

BRD100N03

Rev.A Dec.-2021



DATA SHEET

/ Revised record

A	2021-12-11	ALL	BRD100N03 Ver.D TO-252#		

/ Descriptions

TO-252 N MOS

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

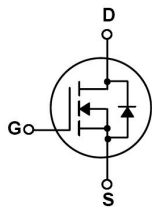
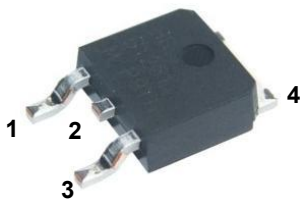
/ Features

Low gate charge, low crss, fast switching. Halogen-free Product.

/ Applications

DC/DC

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

/ Equivalent Circuit**/ Pinning**

PIN1 G

PIN 2 D

PIN 3 S

PIN 4 D

/ h_{FE} Classifications & Marking

See Marking Instructions.

/ Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	30	V
Drain Current		$I_D(T_c=25^\circ\text{C})$	100	A
Peak Drain Current		I_{DM}	350	A
Gate-Source Voltage		V_{GSS}	± 20	V
Avalanche Current		I_{AS}	30	A
Single Pulsed Avalanche Energy		E_{AS}	360	mJ
Total Power Dissipation		$P_D(T_c=25^\circ\text{C})$	100	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^\circ\text{C}$
Thermal resistance, junction - ambient	$t \leq 10\text{s}$	$R_{\theta JA}$	20	$^\circ\text{C/W}$
	Steady-State		50	
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	1.8	

/ Electrical Characteristics($T_a=25^\circ\text{C}$)

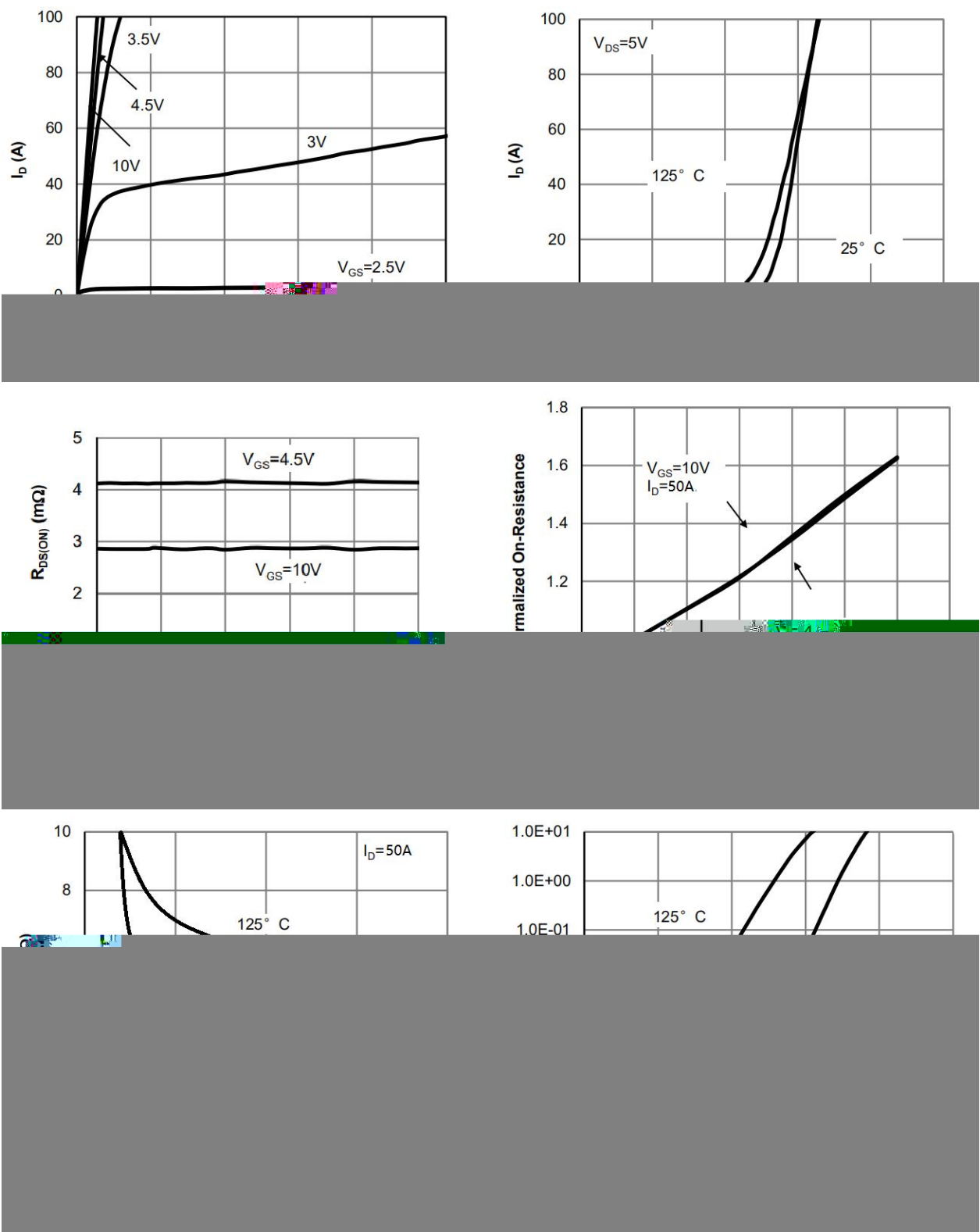
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Zero Gate Voltage Drain Current	BV_{DSS}	$V_{GS}=0\text{V}$ $I_D=250\mu\text{A}$	30	32		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30\text{V}$ $V_{GS}=0\text{V}$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20\text{V}$ $V_{DS}=0\text{V}$			± 0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu\text{A}$	1.0	1.7	3.0	V
Forward On Voltage	V_{SD}	$I_S=20\text{A}$ $V_{GS}=0\text{V}$			1.2	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}$ $I_D=50\text{A}$		2.8	3.8	$\text{m}\Omega$
		$V_{GS}=4.5\text{V}$ $I_D=40\text{A}$		4.0	7.0	$\text{m}\Omega$
Gate resistance	R_g	$V_{GS}=0\text{V}$ $V_{DS}=0\text{V}$ $f=1\text{MHz}$		1.8		Ω
Input Capacitance	C_{iss}	$V_{GS}=0\text{V}$ $V_{DS}=25\text{V}$ $f=1.0\text{MHz}$		2500		pF
Output Capacitance	C_{oss}			310		pF
Reverse Transfer Capacitance	C_{rss}			275		pF



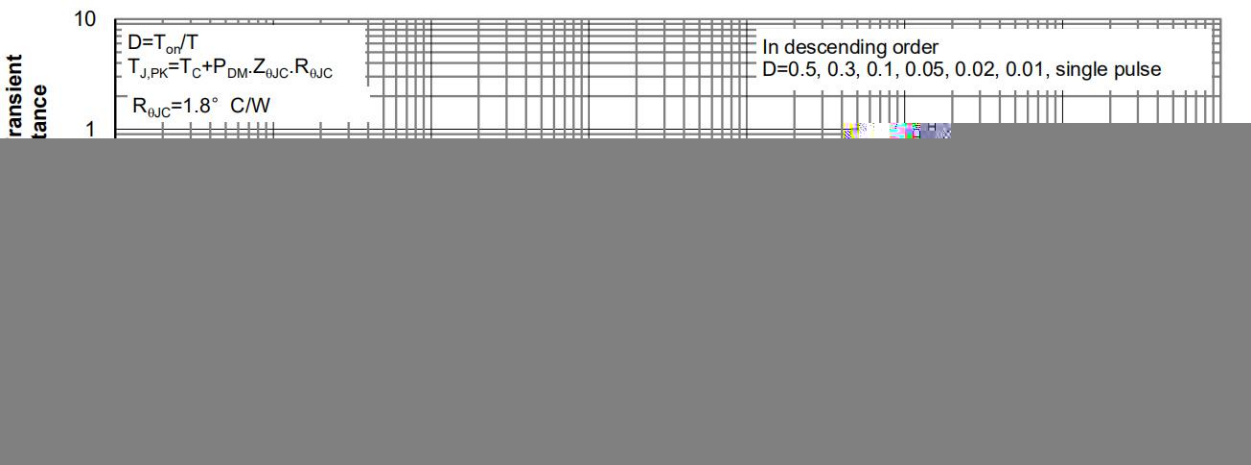
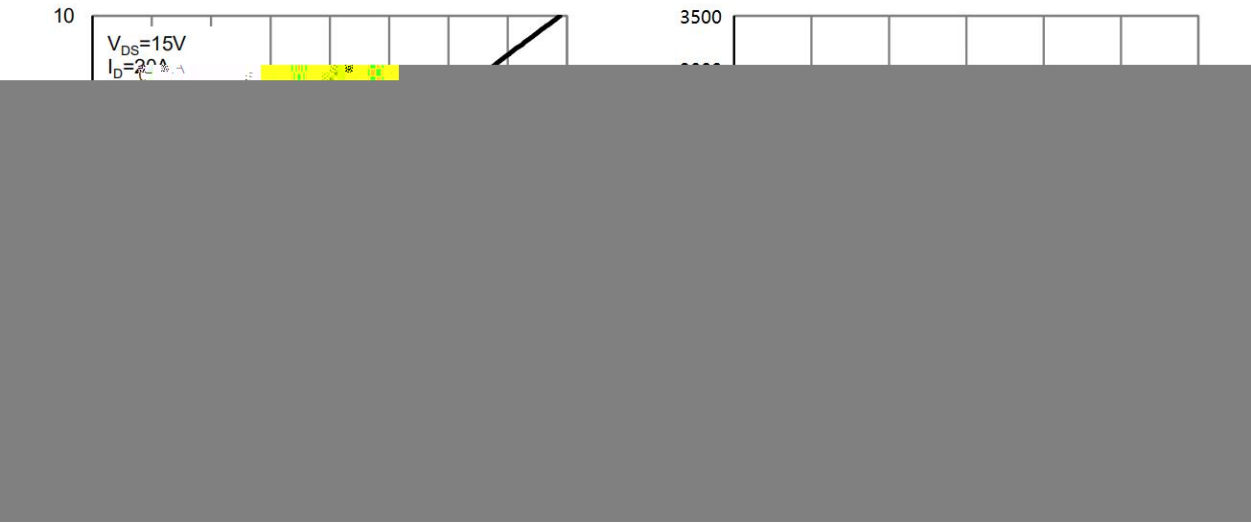
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V, \quad V_{DS}=15V, \quad I_D=20A$		80		nC
Total Gate Charge	$Q_{g(4.5V)}$			35		
Gate Source Charge	Q_{gs}			13		
Gate Drain Charge	Q_{gd}			13		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=15V \quad I_D=1A \quad R_{GEN}=6\Omega \quad V_{GS}=10V$		25.7	50	ns
Turn-On Rise Time	t_r			10	20	ns
Turn-Off Delay Time	$t_{d(off)}$			128	200	ns
Turn-Off Fall Time	t_f			34	70	ns

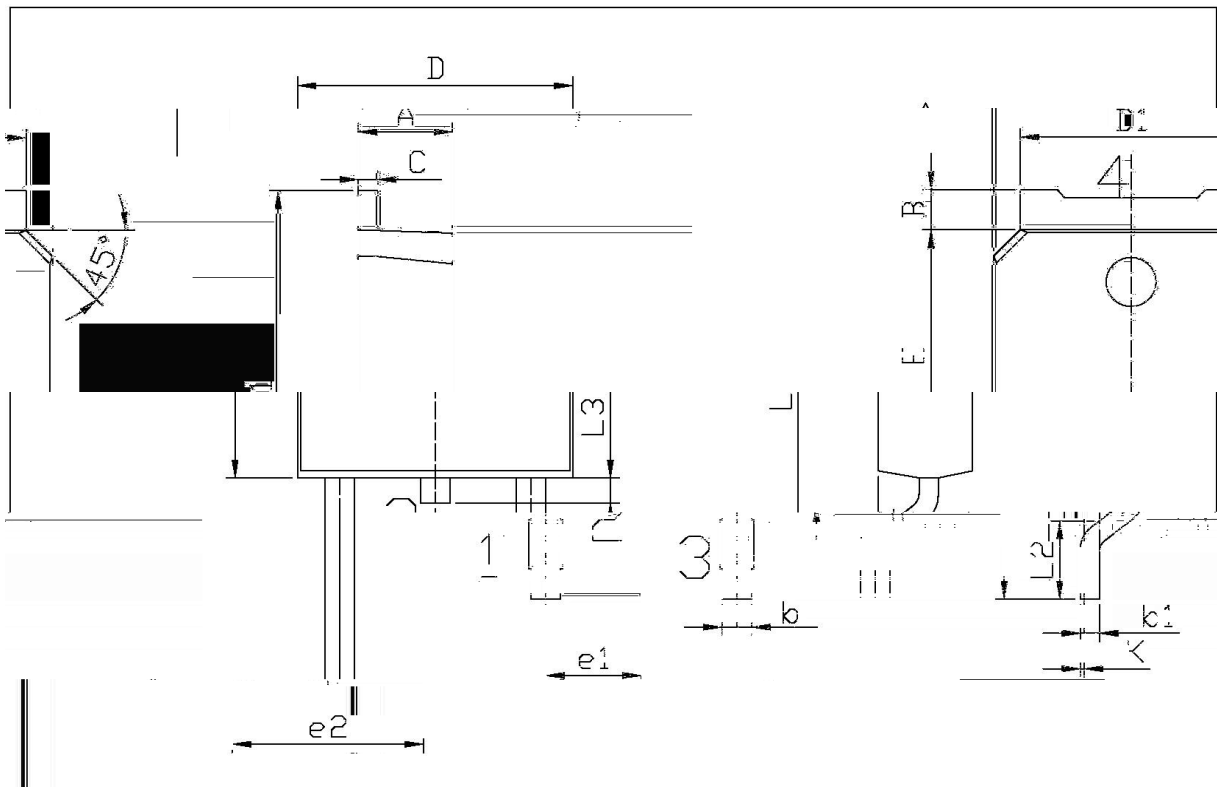
/ Electrical Characteristic Curve



/ Electrical Characteristic Curve



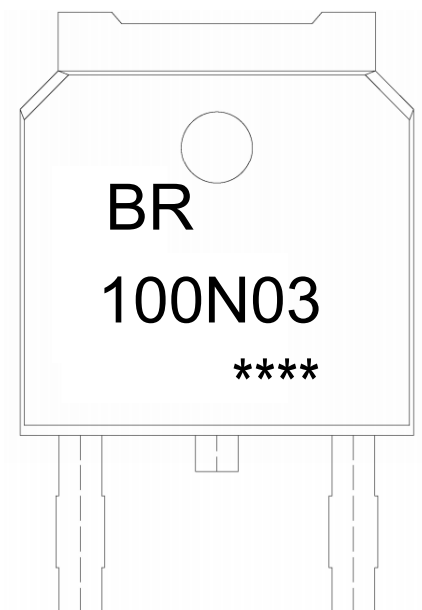
/ Package Dimensions



单位: mm

Dimensions	Min	Typ	Max	Dimensions	Min	Typ	Max
A	2.5	3.2	6.30	L2	1.70	2.00	2.50
B	0.95	1.25	1.50	D	6.45	6.75	7.00
C	0.43	0.50	0.55	E	0.60	0.90	1.00
D	4.43	4.75	5.00	L3	0.60	0.90	1.00
e1	2.24	2.50	2.75	k	0.45	0.55	0.60
e2	9.85	10.35	10.85	k1	0.45	0.55	0.60

T1-252

/ Marking Instructions

BR

100N03

Note:

BR: Company Code

100N03: 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°C, Time:60~90sec. |
| 2 | 245±5 | 5±0.5sec; | 2.Peak Temp.:245±5°C, Duration:5±0.5sec. |
| 3 | 2 10°C/sec. | | 3. Cooling Speed: 2~10°C/sec. |

/ Resistance to Soldering Heat Test Conditions

260±5°C 10±1 sec. Temp.:260±5°C Time:10±1 sec

/ Packaging SPEC.

/ BULK

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Bag 只/袋	Bags/Inner Box 袋/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Bag 袋	Inner Box 盒	Outer Box 箱
TO-252	2,500	2	5,000	6	30,000	13" × 16"	360×50	380×335×366

/ TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube 套管	Inner Box 盒	Outer Box 箱
TO-251/252	75	48	3,600	5	18,000	526×91	555×164×50	575×290×180