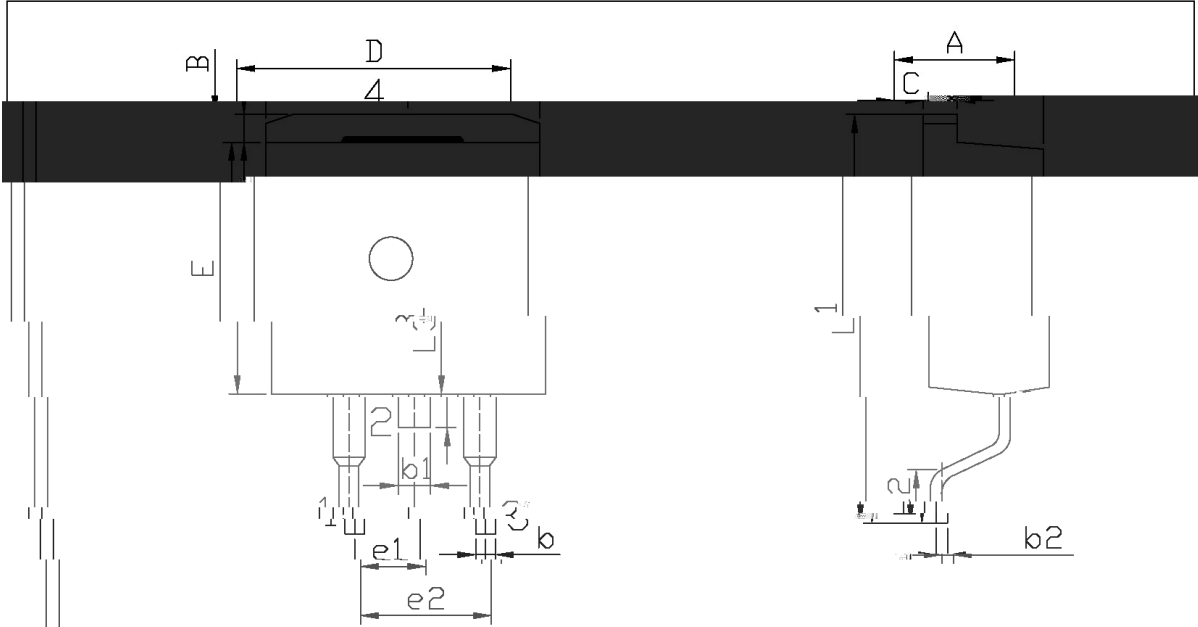
/ Electrical Characteristic Curve



/ Electrical Characteristic Curve



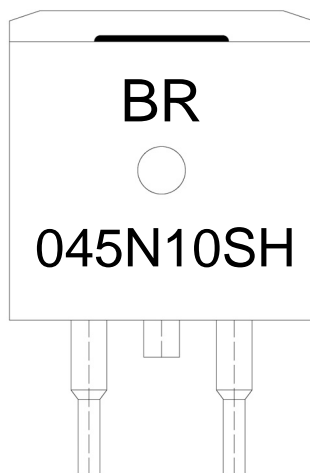
/ Package Dimensions



单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.30	4.70	E	9.00	9.40
B	1.00	1.40	e1	2.34	2.74
b	0.70	0.90	e2	4.88	5.28
b1	0.70	0.90	L2	2.25	2.65
C	1.20	1.40	L3	1.20	1.60
D	9.80	10.20			

/ **Marking Instructions**



BR

045N10SH

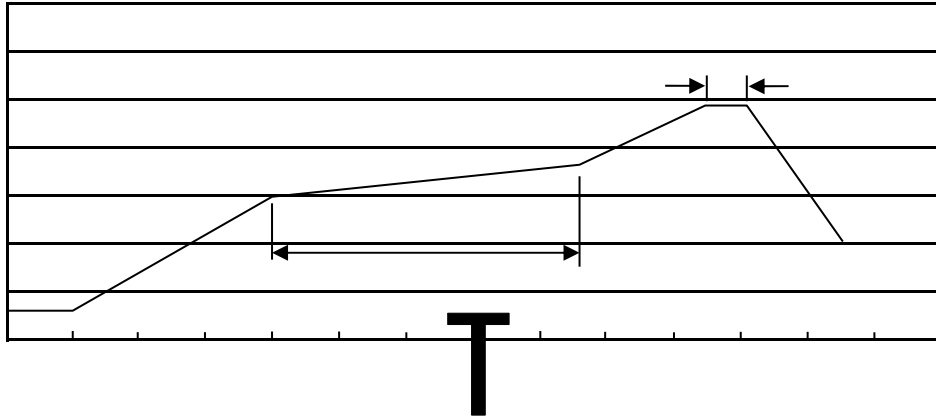
Note:

BR: Company Code

045N10SH: Product Type

****: 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

Package Type	Units					Dimension (unit mm ³)		
TO-263	800	1	800	6	4,800	13 x24	360x360x50	380x335x366

/ TUBE

Package Type	Units					Dimension (unit mm ³)		
TO-263	50	20	1,000	5	5,000	532x33x7.0	555x164x50	575x290x180

/ Notices