/ Descriptions

TO-252 N

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

/ Features

V_{DS}=100V I_D=60A

$R_{DS(ON)}$@10V ≤ 10mΩ(Typ.9mΩ)

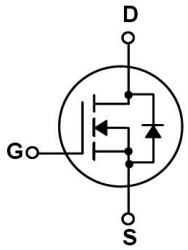
$R_{DS(ON)}$@4.5V ≤ 15mΩ(Typ.11mΩ)

HF Product.

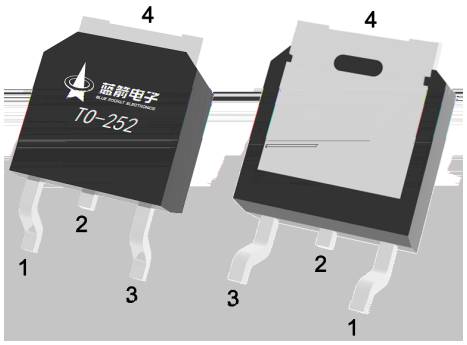
/ Applications

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 ≤ 10s	$R_{\theta JA}$	20	/ W
	Steady-State		50	
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	1.71	

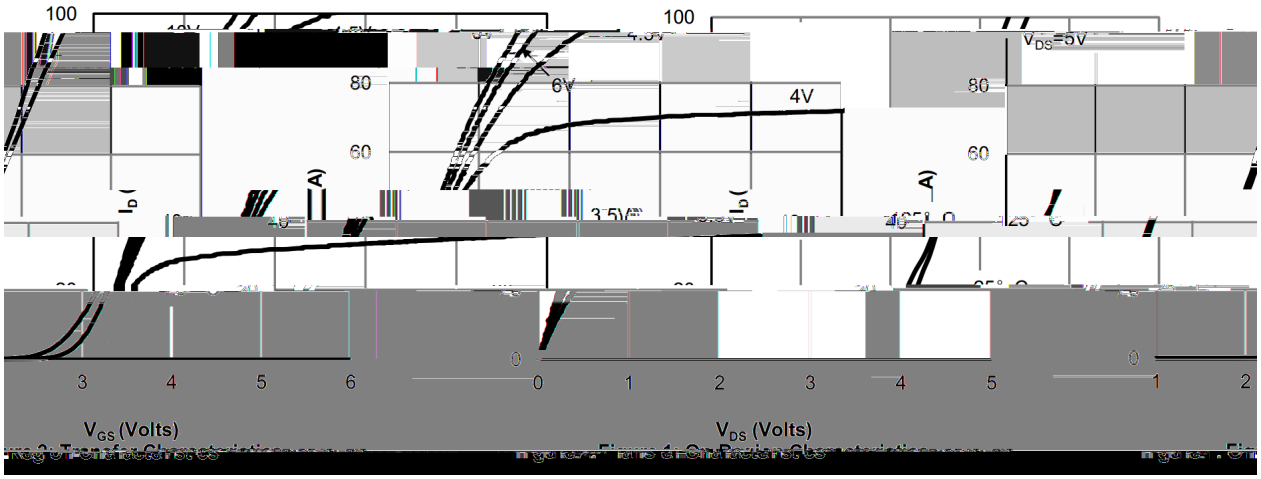
/ Electrical Characteristics(Ta=25)

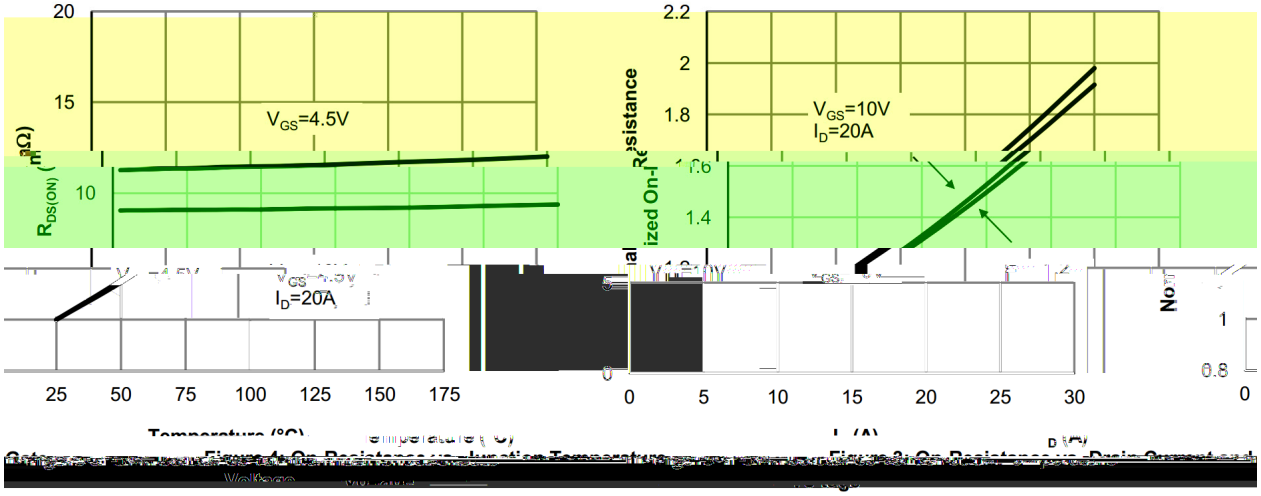
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	100	108		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V V_{GS}=0V			1.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	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	mΩ
	$R_{DS(on)}$	V_{GS}=4.5V I_D=10A		11	15	mΩ
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		

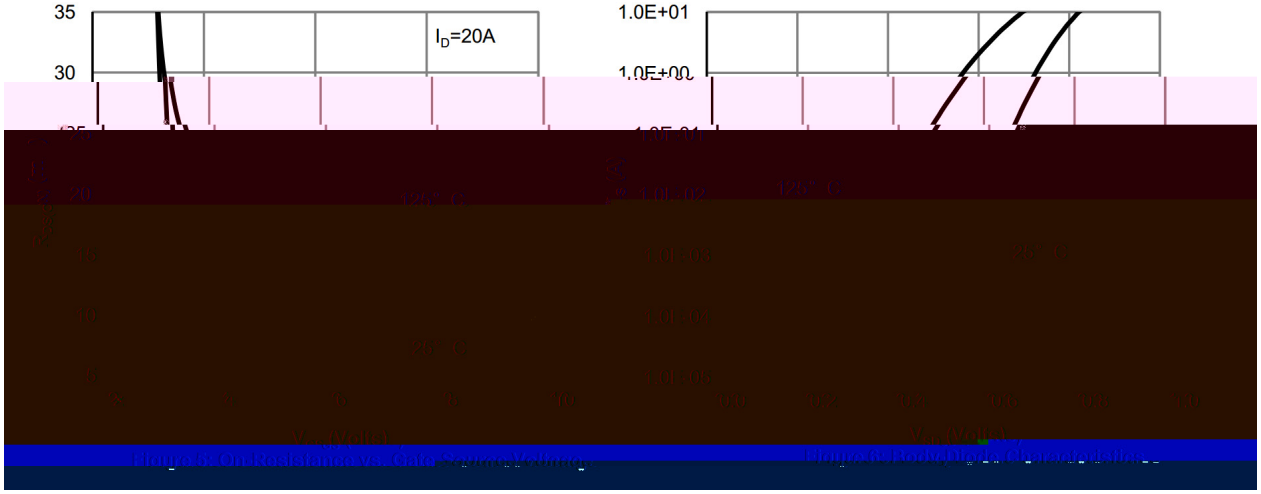
/ Electrical Characteristics(Ta=25)

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

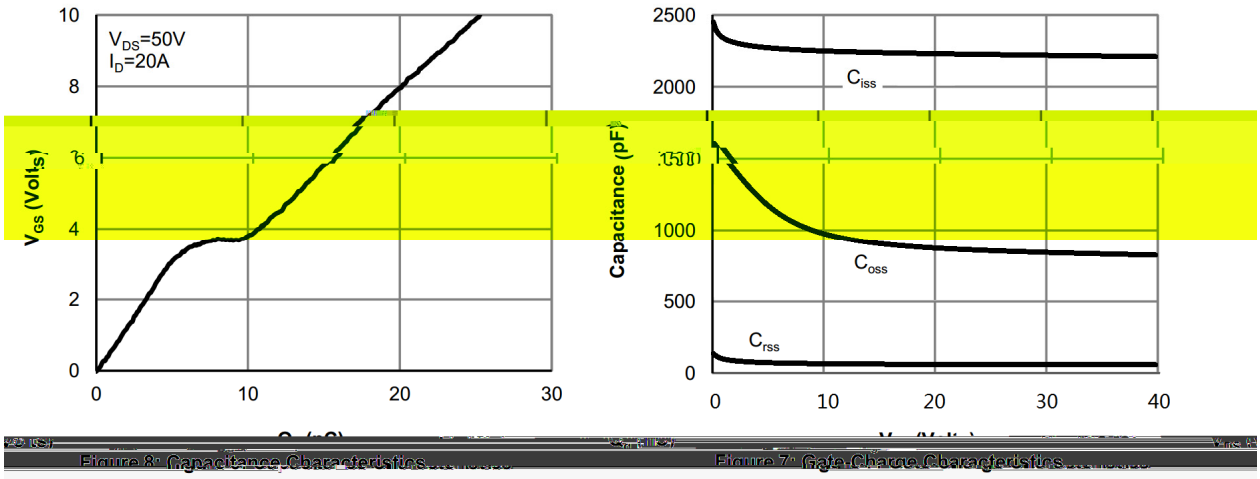


Figure 8: Capacitance Characteristics

Figure 7: Gate Charge Characteristics

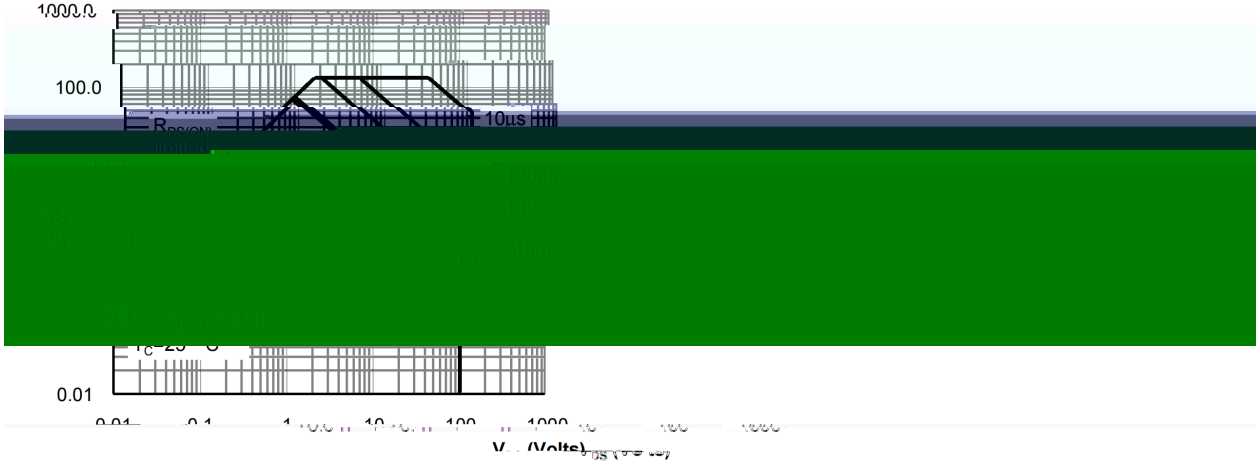
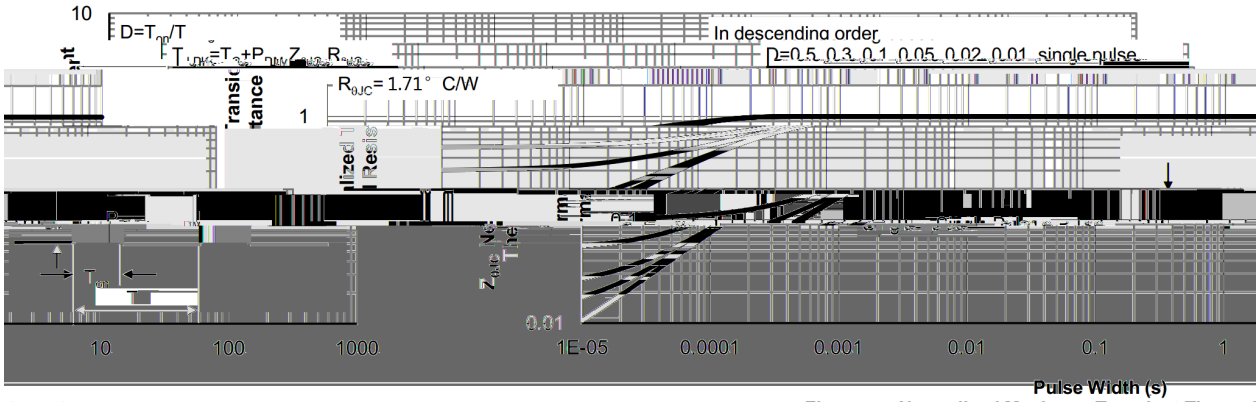


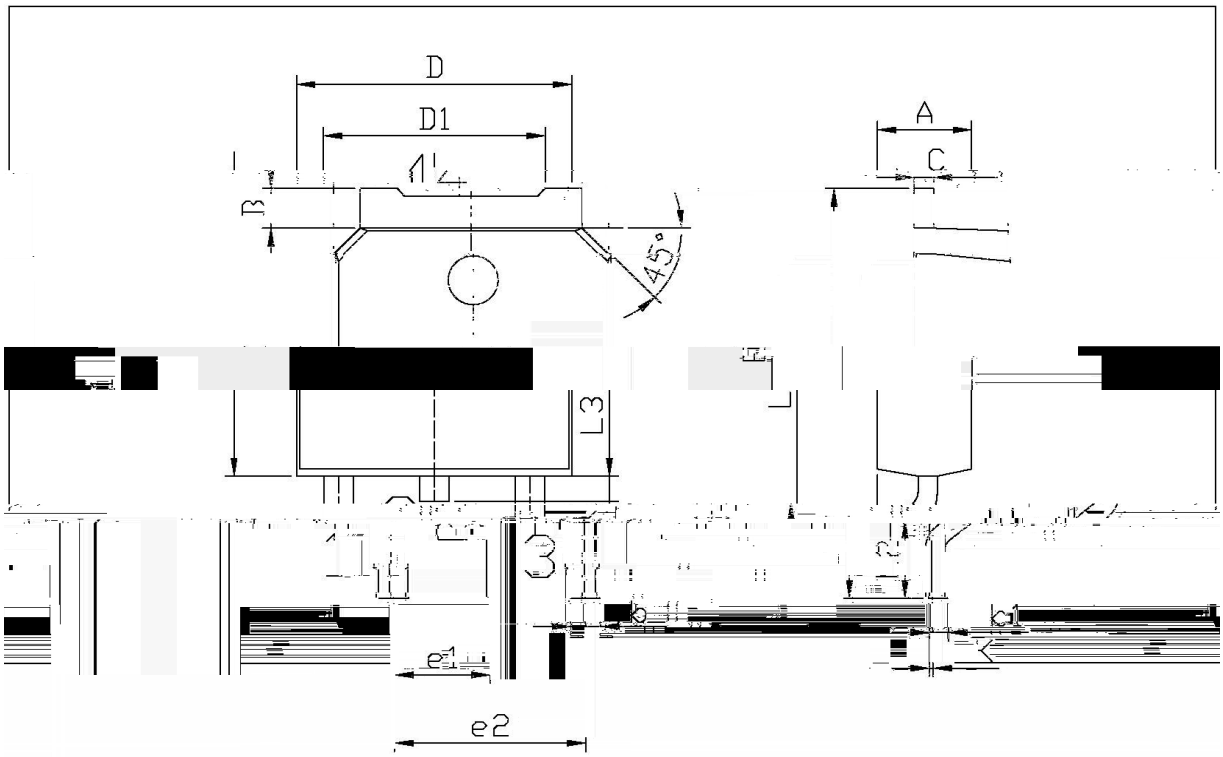
Figure 9: Maximum Forward Biased Safe Operating Area



Impedance

Figure 10: Normalized Maximum Transient Thermal

/ Package Dimensions

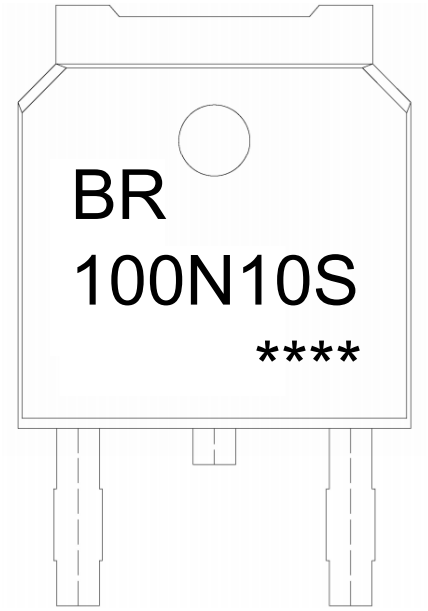


单位：mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
6.25	A	2.20	2.40	E	5.95
2.34	B	0.95	1.25	e1	2.24
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9.85	10.35	b1	0.45	0.55	L1
[illegible]	0.45	0.55	[illegible]	1.70	2.00
0.90	D1	6.45	6.75	L3	0.60
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TO-252

/ Marking Instructions



BR

100N10S

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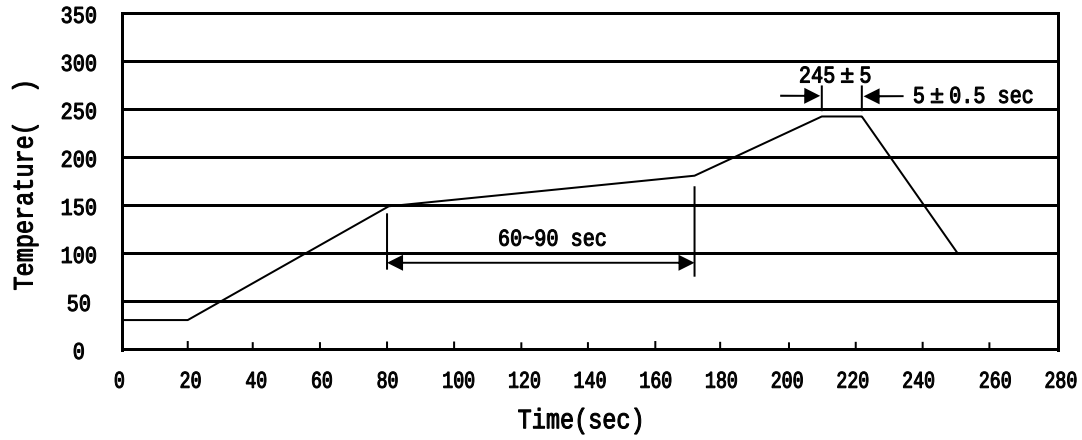
Note:

BR:	Company Code
100N10S:	Product Type Code
****:	Lot No. Code, code change with Lot No

( ) /



Note:

1 150 180 60 90sec;

2 245±5 5±0.5sec;

3 2 10 /sec.

1.Preheating:150~180 , Time:60~90sec.

2.Peak Temp.:245±5 , Duration:5±0.5sec.

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 mm³)
	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 mm³)
	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