

BRCS100N10SDP

Rev.A Jun.-2024

/ Descriptions

TO-252 N

N-CHANNEL MOSFET in a TO-252 Plastic Package.

/ Features

$V_{DS}=100V$ $I_D=60A$

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

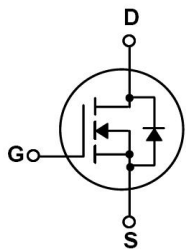
$R_{DS(ON)}@4.5V \leq 15m\Omega$ (Typ.11m Ω)

HF Product.

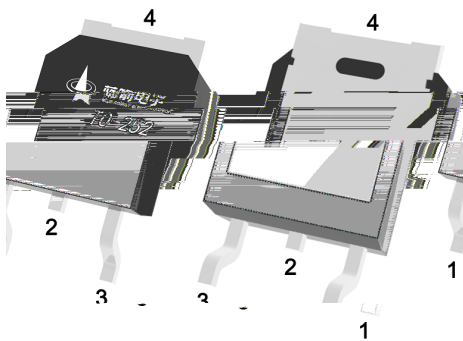
/ Applications

High Frequency Switching and Synchronous Rectification.

/ Equivalent Circuit



/ Pinning



PIN1 G

PIN 2 D

PIN 3 S

PIN 4 D

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Drain Current - Continuous		I_D	60	A
Drain Current – Pulsed		I_{DM}	139	A
Gate-Source Voltage		V_{GS}	± 20	V
Power Dissipation		$P_D(T_c=25)$	73	W
Single Pulse Avalanche Energy(L=0.5mH)		E_{AS}	1200	mJ
Avalanche Current(L=0.5mH)		I_{AS}	25	A
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 150	
Thermal resistance, junction - ambient	$t \leq 10s$	$R_{\theta JA}$	20	/ W
	Steady-State		50	
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	1.71	

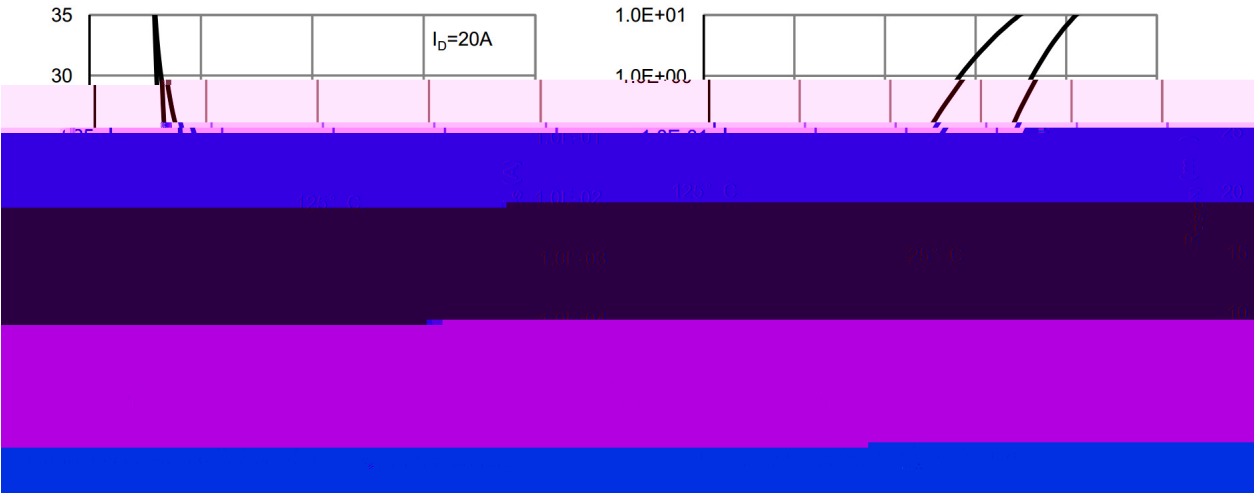
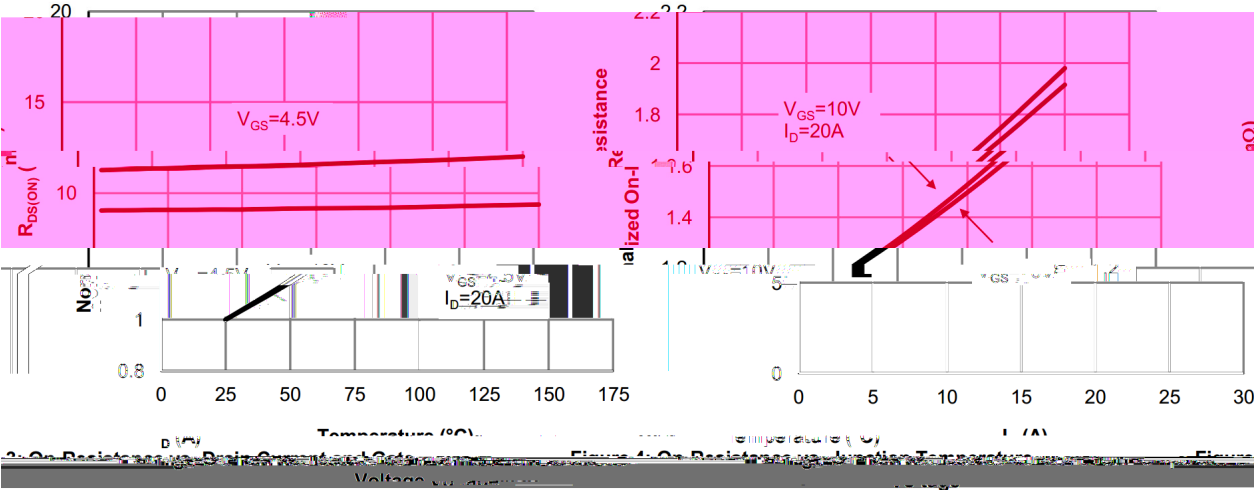
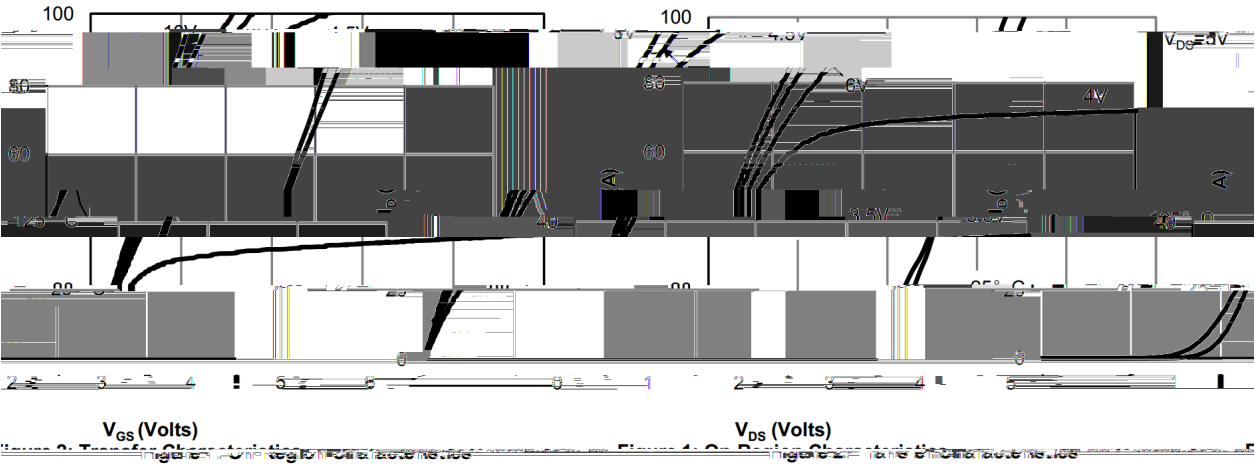
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	100	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

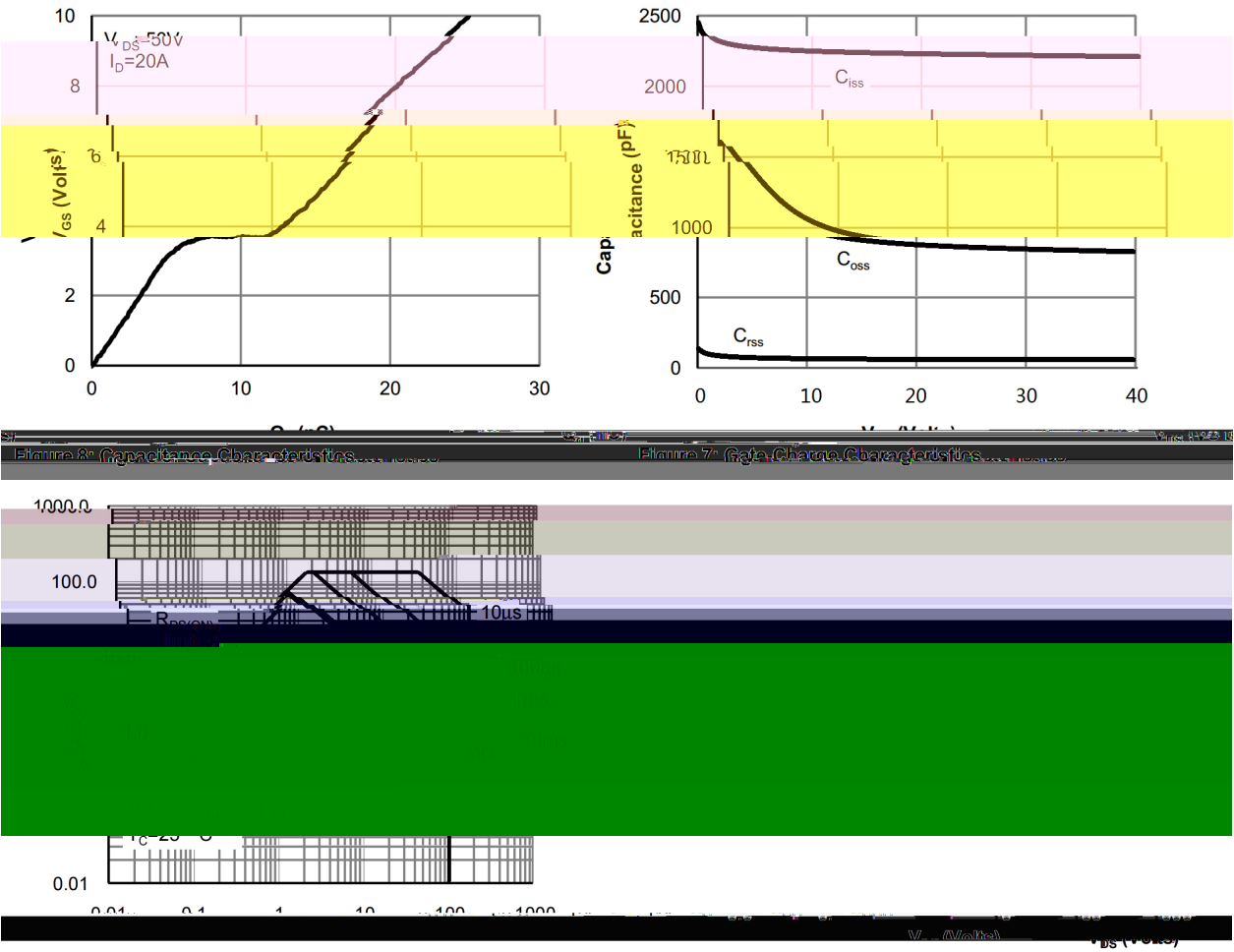


Figure 9: Maximum Forward Bias Operating Area

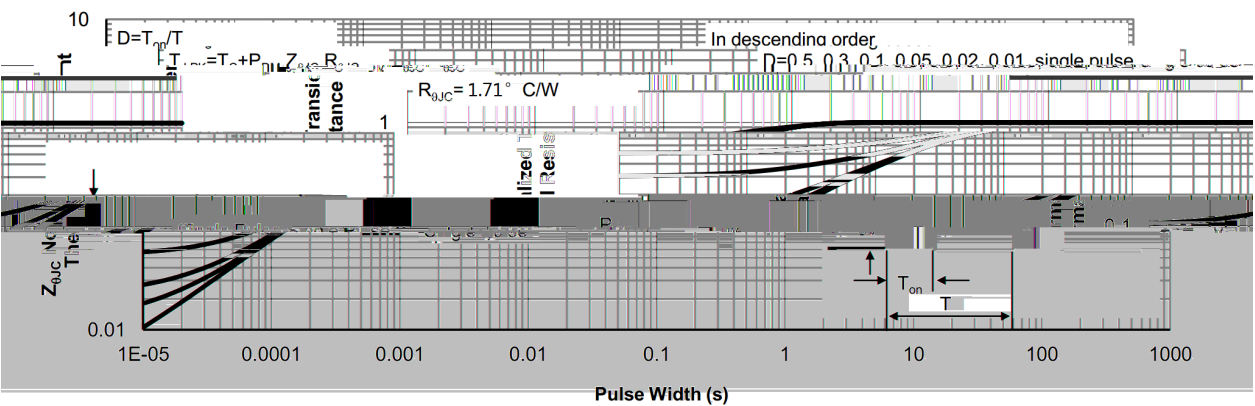
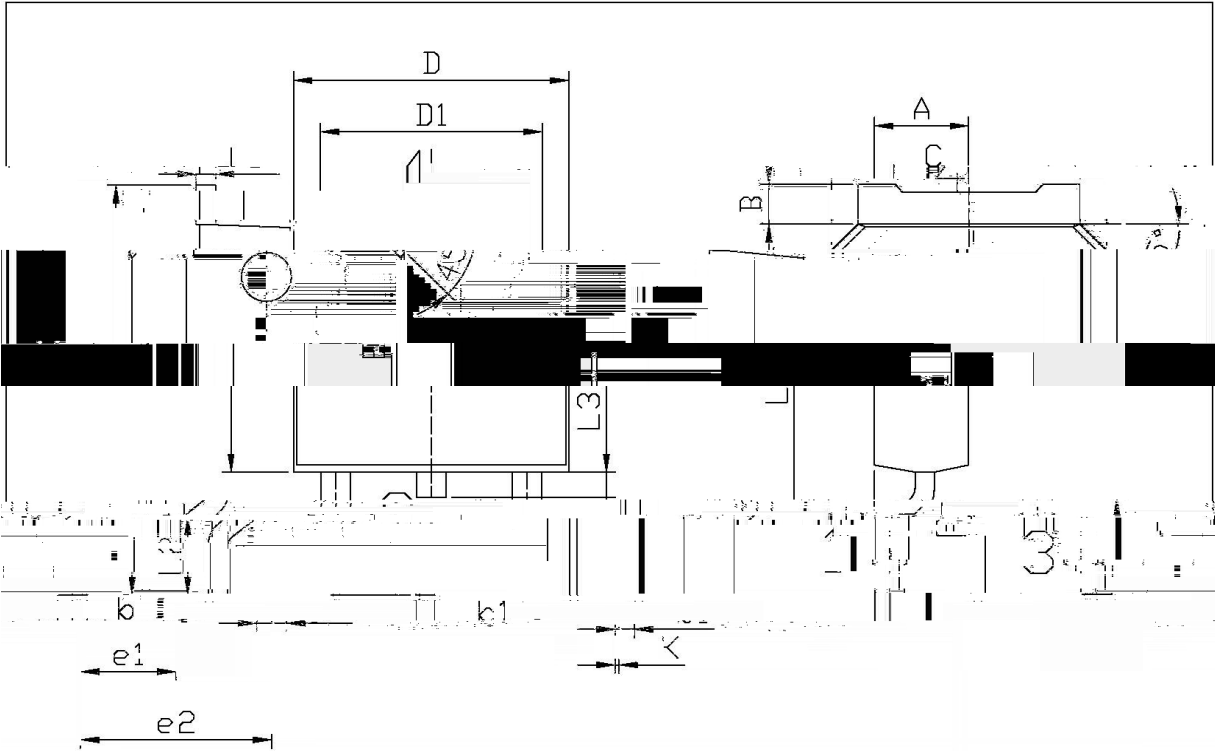


Figure10: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions



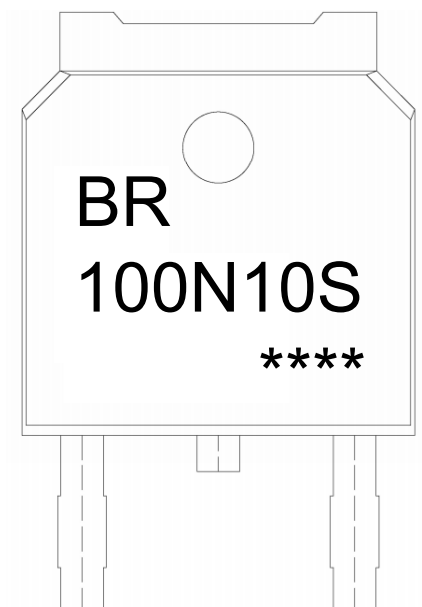
单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.25	2.75	A	2.20	2.40
B	2.24	2.34	B	0.95	1.25
C	4.42	4.73	C	0.43	0.90
D	9.85	10.35	D	0.45	0.55
D1	6.45	6.75	D1	6.45	6.75
e1	0.60	0.90	e1	0.60	0.90
e2	0.60	0.90	e2	0.60	0.90
L3	0.55	0.70	L3	0.55	0.70
b	0.60	0.90	b	0.60	0.90
b1	0.60	0.90	b1	0.60	0.90
K	0.60	0.90	K	0.60	0.90

T0-252



/ Marking Instructions



BR

100N10S

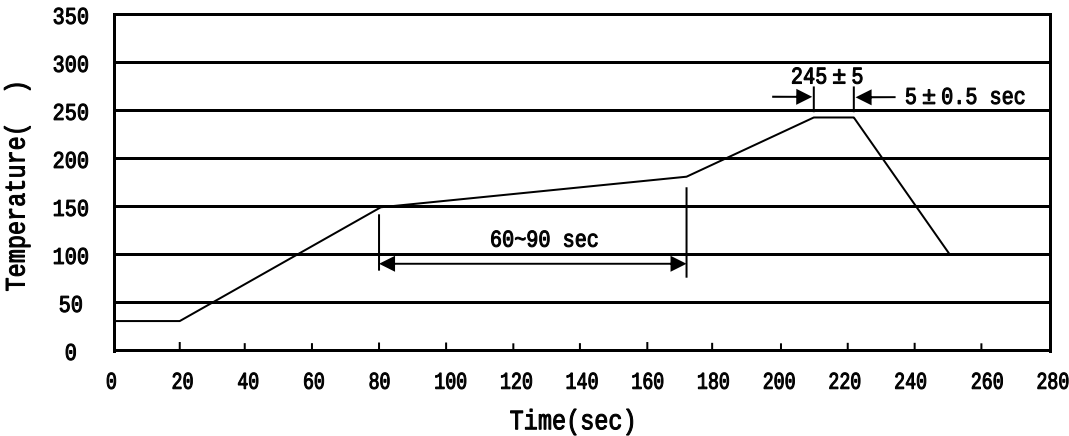
Note:

BR: Company Code

100N10S: Product Type Code

****: Lot No. Code, code change with Lot No

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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-252	2,500	2	5,000	6	30,000	13 ×16	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-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

/ Notices