

BRCS100N10SBD

Rev.A Jun.-2024

/ Descriptions

TO-263 N

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

/ Features

$V_{DS}=100V$ $I_D=65A$

$R_{DS(ON)}@10V \leq 10m\Omega$ (Typ.9m Ω)

$R_{DS(ON)}@4.5V \leq 15m\Omega$ (Typ.11m Ω)

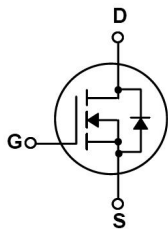
HF Product.

/ Applications

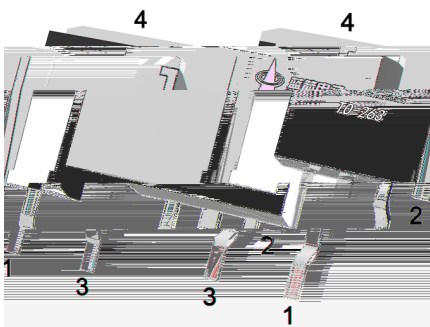
PFC

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_{DS}	100	V
Drain Current		$I_D(T_C=25)$	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		$P_D(T_C=25)$	85	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	
Thermal Resistance-Junction to Ambient	$t \leq 10s$	$R_{\theta JA}$	17	/W
	Steady-State		62.5	
Thermal Resistance-Junction to Case	Steady-State	$R_{\theta JC}$	1.47	

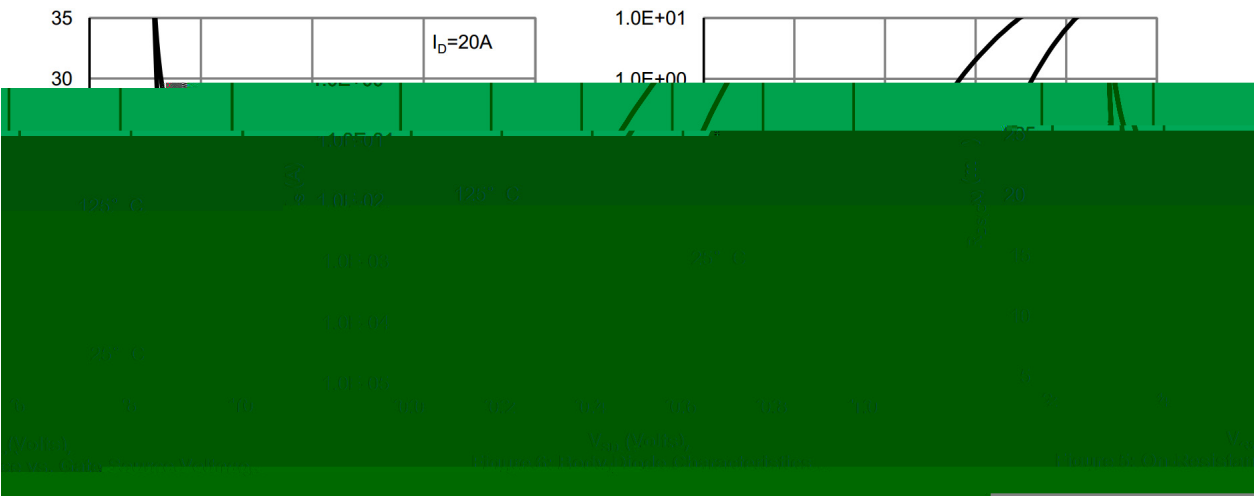
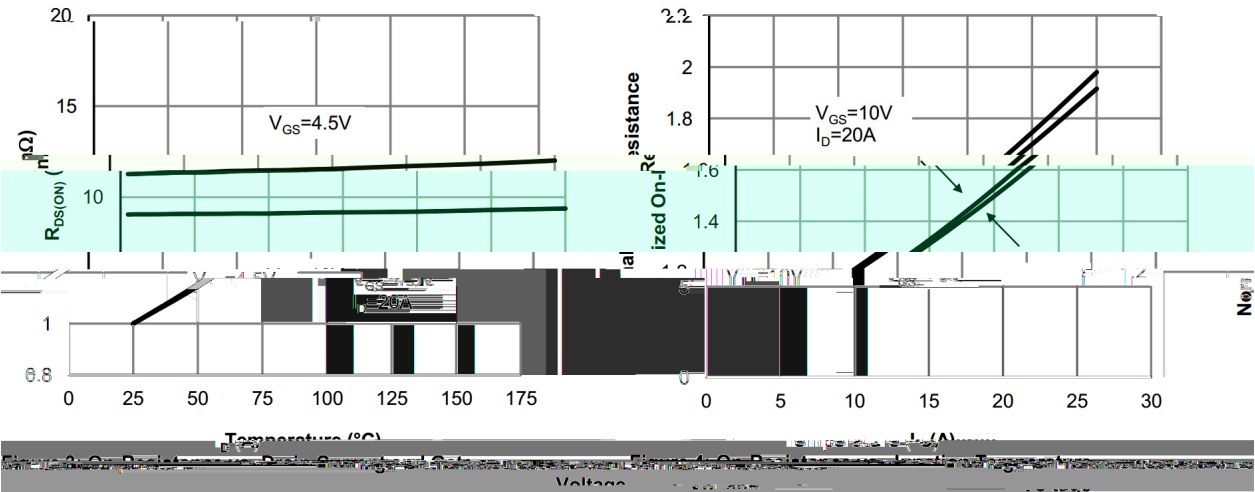
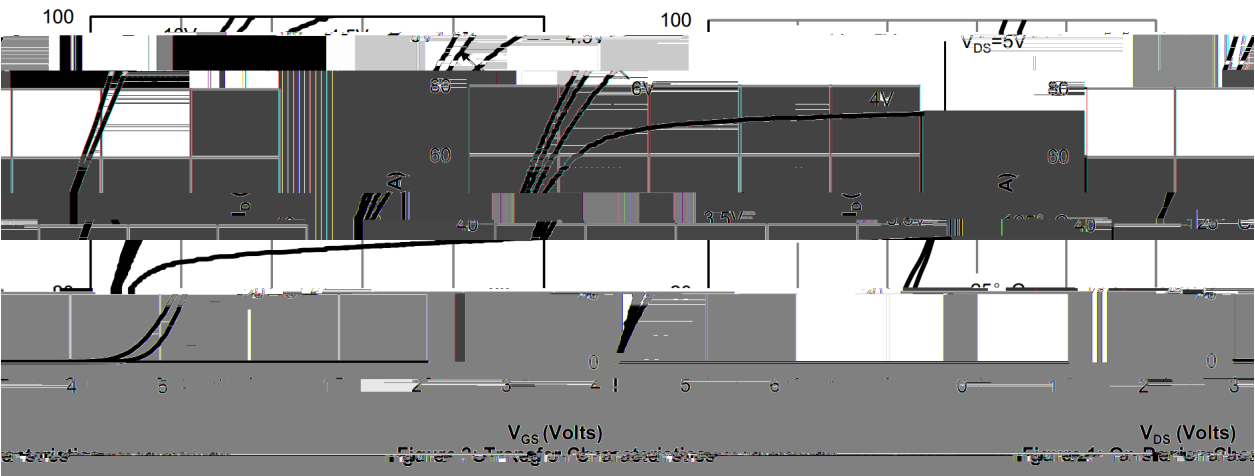
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\mu A$	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}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	1	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=20A$		9	10	m Ω
	$R_{DS(on)}$	$V_{GS}=4.5V$ $I_D=10A$		11	15	m Ω
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		Ω
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	$Q_{g(10V)}$	$V_{GS}=10V$, $V_{DS}=50V$, $I_D=20A$		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 =2.5Ω R _{GEN} =3Ω		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



/ Electrical Characteristic Curve

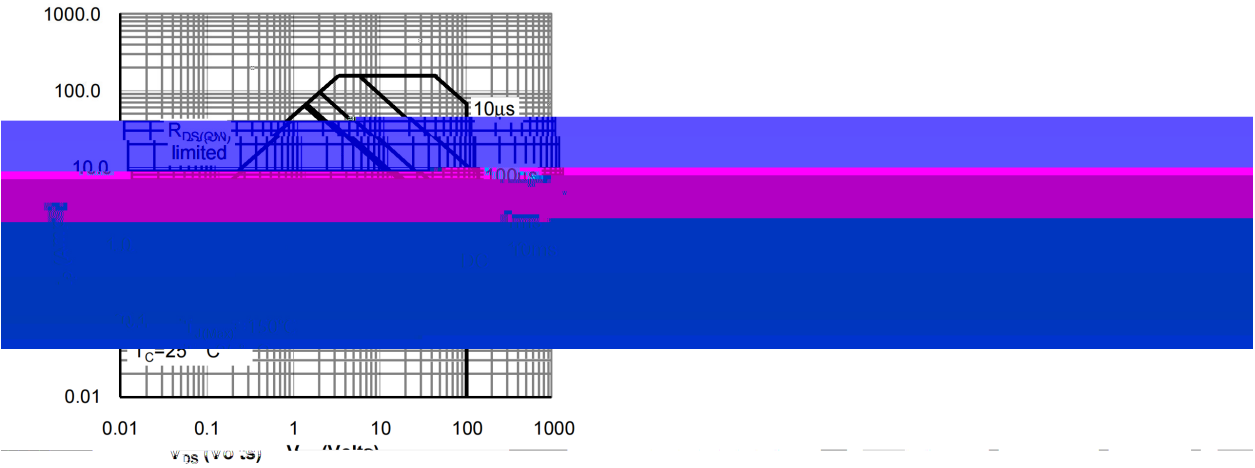
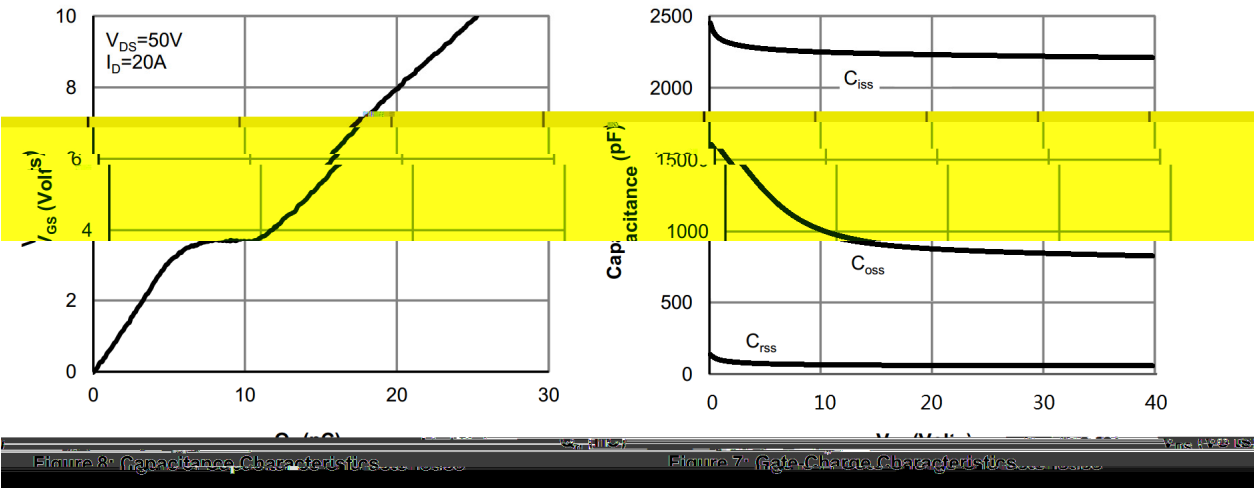


Figure 9: Maximum Forward Biased Safe Operating Area

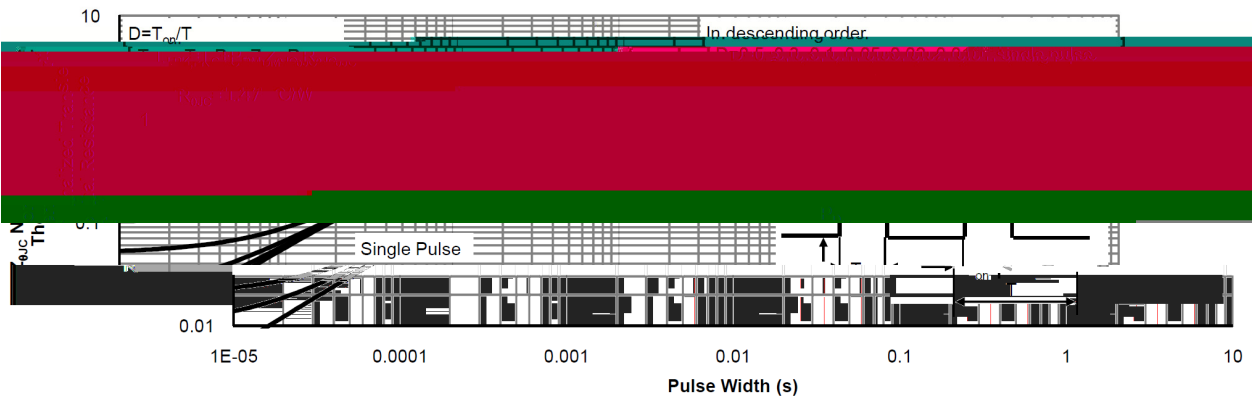
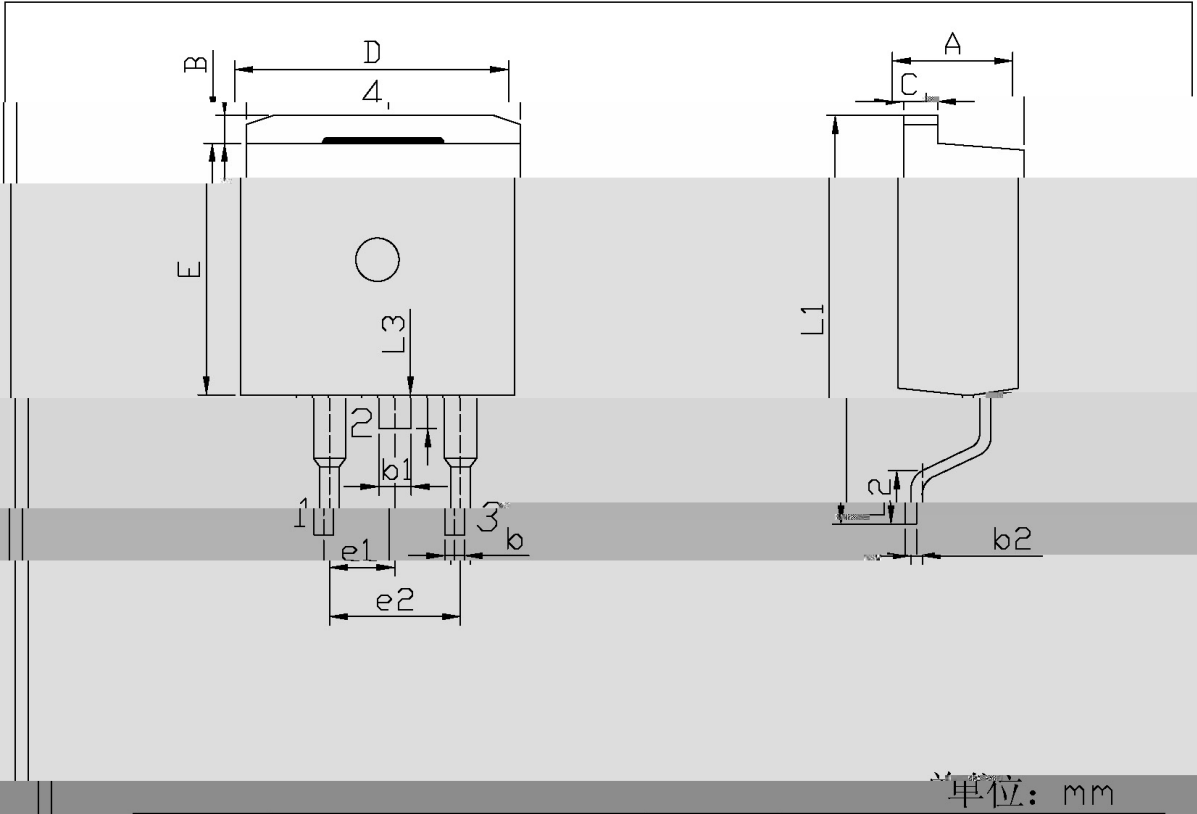


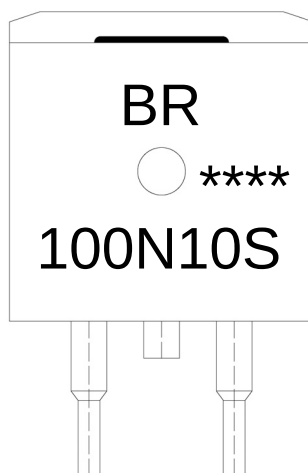
Figure 10: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions



Symbol		Dimensions In Millimeters		Symbol		Dimensions In Millimeter	
		Min	Max			Min	Max
A		4.30	4.70	E		9.00	9.40

/ Marking Instructions



BR

100N10S

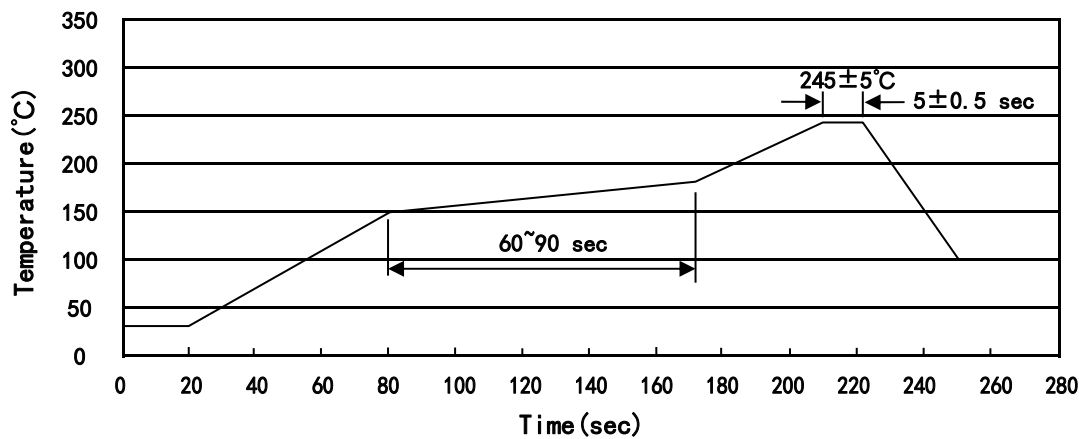
Note:

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 ×24	360×360×50	380×335×366

/ 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	532×33×7.0	555×164×50	575×290×180

/ Notices