

BRCS100N10SBD

Rev.A Jun.-2024

/ Descriptions

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

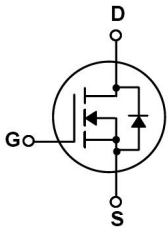
/ Features

$V_{DS}=100V$ $I_D=65A$
 $R_{DS(ON)}@10V \leq 10m$ (Typ.9m)
 $R_{DS(ON)}@4.5V \leq 15m$ (Typ.11m)
HF Product.

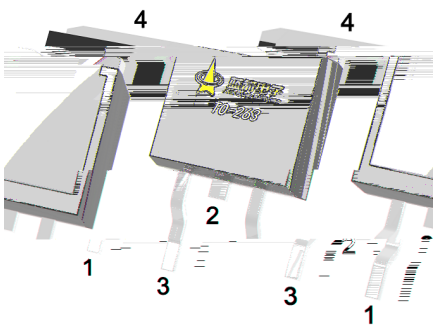
/ Applications

These devices are well suited for high efficient switched mode power supplies, Active power factor correction, electronic lamp ballast based on half bridge topology.

/ 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 (Tc=25°C)	65	A
Pulsed Drain Current	I _{DM}	168	A
Gate-Source Voltage	V _{GS}	±20	V
Single Pulsed Avalanche Energy L=0.5mH	E _{AS}	1200	mJ
Avalanche Current	I _{AS}	25	A
Total Power Dissipation	P _D (Tc=25°C)	85	W
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to 150	
Thermal Resistance-Junction to Ambient	t ≤ 10s	R _{θJA}	17
	Steady-State		62.5
Thermal Resistance-Junction to Case	Steady-State	R _{θJC}	1.47

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	100	108		V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V V _{GS} =0V			1.0	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	1	1.8	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V I _D =20A		9	10	m
	R _{DS(on)}	V _{GS} =4.5V I _D =10A		11	15	m
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V I _S =1A			1.2	V
Gate resistance	R _g	V _{GS} =0V V _{DS} =0V, f=1MHz		1.3		
Input Capacitance	C _{iss}	V _{DS} =25V V _{GS} =0V f=1.0MHz		2200		pF
Output Capacitance	C _{oss}			800		
Reverse Transfer Capacitance	C _{rss}			70		
Total Gate Charge	Q _{g(10V)}	V _{GS} =10V, I _D =20A V _{DS} =50V,		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	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=50V$ $R_L=2.5$ $R_{GEN}=3$		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

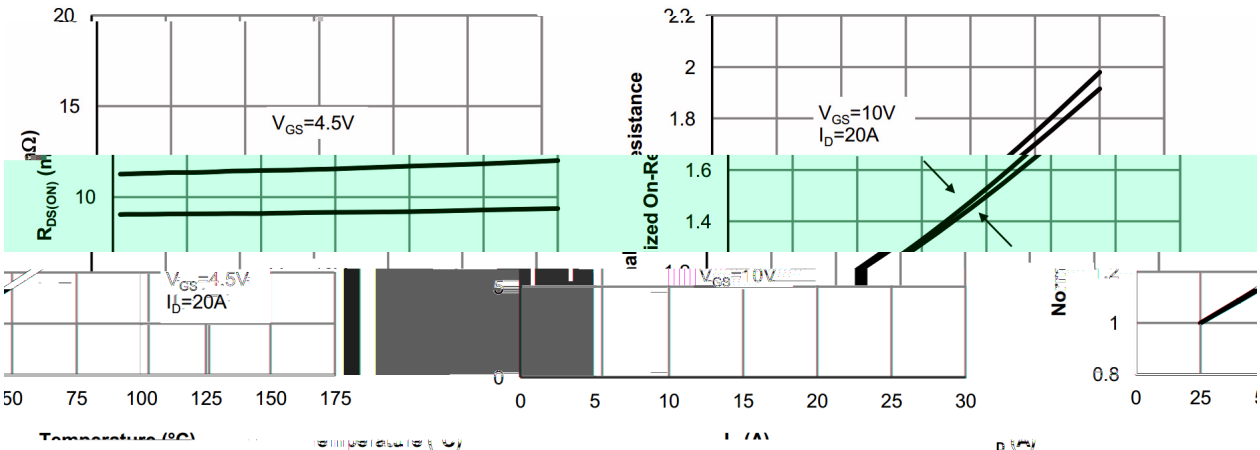
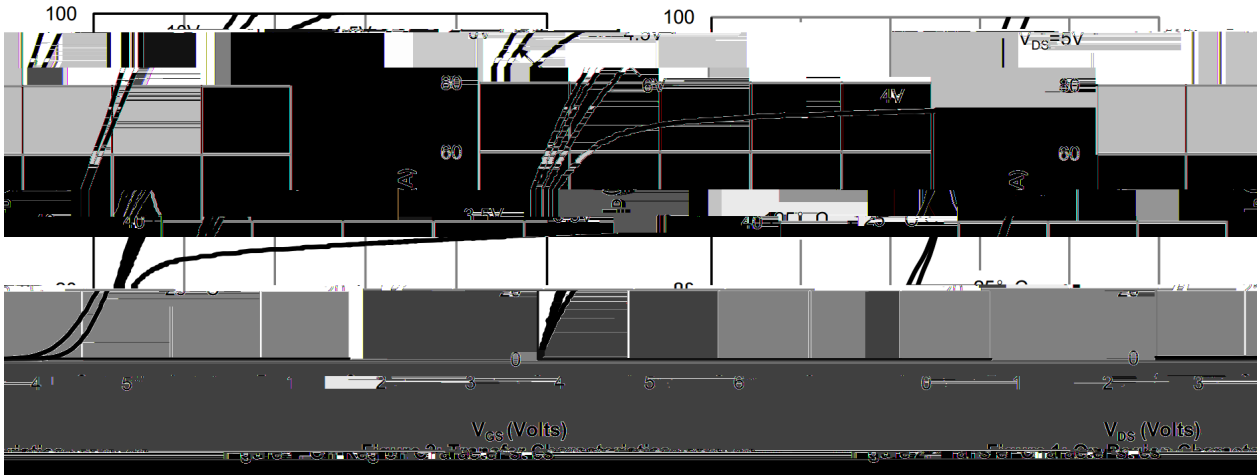


Figure 1: On-Resistance vs. Temperature; Figure 2: On-Resistance vs. Drain Current

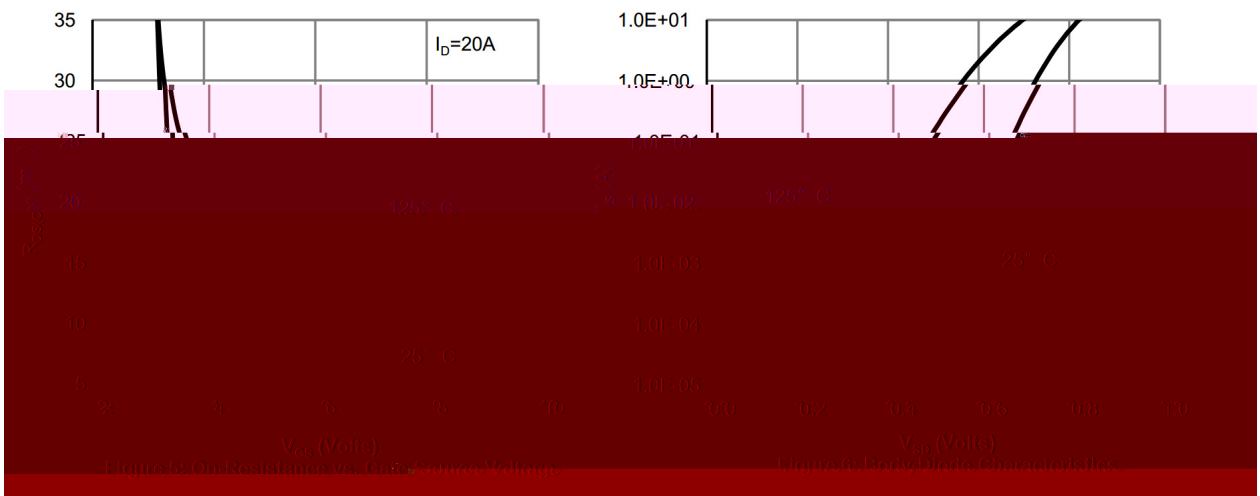
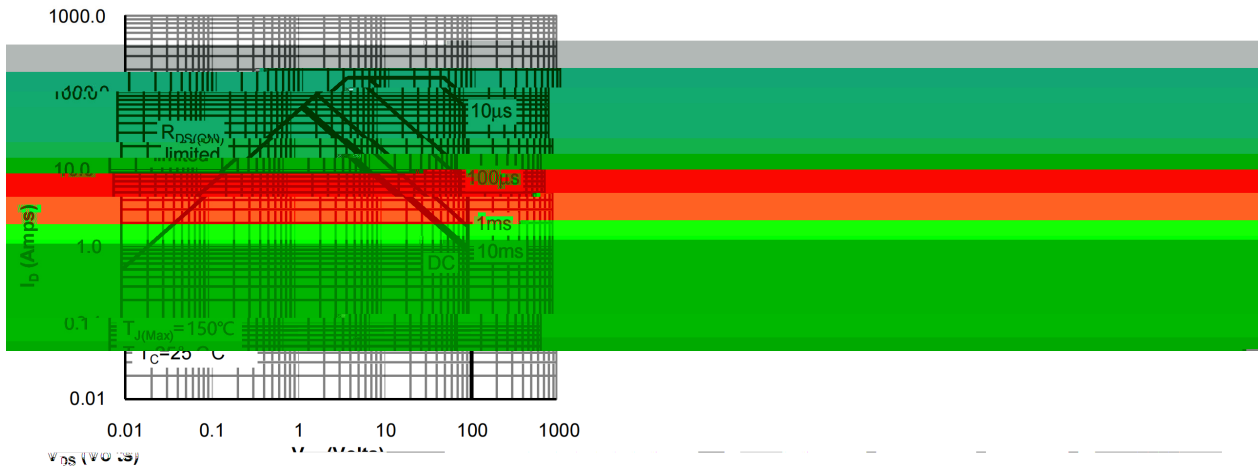
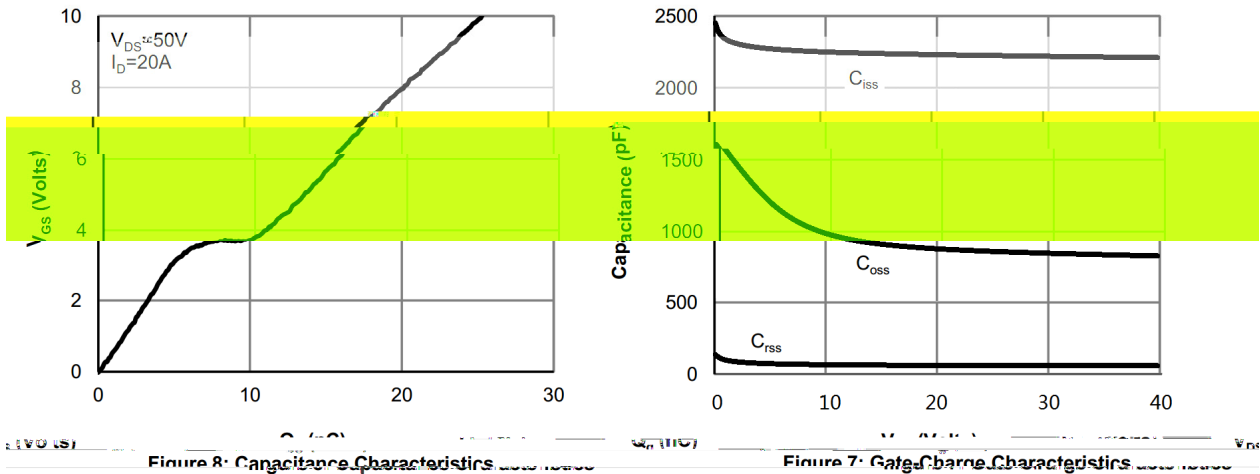


Figure 3: On-Resistance vs. Gate Voltage; Figure 4: On-Resistance vs. Drain-Source Voltage

/ Electrical Characteristic Curve



Maximum Forward Biased Safe Operating Area

Figure 9: N

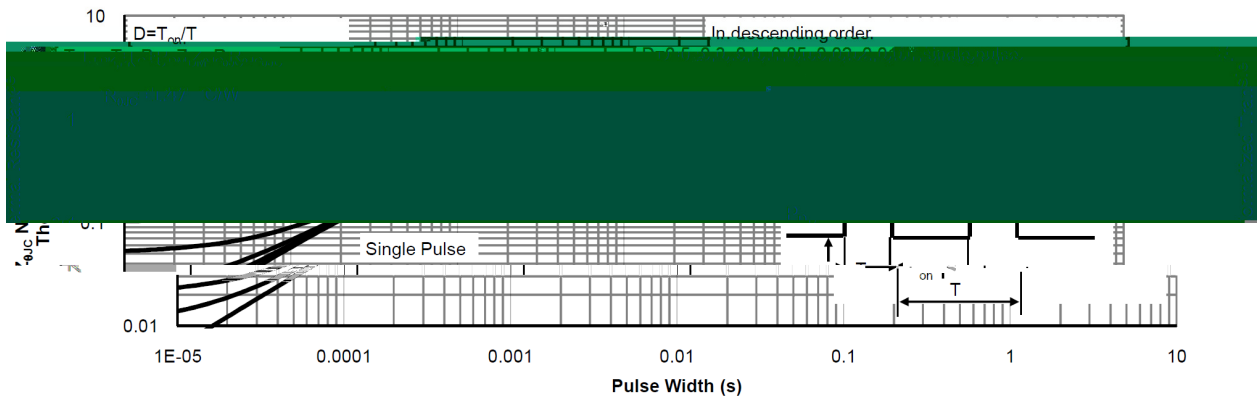
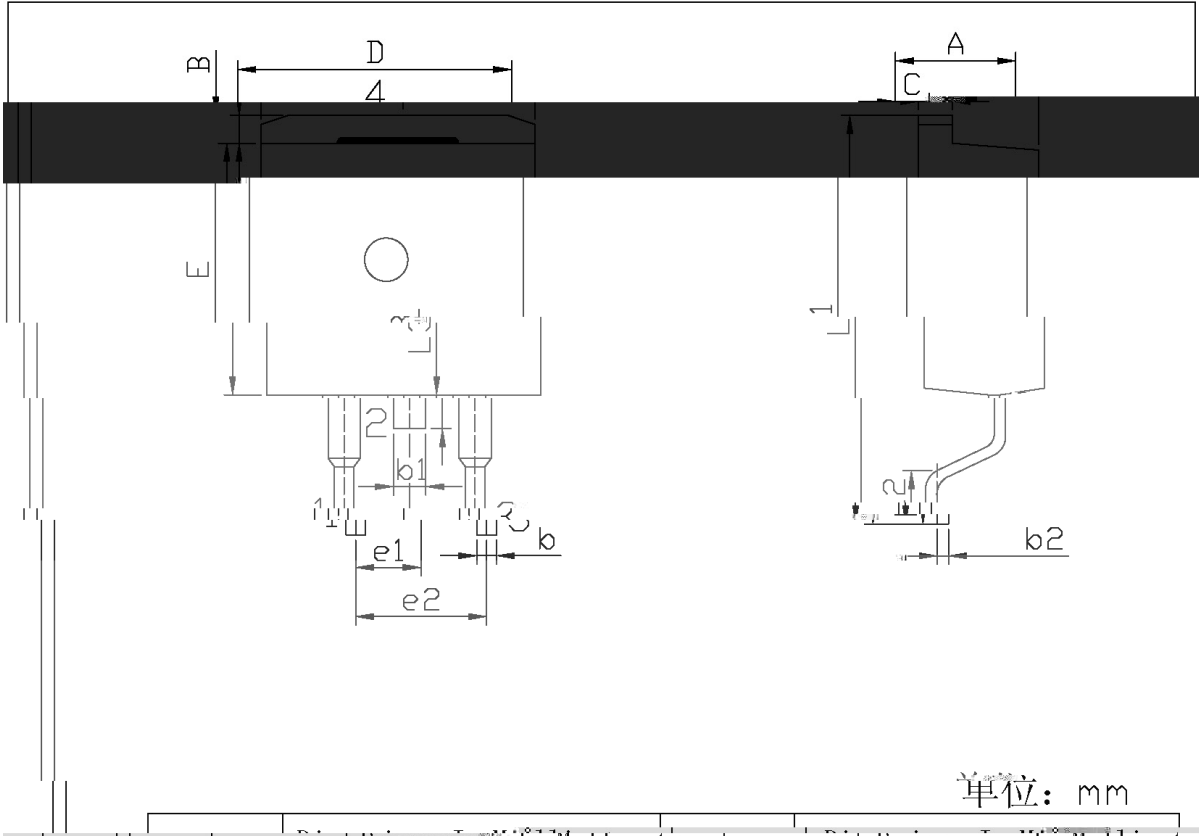


Figure 10: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions



单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeter	
	Min	Max		Min	Max
A	4.30	4.70	E	9.00	9.40
B	1.00	1.40	e1	2.24	2.74

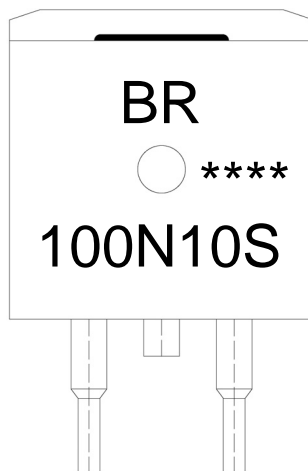
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DATA SHEET

/ Marking Instructions



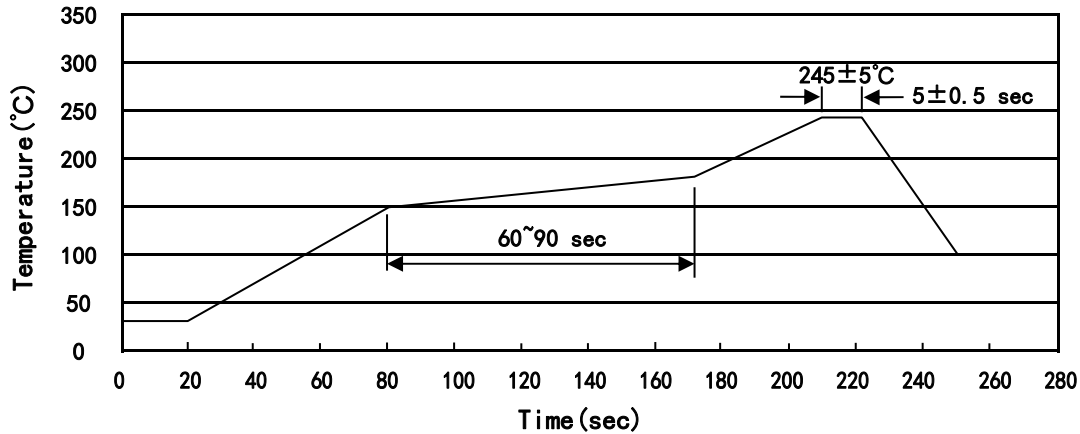
Note:

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

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
TO-263	800	1	800	6	4,800	13" x24	360x360x50	380x335x366

/ TUBE

Package Type	Units					Dimension (unit mm ³)		
	Units/Tube	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Tube	Inner Box	Outer Box
TO-263	50	20	1,000	5	5,000	532x33x7.0	555x164x50	575x290x180

/ Notices